ירושלים, י״ג בתשרי, תשפ״ז
24 בספטמבר 2026
**חוזר מס׳ ח – 06 – XXXX**

לכבוד
**התאגידים הבנקאיים ונותני שירותי תשלום יציבותיים**

# טיוטה

**הערות לטיוטת ההוראה יש לשלוח לתיבת המייל:**
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## הנדון: בנקאות פתוחה בישראל

(ניהול בנקאי תקין, הוראה מס׳ 368)

### מבוא

בחודש בפברואר 2020, פורסמה לראשונה הוראת ניהול בנקאי תקין 368 בנושא יישום תקן של בנקאות פתוחה בישראל (להלן – ׳**ההוראה**׳ או ׳**הוראה 368**׳). ההוראה בנוסחה המקורי, הטילה על הבנקים ועל חברות כרטיסי האשראי חובת מתן גישה למידע פיננסי (עלה לאוויר בחודש אפריל 2021), וחובת מתן גישה לייזום תשלום בודד (עלה לאוויר בחודש מרץ 2022). חובות הגישה המתוארות אפשרו קבלת גישה לגוף פיננסי מפוקח, אשר קיבל את אישור המאסדר שלו לפעול בבנקאות פתוחה.

התיקון להוראה 368 נועד לקבוע את ההתאמות הנדרשות בהוראה עקב חקיקת חוק הסדרת העיסוק בשירותי תשלום וייזום תשלום התשפ״ג- 2023, (להלן – ׳**החוק**׳ או ׳**חוק הסדרת העיסוק בשירותי תשלום**), וכן לצורך יישום חוק שירות מידע פיננסי, התשפ״ב-2021 (להלן – ׳**חוק שירות מידע פיננסי**׳) בהיבטים הנוגעים לסל מידע אודות סליקה של עסקאות בכרטיס חיוב, כמפורט להלן בהמשך.

נזכיר כי סעיף 41(א) לחוק הסדרת העיסוק בשירותי תשלום, מסמיך את מאסדר מנהל חשבון תשלום למשלם לקבוע הוראות בנושאים שונים ובין היתר, הוראות בעניינים הנוגעים למאפייני מערכת הממשק ואופן מתן הגישה לחשבון תשלום של משלם. בהתאם למדיניות הפיקוח על הבנקים, הסטנדרט הטכנולוגי אותו נדרשת המערכת הבנקאית ליישם, לצורך עמידה בחובות מתן הגישה לחשבון תשלום, הינו סטנדרט בינלאומי בו נעשה שימוש גם במדינות נוספות. זאת על מנת להימנע מחסמים הנובעים מחוסר אחידות בסטנדרטים וכן כדי למשוך נותני שירות הפועלים מחוץ לישראל להציע את שירותיהם ללקוחות הישראלים. בהתאם נבחר ליישם במערכת הבנקאית בישראל סטנדרט שפותח על ידי קבוצת ברלין.

מאחר ששירות של ייזום מתקדם ושירות של מתן מידע אודות סליקת עסקאות בכרטיסי חיוב, הנם שירותים חדשים, קבוצת ברלין נדרשה לכתוב לראשונה, יחד עם הפיקוח על הבנקים, סטנדרט המתאים לשירותים אלו. בשל המורכבות בהגדרת השירותים, בפרט באשר לאיסור האירופאי לשירותים הדומים לייזום מתקדם (מתן הרשאה פתוחה ליוזם ללא הגדרה מראש של המוטב), פיתוח הסטנדרטים הנדרשים ארך זמן רב יותר. עם קבלת הטיוטות הרלוונטיות, הפיקוח על הבנקים פעל כדי להתאימם לשוק הישראלי, לפרסם להערות הציבור

והחל בהתייעצות עם המאסדרים האחרים ליוזמי תשלום לנותני שירות מידע פיננסי, כנדרש על פי חוק. התייעצויות אלו הושלמו ב.....

נציין כי הפיקוח על הבנקים פעל מול קבוצת ברלין וליווה את פיתוח הסטנדרטים ואישורם על ידי האורגנים של הקבוצה. למעשה מדינת ישראל היא המדינה הראשונה ליישם את הסטנדרטים האלו. עם זאת נציין כי כבר כשהתברר לפיקוח על הבנקים שיחול עיכוב כאמור, פנה נגיד בנק ישראל לשר האוצר בבקשה להפעיל את סמכותו לפי סעיף 79(ג) לחוק שירות מידע פיננסי וסעיף 80(ג) לחוק הסדרת העיסוק בשירותי תשלום, לעניין דחיית מועדי התחילה, כך שמועד התחילה של חובות מתן גישה לחשבון סליקה ולחשבון תשלום, החלות על מקורות מידע ומנהלי חשבון תשלום למשלם המפוקחים על ידי הפיקוח על הבנקים, ידחה[1].

יובהר כי חוק הסדרת העיסוק בשירותי תשלום מסדיר כל שירות ייזום מתקדם העומד בהגדרת השירות, ללא תלות בסוג התשתית הטכנולוגית באמצעותה מנהל חשבון התשלום למשלם נותן גישה ליוזם המתקדם. כך לדוגמא כל יוזם מתקדם נדרש להחזיק ברישיון או באישור מתאים כאמור בפרק ב׳ לחוק. בהתאם לאמור לעיל, יודגש כי מכלול ההוראות הקבועות בהוראה 368 לעניין שירות יזום מתקדם (למעט הוראות הנוגעות למערכת הממשק למתן הוראות תשלום), חלות על יוזם מתקדם ומנהל חשבון תשלום למשלם, ללא תלות בתשתית הטכנולוגית באמצעותה השירות ניתן – בין אם במסגרת חובת הגישה שנקבע בחוק הסדרת העיסוק בשירותי תשלום ובין אם במסגרת החוק.

1. <u>חוק הסדרת העיסוק בשירותי תשלום וייזום תשלום</u>

בחודש יוני 2023 פורסם החוק, אשר קובע, בין היתר, חובת מתן גישה לחשבון תשלום לשם מתן שירות ייזום תשלום, וכן הוראות החלות על יוזמי תשלום ומנהלי חשבון תשלום למשלם, הפועלים מכוח חובת גישה זו. בנוסף, החוק מסדיר היבטים שונים של פעילות ייזום התשלום באופן רוחבי, גם עבור יוזמי תשלום ומנהלי חשבון תשלום למשלם שאינם פועלים מכוח חובת הגישה. התיקון המוצע נועד להתאים את הוראה 368 להסדר כאמור הנקבע בחוק, ביחס לשירות ייזום מתקדם. בהתאם לכך, ההוראות המוצעות לעניין שירות ייזום מתקדם, יחולו על מנהלי חשבון תשלום למשלם ויוזמי תשלום, גם כאשר השירות אינו ניתן מכוח חובת הגישה לחשבון. לצד זה, הוראות מסוימות בהוראה המסדירות היבטים שונים של מערכת ממשק למתן הוראות תשלום, יחולו רק במקרים שבהם השירות ניתן מכוח חובת הגישה לחשבון. לשם כך נוסף פרק ג׳2 לעניין ׳הרשאה של משלם לגישה של יוזם מתקדם׳, והורחב פרק ו׳ כך שיחול גם על יוזם מתקדם. כמו כן, נוספו נספחים א8-א9 ו-א13 לסטנדרט לעניין שירות ייזום מתקדם.

2. <u>חוק שירות מידע פיננסי</u>

ביום 14 ביוני 2022 נכנס לתוקף חוק שירות מידע פיננסי, כאשר במועד האמור, חלה חובת מתן הגישה למידע פיננסי הקבועה בסעיף 39 בחוק שירות מידע פיננסי. סעיף 79(ב) בחוק שירות מידע פיננסי, קובע מועדי תחילה שונים עבור סלי המידע וסוגי החשבונות, לגבי כל סוג של מקור מידע. ביום 6 ביוני 2023, אושר תיקון לחוק שירות מידע פיננסי ונוספה החובה למתן גישה לסל מידע אודות סליקת עסקאות

[1] ביום 13 באוגוסט 2025 פנה הנגיד לשר האוצר בבקשה לדחיית מועד התחילה ליישום חובת מתן הגישה למידע אודות סליקה של עסקאות בכרטיס חיוב, לפי חוק שירות מידע פיננסי, וביום 25 במרץ 2026 פנה הנגיד לשר האוצר בבקשה לדחיית מועד התחילה ליישום חובת מתן הגישה לחשבון תשלום, לפי חוק הסדרת העיסוק בשירותי תשלום.

בכרטיסי חיוב, החל מדצמבר 2025. בהתאם לכך, נדרש לתקן את הוראה 368, ולהתאימה להסדרים שנקבעו בחוק באשר לסל מידע זה. כמו כן, נוספו נספחים א8-א12 לסטנדרט לעניין מידע על אודות סליקה של עסקאות בכרטיס חיוב. כמו כן, בוצעו תיקונים נוספים בהוראה, בכלל זה הוצאת גוף פיננסי נותן אשראי מתחולת ההוראה, על רקע מחיקת סעיף 7ה בחוק הבנקאות (שירות ללקוח), תשמ"א-1981, במסגרת חקיקת חוק לקידום התחרות בשוק הבנקאות (תיקוני חקיקה), תשפ"ו-2026.

לאחר התייעצות עם הוועדה המייעצת בעניינים הנוגעים לעסקי בנקאות, בהתייעצות עם מאסדרי יוזמי תשלומים לפי סעיפים 41(א)(1), 41א(3) ו-41א(4) לחוק הסדרת העיסוק בשירותי תשלום, בהתייעצות עם מאסדרי נותני שירות מידע פיננסי לפי סעיפים 48(א)(1), 48(א)(2), 48(א)(4) ו-48(א)(5) לחוק שירות מידע פיננסי, ובאישור הנגיד, קבעתי הוראה זו.

בהתאם להוראות סעיף 34(ג)(4) לחוק עקרונות האסדרה, התשפ"ב–2021, האסדרה לא לוותה בפרסום דוח אסדרה לפי החוק. זאת, מאחר שהאסדרה מבוססת על הסטנדרט של קבוצת ברלין אשר מהווה סטנדרט אירופאי. היינו, מדובר באסדרה המבוססת, בהתאמות הנדרשות, על כללים מקובלים במדינות עם שווקים משמעותיים המנחים את הפיקוח על הבנקים בתחום "הבנקאות הפתוחה". כמו כן, חלק מהתיקונים המוצעים נובעים מפרסום חוק הסדרת העיסוק בשירותי תשלום ותיקונים לחוק שירות מידע פיננסי.

1. **סעיף 1** – "מבוא" –
   א. הוסרה ההפניה בראשית הפרק ל-'בנקאות פתוחה', לאור קיומה של הגדרה בסעיף ההגדרות.
   ב. תוקן המונח חוק הייזום למונח חוק הסדרת העיסוק בשירותי תשלום, בשל טעות סופר. התיקון נעשה לאורך כל ההוראה.
   ג. נוסף חוק שירותי תשלום, לאור התיקונים שנעשו בו לעניין ייזום מתקדם.
   ד. בוטל סעיף 1.8, המדבר על יזום תשלום בסיסי בלבד. ותוכנו שולב בסעיף 1.9 שמעתה מתייחס לייזום תשלום הכולל גם ייזום בסיסי וגם ייזום מתקדם.

2. **סעיף 2** "הגדרות" –
   א. התווספו ההגדרות כלהלן: "הרשאת גישה לחשבון"; "שירות ייזום מתקדם"; "יוזם מתקדם"; "יוזם תשלום".
   ב. עודכנו ההגדרות הבאות: "בנקאות פתוחה"; "סטנדרט"; "ספק צד ג'".
   ג. נמחקו ההגדרות הבאות: "גוף נותן אשראי"; "חוק שירותי תשלום".

**דברי הסבר**

- המונחים "יוזם מתקדם" ו"יוזם תשלום" מוגדרים בחוק הסדרת העיסוק בשירותי תשלום וייזום תשלום. המונחים "הרשאת גישה לחשבון" ו"שירות ייזום מתקדם" מוגדרים בחוק שירותי תשלום. כחלק מהתאמות ההוראה לחוקים אלו, נעשה שימוש במונחים זהים. בהתאם, ההוראה מפנה להגדרות הקבועות בחוק.
- המונחים "בנקאות פתוחה" ו"ספק צד ג'" תוקנו, כחלק מהסדרת שירות ייזום מתקדם.

- המונח "סטנדרט" תוקן בשל טעות סופר והמונח "חוק שירותי תשלום" נמחק לאור הגדרתי בס' 1 'מבוא'.
- "גוף נותן אשראי" נמחק לאור מחיקת סעיף 7ה מחוק הבנקאות שירות ללקוח, ובהתאם ההסדר לא חל. בהתאם, לאורך כל ההוראה נמחקו הסעיפים והחלקים שהתייחסו לגוף נותן אשראי (סעיפים: 3.2, 3.3.3, 5.3 ו-37).

3. **סעיף 3** "תחולה" –

א. סעיף **3.1.3** התחולה ביחס למנהל חשבון תשלום למשלם עודכנה והורחבה כך שכוללת גם מנהל חשבון תשלום למשלם הנותן גישה ליוזם מתקדם, בהתאם לתחולה הקבועה בחוק הסדרת העיסוק בשירותי תשלום וייזום תשלום. כמו כן, נוספה ההפניה לסעיף הרלוונטי בחוק. התחולה ביחס לחשבונות לעניין מתן גישה לשירות ייזום, בסעיף **3.3.2**, הורחבה בהתאם.

ב. נוסף סעיף **3.1.5** אשר מוסיף לתחולה תאגיד בנקאי העוסק כיוזם מתקדם.

ג. סעיפים **3.2** ו- **3.3.3** נמחקו, בהתאם למחיקת סעיף 7ה בחוק הבנקאות שירות ללקוח.

**<u>פרק א' – יישום תקן של בנקאות פתוחה בישראל</u>**

(סעיפים 5-12 להוראה)

4. **סעיף 5** "חובת מתן גישה" –

א. סעיף **5.2** תוקן כחלק מהוספת שירות ייזום מתקדם.

ב. סעיף **5.3** נמחק.

5. **סעיף 6** תוקן כך שהובהר כי הגדרת רכיבים כמנדטוריים או מותנים, מוגדרים כך ביחס למקור מידע או מנהל חשבון תשלום למשלם.

6. **סעיפים 8, 8א ו-10** תוקנו באופן שמבהיר שהם חלים רק לעניין פעילות בסטנדרט.

**<u>פרק ב' – ממשל תאגידי</u>**

(סעיפים 13-14 להוראה)

7. **סעיף 13.1** תוקן. לאור כניסת הוראה 364 לתוקף, במאי 2026, בוטלו הוראות 357 והוראה 361. במקומן נקבעה ההפניה להוראה 364.

**<u>פרק ג' – הרשאה של לקוח לגישה של נותן שירות מידע פיננסי</u>**

(סעיפים 15- 30א להוראה)

8. **סעיפים 24.2.19-24.2.21** נוספו, לעניין סל מידע אודות סליקת עסקאות בכרטיס חיוב (להלן – חשבון סליקה). כך, מקור מידע נדרש להציג ללקוח, גם את סלי המידע המפורטים בסעיפים אלו, ככל שרלוונטי.

**<u>פרק ג'1 – גישה לחשבון תשלום של משלם עבור שירות ייזום בסיסי</u>**

(סעיפים 30ב – 30יב להוראה)

בהמשך לשינוי המבני המפורט לעיל, כותרת הפרק תוקנה כדי להבהיר שהפרק מתייחס לשירות ייזום בסיסי, במובחן מפרק ג'2 אשר מסדיר מתן הרשאת גישה לשירות ייזום מתקדם.

9. **בסעיף 30ח(9)** תוקנה טעות סופר.

10. **סעיף 30ח(9א)** נוסף כך שכחלק מהמידע המוצג למשלם, בטרם אישור או דחייה, מנהל חשבון התשלום למשלם יציג גם מידע נוסף אודות התשלום, ככל שהתקבל מהיוזם הבסיסי (לדוגמא, מטרת התשלום, מספר חשבונית וכו'). הוראה זו משלימה את החובה הקיימת בסטנדרט, אשר מחייב את היוזם הבסיסי להעביר מידע נוסף כאמור למנהל חשבון התשלום למשלם. הוראה זו מבהירה שמנהל חשבון התשלום למשלם נדרש להציג למשלם מידע זה, כפי שהתקבל מיוזם התשלום. נוסף לכך, החובה חלה גם כאשר השירות ניתן בממשקים שונים מהסטנדרט.

**<u>פרק ג2' – הרשאה של משלם לגישה של יוזם מתקדם</u>**

(סעיפים 30יג – 30כ להוראה)

11. הפרק מרכז בעיקרו הוראות לעניין מערכת היחסים שבין מנהל חשבון התשלום למשלם ובין המשלם, שמטרתן שמירת עניינו של המשלם בקבלת שירות ייזום מתקדם (הוראות צרכניות). הסדרת ההיבט הצרכני כאמור, נדרשת ללא הבחנה באם השירות שניתן למשלם נעשה מכוח חובת הגישה הקבועה בחוק או לא. לפיכך, ההוראות הצרכניות הקבועות בפרק זה, יחולו על כל מנהל חשבון תשלום למשלם המאפשר גישה לשם שירות ייזום מתקדם, בין במסגרת חובת הגישה ובין במסגרת אחרת. כמו כן, ובהתאם למוסבר במבוא לעיל, ההוראות הקבועות בפרק זה (ובהוראה זו ככלל) ומתייחסות באופן מפורש לחובת מתן הגישה הקבועה בחוק, לא יחולו על מנהל חשבון תשלום למשלם שנותן גישה שלא מכוח חובת גישה זו. בהתאם, סעיף 30כ(1) לעניין מסירת הודעה ליוזם מתקדם בדבר ביטול הרשאת גישה, לא תחול על מנהל חשבון תשלום המאפשר ליוזם מתקדם גישה, שאינה במסגרת חובת הגישה הקבועה בחוק.

12. ככלל נציין כי הפרק קובע הוראות לעניין: אופן ביצוע אימות זהות המשלם בטרם קבלת אישורו לבקשה למתן הרשאת גישה לחשבון המשלם; המידע שמנהל חשבון התשלום למשלם נדרש להציג למשלם בעת קבלת בקשה למתן הרשאת גישה לחשבון מיוזם מתקדם; ניהול הרשאות גישה לחשבון המשלם; המידע שנדרש מנהל חשבון התשלום למשלם להציג באופן שוטף בחשבונו של המשלם לעניין הרשאות תקפות והרשאות הממתינות לאישור; חשבון תשלום משותף; ואופן מסירת הודעות ליוזם מתקדם.

13. **סעיף 30טז** קובע שמנהל חשבון תשלום למשלם ינהל לכל משלם הרשאת גישה לחשבון, אחת בלבד, ביחס לכל חשבון תשלום המנוהל אצלו, עבור יוזם מסוים ובאותה תשתית טכנולוגית. כך לדוגמא, אם התקשר מנהל חשבון התשלום למשלם עם יוזם מתקדם למתן גישה בתשתית אחרת, בנוסף על מתן הגישה בתשתית ממשק הגישה לחשבונות, הקבועה בחוק– אזי, ככל שפנה המשלם והיוזם המתקדם בבקשה להקים הרשאת גישה לחשבון מסוים בכל אחת מהתשתיות, נדרש מנהל חשבון התשלום למשלם, להקים הרשאת גישה ליוזם המסוים בחשבון עבור המשלם, בכל אחת מהתשתיות. יובהר כי, בשלב זה ההוראה לא מתייחסת לאפשרות של הקמת הרשאת גישה לחשבון, עבור מוטב מסוים. ככל שיעלה לכך צורך בהמשך, תעודכן האסדרה בהתאם .

עוד קובע הסעיף, כי מנהל חשבון תשלום למשלם יתריע בפני המשלם, בטרם אישור הרשאת גישה, כאשר קיימת הרשאת גישה ללקוח בתשתית אחרת. במקרה כזה, מנהל החשבון יציג למשלם את האפשרויות הקיימות לו – ביטול הרשאת גישה קיימת או הקמת הרשאת גישה נוספת. נדרשת החלטה אקטיבית של המשלם על כך.

14. **סעיף 30יז** מפרט את פרטי הבקשה להרשאת הגישה שמנהל חשבון תשלום למשלם נדרש להציג למשלם, בטרם יקבל המשלם החלטה בדבר אישור הרשאת הגישה. יצוין כי מצופה שהצגת המידע יעשה באופן דומה להצגת פרטי הרשאת גישה לנותן שירות מידע פיננסי (כאמור בסעיף 24 להוראה), בשינויים המחויבים.

15. **סעיף 30יז(4)** קובע שנדרש להציג את תקרת סכום החיוב בהוראות תשלום, ככל שתקרה כאמור התקבלה מהיוזם. במידה ולא התקבלה, מנהל חשבון תשלום למשלם יאפשר למשלם להגביל את סכום החיוב הכולל לתקופה, או להגביל את הסכום המקסימלי בכל הוראת תשלום. יובהר כי מנהלי חשבונות התשלום למשלם נדרשים להציע למשלם את שתי החלופות, כאשר המשלם יוכל לבחור הגבלה מסוג מסוים או לא להגביל כלל. לא ניתן לאפשר למשלם לבחור את שתיהן באותה הרשאת גישה.

16. **סעיף 30יח** מסדיר את אופן הקמת הרשאת גישה בחשבון תשלום משותף, ובכלל זה, אופן שליחת הודעות מאת מנהל חשבון התשלום למשלם אל משלם בדבר הקמת הרשאת גישה, בהתאם לסמכות המאסדר הקבועה בסעיף 39ט(2) בחוק שירותי תשלום. לאור חובת הזהירות הקיימת בחשבונות תשלום ביחד, מנהל חשבון התשלום למשלם רשאי להסב את תשומת ליבם של הבעלים בחשבון, הנדרשים לתת הסכמתם להקמת ההרשאה, במקרה בו לא הוגבלה תקופת ההרשאה או אם לא הוגדרה תקרת סכום חיוב של הוראות התשלום שישלחו מטעם היוזם המתקדם. עוד יובהר, כי בכלל החשבונות המשותפים (חשבונות עם הרשאות מסוג ביחד ובחשבונות עם הרשאות מסוג ביחד ולחוד), כל אחד מהבעלים רשאי לבטל באופן עצמאי את הרשאת הגישה, ללא צורך בקבלת הסכמות מיתר הבעלים בחשבון.

17. **סעיף 30כ(1)** קובע את אופן שליחת ההודעה מאת מנהל חשבון תשלום למשלם, ליוזם מתקדם הפועל באמצעות ממשק הגישה לחשבונות. ככל שהמנהל החשבון פועל בתשתית אחרת, אופן שליחת ההודעה צריכה להיקבע בהסכם/הסדר הקיים בין הצדדים, והכל בהתאם לחוק. כמו כן, בהתאם להוראות הקבועות בחוק שירותי תשלום, הודעה כאמור תימסר בהקדם האפשרי, ולא יאוחר מיום עסקים אחד.

## <u>פרק ד' – כללים למתן שירות</u>

(סעיפים 31 – 39 להוראה)

הפרק קובע את רמת השירות שמקור מידע ומנהל חשבון תשלום נדרשים למסור לספק צד ג'. יובהר כי בנק ישראל הגביר את האכיפה מול מקורות המידע ומנהלי חשבון תשלום למשלם במגוון כלים, לדוגמת שליחת מכתבי תיקון ליקויים, דרישה לתיקון הדיווחים על הזמינות ועמידה בזמינות הנדרשת, תהליכי עיצום כספי, דרישה לבדיקת הליכי הממשל התאגידי בקשר עם טיפול בתקלות וכו. הפיקוח על הבנקים רואה חשיבות עליונה ביישום החובות החלות בהוראה, ובמיוחד בזמינות גבוהה של שירותי הבנקאות הפתוחה והגישה לחשבונות, בין אם למידע ובין אם לביצוע תשלומים, וזאת בשל הערך הרב של השירותים שנותנים ספקי צד ג' ללקוחות, וכן לאור התלות של ספקי צד ג' במערכות אלו בבואם לתת את השירות ללקוחות המערכת הבנקאית.

18. התיקונים בפרק זה כוללים, בין היתר, הוספת הוראות החלות על מנהל חשבון תשלום למשלם כלפי היוזם המתקדם, כחלק מהסדרת שירות הייזום המתקדם בהוראה. הוראות אלו נוספו בהתאם לסמכות המאסדר הקבועה בסעיף 41(א)(3) בחוק הסדרת העיסוק בשירותי תשלום וייזום תשלום. בנוסף, לאור כניסתם של תשתיות נוספות לייזום תשלומים, שאינן ממשק הגישה לחשבונות, נעשו תיקונים לאורך הפרק אשר מבהירים אילו סעיפים חלים רק על ממשק הגישה לחשבונות. בהתייחס לפרק ד', סעיפים 35ו-39 הינם הסעיפים היחידים החלים גם על תשתיות שאינן ממשק הגישה לחשבונות. באשר לתשתיות שאינן ממשק הגישה לחשבונות, תקבע רמת השירות בין הצדדים והם יכולים גם לאמץ את הכללים הקבועים לאורך פרק ד'.

19. **סעיף 33.1** תוקן על מנת למנוע פרשנות שאינה עולה עם תכלית ההוראה בהתייחס לאופן חישוב הזמינות החודשית. יובהר כי זמינות מחושבת פר שירות ביחס לכל שירות המפורט בסעיף בנפרד (שירות של הקמת הסכמות, משיכת מידע פיננסי, יכולת ליזום תשלום או להקים הרשאת גישה ליזום מתקדם). עוד יובהר כי

במקרה של השבתה של אחד מהשירותים הנקובים בסעיף, בין אם מתוכננת ובין אם בשל תקלה, יחשב פרק הזמן של ההשבתה כאי זמינות.

20. לאור פניות שהתקבלו בפיקוח, יובהר כי לצורך סיווג תקלה, בהתאם **לסעיף 33.7.4**, תקלה אשר גורמת להשבתה של כלל שירותי הבנקאות הפתוחה, או בחלק ניכר מהם, אצל משתתף מסוים, ביחס לממשק עם מקור המידע או מנהל חשבון התשלום למשלם, תסווג התקלה כחמורה, ויינתן טיפול מידי לתקלה על ידי אותו מקור המידע או מנהל חשבון התשלום למשלם, לפי העניין.

21. **סעיף 33.7.7** תוקן כך שעדכון בפורטל המפתחים נדרש לגבי כל השבתה של שירות, כהגדרתה בסעיף, בין אם מדובר בהשבתה מתוכננת ובין אם נגרמה כתוצאה מתקלה. עדכון כאמור נדרש, מאחר שכל השבתה של שירות עלולה להשפיע על טיב השירות שמספק ספק צד ג' ללקוחותיו.

22. **סעיפים 36.19-36.21** התווספו להוראה, והם מחייבים את מקור המידע לאפשר לנותן שירות מידע פיננסי, גישה לחשבון הלקוח גם למידע אודות חשבון סליקה, בהתאם לתתי סלי המידע הקבועים בסעיפים 24.2.19-24.2.21 בהוראה, ובהתאם להרשאה שנתן הלקוח.

23. כמו כן, **סעיף 38א** התווסף, כחלק מההתאמות שבוצעו בהוראה לשירות ייזום מתקדם. הגדרת יוזם מתקדם בסרטיפיקט כ- PSP IC מתאפשר לאור ביטול סעיף 7ה בחוק הבנקאות (שירות ללקוח), ונדרש לשם הבחנה בין פנייה של יוזם בסיסי לבין פנייה של יוזם מתקדם, למנהל חשבון תשלום למשלם.

24. **סעיפים 39.3-39.4** תוקנו במסגרת התאמות ניסוח בעריכה, ללא שינוי מהותי בהוראות ההוראה.

## <u>פרק ה' – ארכיטקטורה, אבטחת מידע והגנת סייבר בממשק הגישה לחשבונות</u>

(סעיפים 40 – 46 להוראה)

25. כותרת הפרק תוקנה, בכדי להבהיר שהפרק חל רק על ממשק הגישה לחשבונות. זאת לאור כניסתם של תשתיות נוספות לייזום תשלומים, שאינן ממשק הגישה לחשבונות. באשר לתשתיות שאינן ממשק הגישה לחשבונות, יקבעו הנושאים המוסדרים בפרק זה בין הצדדים, והכל בכפוף לרגולציה החלה בעניינים אלו, על כל גוף.

26. **סעיף 46** נמחק, לאור הכניסה לתוקף של הוראת ניהול בנקאי תקין מס' 364.

## <u>פרק ו' – תאגיד בנקאי כנותן שירות מידע פיננסי</u>

(סעיפים 47 – 58 להוראה)

27. **סעיף 47א(1)(ב)** תוקן לשם התאמתו להוראה 310, הקובעת כי הדירקטוריון יקבע מדיניות לניהול מוצר חדש, לרבות באילו מקרים נדרש דיון בדירקטוריון וקבלת אישורו. לפיכך, הדרישה לצירוף פרוטוקול הדיון תחול רק מקום שבו התקיים דיון כאמור. בדומה לאמור, תוקן גם **סעיף 49.5.3**, באופן שאינו מטיל חובה נוספת לקבלת אישור הדירקטוריון, מעבר למדיניות כאמור שקבע הדירקטוריון.

28. **סעיף 55.6** תוקן בדומה לתיקון שנעשה בסעיף 13.1 בהוראה, ומאותם הנימוקים המפורטים בדברי ההסבר לאותו סעיף.

## <u>פרק ז' – תאגיד בנקאי כיוזם תשלום</u>

(סעיפים 58א-58ח להוראה)

29. כותרת הפרק תוקנה כך שתכלול גם יוזם מתקדם. בהתאם לכך, בוצעו התאמות נוספות לאורך הפרק, במטרה להבהיר כי ההוראות שבו, חלות גם על יוזם מתקדם, ככל שהדבר רלוונטי. במקומות שבהם

הוראה מסוימת נועדה לחול על יוזם בסיסי בלבד, הדבר צוין במפורש בנוסח ההוראה. בנוסף, נוספו סעיפים 58ו-58ח, הקובעים הוראות ייעודיות החלות על יוזם מתקדם בלבד, בהתאם למאפייניו הייחודיים של שירות זה. יודגש כי, בדומה לתחולתן ביחס לשירות ייזום בסיסי, הוראות הפרק חלות על יוזם מתקדם ללא תלות בממשק הגישה שבאמצעותו ניתן השירות, אלא אם נקבע אחרת במפורש בהוראה.

30. יובהר כי התקשרות של יוזם מתקדם עם לקוח וקבלת הרשאת גישה לחשבון של משלם על פי חוק הסדרת העיסוק בשירותי תשלום הינה העמדה של אמצעי תשלום. בבואו להעמיד את אמצעי התשלום ללקוח, חלות על היוזם המתקדם הוראות כל דין לרבות הוראות הזיהוי המוגדרות בהוראת ניהול בנקאי תקין 367- בנקאות בתקשורת.

31. **סעיפים 58א1(2) ו- 58ב** תוקנו בדומה לתיקונים שנעשו בסעיפים 47א(1)(ב) ו- 49.5.3 בהתאמה, ומאותם הנימוקים המפורטים בדברי ההסבר לסעיפים אלו.

32. **סעיף 58ז** קובע את פרטי הוראת התשלום. בהקשר זה, יובהר כי אופן זיהוי המשלם, כאמור בסעיף 39ד(ב) לחוק שירותי תשלום, יעשה בהתאם לקבוע בהוראה 367.- בנקאות בתקשורת. שימת לב שיוזם המתקדם מציג את הוראת התשלום למשלם, והמשלם לא חייב לדחות אותה באופן אקטיבי, די בכך שלא אישר אותה על מנת שלא תועבר למנהל חשבון התשלום.

**<u>פרק ט' – דיווחים</u>**

(סעיפים 63- 65 להוראה)

33. הפרק תוקן כך שהוראות הפרק יחולו גם על שירות ייזום מתקדם, במקומות הרלוונטיים.

**נספחים**

34. מצורפים להוראה זו הנספחים:

34.1. **נספח א8** - Protocol Functions and Security Measures- לחשבונות סליקה ולייזום מתקדם;

34.2. **נספח א9**- data dictionary – לחשבונות סליקה ולייזום מתקדם;

34.3. **נספח א10** - Consent API for V2.x – לחשבונות סליקה;

34.4. **נספח א11**- XS2A API as PSD2 Interface Implementation Guidelines- לחשבונות סליקה;

34.5. **נספח א12** - Extended Account Information Services – לחשבונות סליקה;

34.6. **נספח א13**- Advanced Multiple Recurring Payments- לייזום מתקדם.

## תחילה

על פי חוק הסדרת העיסוק בשירותי תשלום, מועד התחילה של חובת מתן הגישה לחשבון תשלום, ביחס למערכת הבנקאית, נקבע ליום 6 ביוני 2026. כמו כן, על פי חוק שירות מידע פיננסי, מועד התחילה של חובת מתן גישה למידע אודות סליקת עסקאות בכרטיסי חיוב, ביחס למערכת הבנקאית, נקבע ליום 14 בדצמבר 2025. בפועל פרסום הסטנדרטים המחייבים את מנהלי חשבונות התשלום למשלם ואת מקורות המידע, נעשה לאחר מועד כניסת חובות מתן הגישה כאמור לעיל. זאת בשל הנסיבות והאילוצים שתוארו לעיל. לאור ההיערכות המשמעותית הנדרשת ממנהלי חשבונות התשלום למשלם ולמקורות המידע לצורך פיתוח הסטנדרט הטכנולוגי וכן הטמעת הדרישות הקבועות בחקיקה ובהוראה זו, לוח הזמנים הקצר ליישום יילקח בחשבון במסגרת המעקב אחר תהליכי היישום במערכת הבנקאית, וכן בהינתן שהמערכת הבנקאית לא יכלה לעמוד בחובות הגישה שחלות עליה טרם פרסום הסטנדרטים המחייבים וללא מתן שהות מספק לפיתוחו ולקיום בדיקות. לאור זאת לא ינקטו פעולות אכיפה כנגד מנהל חשבון תשלום למשלם וכנגד מקור מידע שטרם השלים את

פיתוח הסטנדרטים הנדרשים לעניין יזום מתקדם וגישה למידע אודות סליקת עסקאות בכרטיסי חיוב וזאת עד לתום ... ממועד פרסום חוזר זה.

**עדכון הקובץ**

1. מצ"ב דפי עדכון לקובץ ניהול בנקאי תקין. להלן הוראות העדכון:

| **להוציא עמוד** | **להכניס עמוד** |
|---|---|
| ------ | |

בכבוד רב,

דניאל חחיאשווילי
המפקח על הבנקים

# בנקאות פתוחה בישראל

## 1. **מבוא**

1.1. בשנים האחרונות התפתחה בעולם רגולציה מעמיקה המסדירה את תחום הבנקאות הפתוחה ומערכות פיננסיות פתוחות (~~להלן – '**בנקאות פתוחה**'~~). בנקאות פתוחה בעולם מאפשרת ללקוחות של גופים פיננסים לתת גישה לצדדים שלישיים (גופים בנקאיים וגופים חוץ בנקאיים המפוקחים לעניין זה), למידע שנוגע להם ושמצוי בידי הגוף הפיננסי, לשם קבלת שירותים מאותם צדדים שלישיים המותאמים לצרכי הלקוחות, וכן מאפשרת ללקוחות של מנהלי חשבון תשלום למשלם לתת גישה לחשבונות התשלום לצורך מתן הוראות תשלום בחשבונותיהם. בכך הבנקאות הפתוחה פועלת לחיזוק השליטה של הלקוחות במידע ובצריכת שירותים ומוצרים פיננסים ואחרים, היא מאפשרת ואף מעודדת פיתוח שירותים ומוצרים חדשים בתחום התשלומים, בתחום ניתוח המידע הפיננסי של לקוחות, והיא צפויה להגביר את התחרות בשירותים בנקאיים ופיננסים נוספים, תחרות שיכולה להתבטא בהוזלת מחירים, בהצעת מוצרים ושירותים חדשניים וכן במתן הצעות ערך נוספות ללקוחות.

1.2. לצד החשיבות של הבנקאות הפתוחה, היא יוצרת סביבת סיכונים חדשה ואתגרים בתחום ניהול הסיכונים, בעיקר בכל הקשור לסיכוני אבטחת מידע וסיכוני הגנת הפרטיות. הגידול בסיכון נובע בין היתר מכך, שעד ~~היום~~ליישום רפורמת הבנקאות הפתוחה, המידע הפיננסי והגישה לחשבונות התשלום שמורים באופן קפדני אצל הגופים הפיננסים, כל גוף עבור לקוחותיו.

1.3. בסביבה של בנקאות פתוחה, הגופים הפיננסים נותנים גישה למידע ולביצוע פעולות בתשתית פתוחה לספקי צד ג', שהם לא בהכרח תאגיד בנקאי, והנם בעלי משאבים מצומצמים יותר לניהול סיכונים. על מנת למזער סיכונים אלו, על נותן שירות מידע פיננסי, שיקבל את המידע שנוגע ללקוחות מכוח חובת הגישה, יחול פיקוח על פי חוק שירות מידע פיננסי, התשפ"ב-2021 (להלן – '**חוק שירות מידע פיננסי**'), לרבות אחריות לניהול סיכונים, אבטחת מידע ושמירת הפרטיות של הלקוחות. כמו כן, על יוזם ~~בסיסי~~תשלום שיקבל גישה לחשבון התשלום של משלם (בין אם מכוח חובת הגישה הקבועה בחוק הסדרת העיסוק בשירותי תשלום ובין אם מכוח הסדר אחר), יחול פיקוח על פי חוק הסדרת העיסוק בשירותי תשלום ויזום תשלום, התשפ"ג-2023 (להלן – '**חוק ~~ייזום~~הסדרת העיסוק בשירותי תשלום**'), ועל פי חוק שירותי תשלום, תשע"ט-2019 (להלן – '**חוק שירותי תשלום**'), לרבות כל האמור לעיל.

1.4. בחודש פברואר 2020, פורסמה לראשונה הוראת ניהול בנקאי תקין מס' 368 בנושא "יישום תקן של בנקאות פתוחה בישראל". ההוראה בנוסחה המקורי הטילה על הבנקים ועל חברות כרטיסי האשראי חובת מתן גישה למידע פיננסי (עלה לאוויר בחודש אפריל 2021), וחובת מתן גישה לייזום תשלום בודד (עלה לאוויר בחודש מרץ 2022). חובות

הגישה המתוארות אפשרו קבלת גישה לגוף פיננסי מפוקח, אשר קיבל את אישור המאסדר שלו לפעול בבנקאות פתוחה. זאת, במטרה לקדם את הבנקאות הפתוחה, על מנת לחזק את השליטה של הלקוח בשימושים הנעשים במידע הפיננסי אודותיו ולתת לו כלים חדשניים למתן הוראות תשלום, תוך קיצור לוחות הזמנים ליישום חובות גישה, לכשתחוקק החקיקה הרלוונטית.

1.5. לצורך מתן גישה לחשבונות, הן למידע והן לתשלומים, נקבע בהוראה התקן הטכנולוגי המבוסס על מסגרת העבודה שאומצה באירופה על ידי גופים רבים (NextGenPSD2 ו-Open Finance API Framework), תוך ביצוע ההתאמות למערכת הפיננסית בישראל.

1.6. עם חקיקת חוק שירות מידע פיננסי, ובהמשך חקיקת חוק הסדרת העיסוק בשירותי תשלום, הוראה זו תוקנה והיא מתמקדת באסדרת התשתית של בנקאות פתוחה בישראל ובקביעת חקיקת משנה, לרבות בהיבטים שפורטו בחקיקה לעניין זה, על מנת לאפשר פיתוח וביסוס של מערכת יעילה לטובת הלקוחות.

1.7. לעניין שירות מידע פיננסי, ההוראה מתייחסת הן להיבטים הנוגעים לחובת הגישה החלה על הגופים המפוקחים על ידי הפיקוח על הבנקים, לרבות קביעת התקן הטכנולוגי ואופן מתן הגישה למידע על ידי הלקוח, והן להיבטים הנוגעים לגופים מפוקחים כאמור המבקשים להציע ללקוחותיהם שירות מידע פיננסי.

~~1.8. בחודש יוני 2023 פורסם חוק הסדרת העיסוק בשירותי תשלום, אשר קובע, בין היתר, הוראות בעניין החובות החלות על מנהלי חשבון תשלום למשלם לעניין חובת מתן גישה לחשבון והוראות בעניין החובות החלות על יוזמי תשלום. הוראות החוק הנוגעות לייזום תשלום בסיסי, עתידות להיכנס לתוקף בחודש דצמבר 2024. לאור זאת, נדרש להתאים את הוראה 368 להסדרים הרלוונטיים שנקבעו בחוק, כאמור.~~

1.8. בטל.

1.9. ~~יובהר כי חוק ייזום תשלום מסדיר כל שירות ייזום בסיסי העומד~~ לעניין שירות ייזום תשלומים, ההוראה מתייחסת לכל שירותי הייזום הבסיסי והייזום המתקדם העומדים בהגדרת השירות, ללא תלות בסוג התשתית הטכנולוגית באמצעותה מנהל חשבון התשלום למשלם נותן גישה ליוזם הבסיסי~~.~~ וליוזם המתקדם. כך לדוגמה כל יוזם בסיסי וכל יוזם מתקדם נדרש להחזיק ברישיון או באישור מתאים, כאמור בפרק ב' לחוק. בהתאם לאמור לעיל, יודגש כי מכלול ההוראות הקבועות בהוראה 368 לעניין שירות ייזום בסיסי ויזום מתקדם (למעט הוראות הנוגעות למערכת הממשק למתן הוראת תשלום), חלות על יוזם בסיסי ~~ומנהל~~, על יזום מתקדם ועל מנהל חשבון תשלום למשלם, ללא תלות בתשתית הטכנולוגית באמצעותה השירות ניתן - בין אם במסגרת חובת הגישה שנקבעה בחוק ~~ייזום~~הסדרת העיסוק בשירותי תשלום ובין אם במסגרת אחרת.

## 2. הגדרות

**"אישור למתן שירות מידע פיננסי"**, כהגדרתם בחוק שירות מידע פיננסי;

**"הרשאת גישה"**,

| | |
|---|---|
| **"חשבון משותף"**, **"מידע פיננסי"**, **"מערכת הממשק למידע פיננסי"**, **"מקור מידע"**, **"נותן שירות מידע פיננסי"**, **"שירות מידע פיננסי"**, **"תיווך"** | |
| **"בנק"**, **"בנק חוץ"** | כמשמעותם בחוק הבנקאות (רישוי); |
| **"בנקאות פתוחה"** | גישה למידע פיננסי על אודות הלקוח וכן גישה לחשבון תשלום של משלם על ידי ספק צד ג' לשם מתן שירות מידע פיננסי או לשם מתן שירות ייזום בסיסי; ושירות ייזום מתקדם; |
| ~~**"גוף נותן אשראי"**~~ | ~~גוף פיננסי, כהגדרתו בחוק הבנקאות (שירות ללקוח), אשר מפוקח על פי דין לעניין פעילותו הפיננסית כמנפיק או כנותן אשראי כקבוע בסעיף 7ה(ג) לחוק זה ואשר קיבל סרטיפיקט מהמאסדר הרלוונטי לקבל מידע כאמור בסעיף 7ה לחוק;~~ |
| **"הוראת תשלום"**, **"הנפקה של אמצעי תשלום"**, **"הרשאה לחיוב"**, **"הרשאת גישה לחשבון"**, **"חשבון תשלום"**, **"מוטב"**, **"מנהל חשבון תשלום למשלם"**, **"משלם"**, **"שירות ייזום מתקדם"** | כהגדרתם בחוק שירותי תשלום; |
| **"השוואת עלויות"** | כהגדרתו בחוק שירות מידע פיננסי וכן השוואת מחירים ועלויות לגבי מוצר שאינו פיננסי או שירות שאינו פיננסי; |
| **"חברת כרטיסי אשראי"** | נותן שירותי תשלום בעל חשיבות יציבותית כאמור בסעיף קטן (2) להגדרת "נותן שירותי תשלום בעל חשיבות יציבותית" בחוק הבנקאות (רישוי) ותאגיד בשליטתו, העוסקים בהנפקה של אמצעי תשלום מסוג כרטיס חיוב; |
| **"חוק הבנקאות (רישוי)"** | חוק הבנקאות (רישוי), התשמ"א-1981; |
| **"חוק הבנקאות (שירות ללקוח)"** | חוק הבנקאות (שירות ללקוח), התשמ"א-1981; |

| | |
|---|---|
| ~~"**חוק שירותי תשלום**"~~ | ~~חוק שירותי תשלום, תשע"ט-2019;~~ |
| "**חשבון משותף ביחד ולחוד**" | חשבון משותף שלפי הסכם ההתקשרות עם מקור המידע, כל אחד מבעלי החשבון רשאי לתת הוראות בחשבון ללא הסכמת בעל החשבון האחר; |
| "**חשבון תשלום משותף**" | חשבון תשלום שלגביו רשומים אצל מנהל החשבון יותר מבעל חשבון אחד; |
| "**יוזם בסיסי**", "**יוזם מתקדם**", "**יוזם תשלום**", "**מערכת ממשק למתן הוראות תשלום**", "**שירות ייזום בסיסי**" | כהגדרתם בחוק הסדרת העיסוק בשירותי תשלום; |
| "**יזום ביטול הרשאה לחיוב**", "**יזום הרשאה לחיוב**" | כמשמעותם בחוק הסדרת העיסוק בשירותי תשלום; |
| "**כרטיס חיוב**", | כהגדרתם בחוק הבנקאות (רישוי); |
| "**רישיון נותן שירותי תשלום יציבותי**" | |
| "**ממשק הגישה לחשבונות**" | מערכת הממשק למידע פיננסי או מערכת ממשק למתן הוראות תשלום; |
| "**נייר ערך**" | כהגדרתו בתוספת השלישית בחוק שירות מידע פיננסי; |
| "**סטנדרט**" | תקן לבנקאות פתוחה בישראל, המפורט בנספח א', ~~וכולל~~ ובנוסף בין היתר: ארכיטקטורה, אבטחת מידע והגנת הסייבר, הגדרת תהליכים עסקיים, תהליכי הזדהות של ספק צד ג' אצל מקור המידע או מנהל חשבון התשלום למשלם, תהליכי מתן הרשאת גישה וביטול הרשאת גישה, כללים לרמת שירות, הגדרת השירותים ומבנה הפניה והתשובה לכל שירות, אופן ניהול הגרסאות והשירותים שיינתנו על ידי מקור המידע או מנהל חשבון התשלום למשלם בסביבות הפיתוח; |
| "**ספק צד ג'**" | יוזם ~~בסיסי~~ תשלום או נותן שירות מידע פיננסי; |
| "**סרטיפיקט**" | תעודה חתומה דיגיטלית, שהונפקה על ידי המאסדר הרלוונטי באמצעות ממשל זמין, לצורך פעילות בבנקאות פתוחה; |
| "**ערוץ אינטרנטי**" | אתר אינטרנט או יישומון (אפליקציה); |
| "**ערוץ פעילות**" | ערוץ אינטרנטי של מקור מידע, המופרד מערוץ אינטרנטי דומה בשל שיקולים עסקיים, כדוגמת ערוץ עסקי ופרטי; |
| "**פורטל מפתחים**" | כמשמעותו בסעיף 8 בהוראה זו; |

| | |
|---|---|
| **"שכבת התעבורה"** | ערוץ מאובטח מעל רשת האינטרנט המאפשר העברת מסרים בין מקור מידע או מנהל חשבון תשלום למשלם לספק צד ג'; |
| **"תאגיד בנקאי"** | כהגדרתו בחוק הבנקאות (שירות ללקוח); |
| **"תאגיד עזר"** | כהגדרתו בחוק הבנקאות (רישוי). |

**3. תחולה**

3.1. הוראה זו חלה על תאגיד בנקאי בכפוף לתנאים הבאים ולפי העניין:

3.1.1. הוראות לעניין מקור מידע יחולו על תאגיד בנקאי, שעליו חלה חובת מתן גישה למידע פיננסי לפי חוק שירות מידע פיננסי ובכפוף להוראותיו;

3.1.2. הוראות לעניין נותן שירות מידע פיננסי יחולו על תאגיד בנקאי, העוסק במתן שירות מידע פיננסי באמצעות מערכת הממשק למידע פיננסי, ובכפוף להוראות חוק שירות מידע פיננסי;

3.1.3. הוראות לעניין מנהל חשבון תשלום למשלם יחולו על תאגיד בנקאי, שעליו חלה חובת מתן גישה לחשבון תשלום של משלם לשם מתן שירות ייזום בסיסי או ייזום מתקדם, לפי סעיף 35 חוק הסדרת העיסוק בשירותי תשלום ובכפוף להוראותיו; כמו כן, הוראות לעניין מנהל חשבון תשלום למשלם, למעט הוראות הנוגעות למערכת הממשק למתן הוראת תשלום, יחולו על מנהל חשבון תשלום למשלם המעמיד ליוזם בסיסי או ליוזם מתקדם גישה לחשבון תשלום שאיננה מכוח חובת הגישה הקבועה ~~בחוק~~בסעיף 35 לחוק הסדרת העיסוק בשירותי תשלום;

3.1.4. הוראות לעניין יוזם בסיסי יחולו על תאגיד בנקאי, העוסק במתן שירות ייזום בסיסי לפי חוק הסדרת העיסוק בשירותי תשלום ובכפוף להוראותיו~~.~~;

~~3.2. הוראה זו חלה על תאגיד בנקאי, שעליו חלה החובה הקבועה בסעיף 7ה לחוק הבנקאות (שירות ללקוח).~~

3.1.5. הוראות לעניין יוזם מתקדם יחולו על תאגיד בנקאי העוסק בשירות ייזום מתקדם לפי חוק הסדרת העיסוק בשירותי תשלום ולפי חוק שירותי תשלום ובכפוף להוראות חוקים אלו.

3.2. בטל.

3.3. הוראה זו חלה על החשבונות הבאים:

3.3.1. לעניין מתן גישה למידע פיננסי – בהתאם לקבוע בחוק שירות מידע פיננסי;

3.3.2. לעניין מתן גישה ליוזם ~~בסיסי~~תשלום – בהתאם לקבוע בחוק הסדרת העיסוק בשירותי תשלום;

~~3.3.3. לעניין מתן מידע לגוף נותן אשראי, לפי סעיף 7ה לחוק הבנקאות (שירות ללקוח) – חשבון עובר ושב.~~

3.3.3. בטל.

4. בטל.

## פרק א' - יישום תקן של בנקאות פתוחה בישראל

5. חובת מתן גישה

5.1. מקור מידע יתן לנותן שירות מידע פיננסי, אשר פנה עם סרטיפיקט מתאים ובהתאם לסטנדרט, גישה למידע פיננסי על אודות לקוח והכל בהתאם לקבוע בפרק ד' בחוק שירות מידע פיננסי.

5.2. מנהל חשבון תשלום למשלם יתן ליוזם ~~בסיסי~~תשלום, אשר פנה עם סרטיפיקט מתאים ובהתאם לסטנדרט, גישה לחשבון תשלום של משלם, לצורך מתן שירות ייזום בסיסי או לצורך שירות ייזום מתקדם, והכל בהתאם לקבוע בפרק ה' בחוק הסדרת העיסוק בשירותי תשלום.

~~5.3. תאגיד בנקאי, כאמור בסעיף 3.2 לעיל, יתן לגוף נותן אשראי, אשר פנה עם סרטיפיקט מתאים ובהתאם לסטנדרט, גישה למידע אודות יתרה של לקוח בחשבון העובר ושב שלו בתאגיד הבנקאי, בהתאם לסעיף 7ה לחוק הבנקאות (שירות ללקוח). לצורך יישום סעיף זה, יחולו על תאגיד בנקאי, החובות החלות על מקור מידע, לפי הוראה זו ובשינויים המחויבים.~~

5.3. בטל.

6. מקור מידע או מנהל חשבון תשלום למשלם נדרש ליישם את הסטנדרט בהתאם לדרישות המפורטות בגוף הסטנדרט, כמפורט להלן:

6.1. חובת יישום רכיבים ושירותים המוגדרים בסטנדרט כרכיבים מנדטוריים, עבור מקור מידע או עבור מנהל חשבון התשלום למשלם, לפי העניין;

6.2. יישום רכיבים ושירותים המוגדרים בסטנדרט כרכיבים מותנים או כשירותים מותנים, עבור מקור המידע או עבור מנהל חשבון התשלום למשלם, לפי העניין, ככל שאלו ניתנים ללקוח על ידי מקור המידע או מנהל חשבון התשלום למשלם בערוצים האינטרנטיים שלו, הינו חובה. לעניין רכיבים מותנים, החובה היא ככל שהרכיב הינו חלק מאותו שירות בערוצים האינטרנטיים שלו;

6.3. יישום רכיבים או שירותים המוגדרים בסטנדרט כרכיבים או שירותים אופציונליים נתון לשיקול דעתו של מקור מידע או מנהל חשבון תשלום למשלם. החליט מקור מידע או מנהל חשבון תשלום למשלם על יישומם, יעשה זאת כאמור בסטנדרט.

7. מקור מידע או מנהל חשבון תשלום למשלם נדרש ליישם את הגרסה המעודכנת ביותר של הסטנדרט. למשך שישה חודשים מיום עליה לאוויר של הגרסה המעודכנת ביותר, מקור מידע או מנהל חשבון תשלום למשלם נדרש ליישם גם את הגרסה שקדמה לה.

8. מקור מידע או מנהל חשבון תשלום למשלם יפרסם באתר אינטרנט לציבור הרחב את השירותים שיישם בגרסאות הפעילות של הסטנדרט בסביבת הייצור ובגרסאות עתידיות, ככל שישנן (להלן: "**פורטל מפתחים**").

8א. מקור מידע או מנהל חשבון תשלום למשלם יאפשר לבעלי סרטיפיקט מתאים יכולת התנסות בסביבת ניסוי בהתאם לסטנדרט (סאנדבוקס). מקור מידע או מנהל חשבון תשלום למשלם ינגיש בסביבת הניסוי גרסאות עתידיות של הסטנדרט, הכוללות פונקציונליות חדשה שתתאפשר בסביבת הייצור, הן בשל הרחבת הפונקציונליות בסביבת הייצור של הבנקאות הפתוחה (ואיננה נובעת מהרחבת הסטנדרט במסגרת הוראה זו) והן בשל הרחבת

הפונקציונליות של הערוצים האינטרנטיים של מקור המידע או מנהל חשבון התשלום למשלם (להלן – "**הגרסה העתידית**"). הנגשת הגרסה העתידית בסביבת הניסוי של הסטנדרט תהה חודש ימים טרם יישום הפונקציונליות האמורה בסביבת הייצור.

9. מקור מידע או מנהל חשבון תשלום למשלם יתעד באופן ברור את אופן היישום של הרכיבים והשירותים המותנים ואת אופן יישום הרכיבים והשירותים האופציונליים, ככל שמיושמים, כאמור בסעיפים 6.2 ו-6.3, לספקי צד ג' בפורטל המפתחים.

10. מקור מידע או מנהל חשבון תשלום למשלם יסתמך על הנתונים הרשומים בסרטיפיקט של ספק צד ג', המבקש לקבל גישה למידע פיננסי על אודות הלקוח או גישה לחשבון תשלום של משלם בסביבת היצור, כאמור בסעיף 5 לעיל.

11. בטל.

12. בטל.

## פרק ב' - ממשל תאגידי

13. הדירקטוריון אחראי:

13.1. לוודא כי מכלול הסיכונים הגלומים בבנקאות פתוחה, ובכלל זה סיכוני אבטחת מידע וסייבר, סיכוני פגיעה בפרטיות, סיכוני מעילות והונאות, סיכונים משפטיים, סיכוני ציות, סיכוני הלבנת הון, סיכוני מוניטין וסיכונים אסטרטגיים, מנוהל בהתאם לעקרונות המפורטים בהוראת ניהול בנקאי תקין מספר 310 בנושא "ניהול סיכונים" (להלן – "**הוראה 310**") ובהוראת ניהול בנקאי תקין מספר 350 בנושא "ניהול סיכונים תפעוליים" (להלן – "**הוראה 350**"), וכן בהתאם להוראות הייעודיות השונות וביניהן, הוראת ניהול בנקאי תקין מספר ~~357~~364 בנושא "ניהול סיכוני טכנולוגיית המידע" (להלן – "~~הוראה 357~~") ~~והוראת ניהול בנקאי תקין מספר 361 בנושא "ניהול הגנת~~, אבטחת המידע והגנת הסייבר" (להלן – "**הוראה ~~361~~**").

13.2. לסקור ולאשר מסגרת לניהול סיכוני בנקאות פתוחה, שתעוגן במסמך אסטרטגיה ומדיניות.

13.3. לוודא כי ניהול סיכוני בנקאות פתוחה בקווי ההגנה הראשון והשני יבחן באופן תקופתי על ידי הביקורת הפנימית על בסיס ההנחיות המפורטות בהוראה 307 "פונקציית הביקורת הפנימית", ככל שהוראה זו חלה על התאגיד הבנקאי.

13.4. לקבוע דיווחים נדרשים לדירקטוריון ולהנהלה הבכירה בנושא בנקאות פתוחה לרבות: תלונות לקוחות וספקי צד ג', כשלים מהותיים במתן שירותים והטיפול בהם.

14. ההנהלה הבכירה אחראית:

14.1. לגבש ולהטמיע מדיניות שתעגן את המסגרת לניהול בנקאות פתוחה. מדיניות זו תכלול בין היתר גם היבטים של ניהול הסיכונים, השירות ללקוח של מקור המידע ומנהל חשבון התשלום למשלם, רמת השירות לספקי צד ג', לרבות נסיבות למניעת גישה למידע פיננסי על אודות לקוח או למניעת גישה לחשבון תשלום למשלם בממשק הגישה לחשבונות לכלל ספקי צד ג' או לחלקם (בכפוף להוראות חוק שירות מידע פיננסי וחוק הסדרת העיסוק בשירותי תשלום) ואופן העבודה בשכבת התעבורה.

14.2. לוודא כי נקבעו תחומי אחריות ברורים והוקצו משאבים נאותים לניהול סיכוני בנקאות פתוחה.

14.3. ליישם תהליכים לפיקוח על הטמעת המסגרת לניהול סיכונים בבנקאות פתוחה.

## פרק ג' - הרשאה של לקוח לגישה של נותן שירות מידע פיננסי

15. בטל.

16. מקור מידע יאפשר ללקוח לתת הרשאת גישה לנותן שירות מידע פיננסי באופן מקוון כאמור בסטנדרט ובכפוף לזיהוי הלקוח ואימות זהותו כאמור בסעיף 18 להלן. שינוי בהרשאת גישה מתמשכת שנתן לקוח לנותן שירות מידע פיננסי, תעשה בדרך של הקמת הרשאת גישה חדשה.

17. מקור מידע ינהל לכל לקוח הרשאת גישה מתמשכת תקפה אחת בלבד ביחס לכל אפליקציה או לכל אתר אינטרנט של נותן שירות מידע פיננסי. על אף האמור לעיל, מקור המידע רשאי לנהל הרשאת גישה מתמשכת תקפה אחת ביחס לכל אפליקציה או לכל אתר אינטרנט של נותן שירות מידע פיננסי בכל ערוץ פעילות של מקור המידע. הקמת הרשאת גישה נוספת שהיא חד פעמית, כשיש לאותו לקוח הרשאת גישה מתמשכת בתוקף ביחס לאותו נותן שירות מידע פיננסי ואותו ערוץ פעילות של מקור המידע, לא תבטל את הרשאת הגישה המתמשכת.

18. קבלת הרשאת גישה מלקוח תוגדר כפעולה ברמת סיכון גבוהה לעניין סעיף 42 בהוראת ניהול בנקאי תקין מספר 367 בנושא "בנקאות בתקשורת" (להלן – "**הוראה 367**"). גורמי האימות הנדרשים לצורך מתן הרשאת גישה מאת לקוח, ייבחרו בהתאם לגורמי האימות אותם נוהג מקור המידע לבקש מהלקוח עבור השירותים הניתנים על ידו.

19. בטל.

20. בטל.

21. בטל.

22. קיבל מקור מידע בקשה למתן הרשאת גישה למידע אודות יתרות או תנועות בחשבון, ללא ציון סוג המטבע (שקלים או כל המטבעות), יציג מקור המידע ללקוח, בעת מתן הרשאת הגישה, כי מדובר בהרשאה להעברת מידע ביחס לכל המטבעות בחשבון.

23. בחירת חשבונות

23.1. מקור מידע יאפשר ללקוח לבחור את חשבונותיו לגביהם יועבר המידע אל נותן שירות מידע פיננסי, בין אם באמצעות נותן שירות מידע פיננסי, ובין אם ישירות אצל מקור המידע, כשהלקוח בוחר מתוך רשימה שמקור המידע מציג לו. ברשימה זו יוצגו המזהים הראשיים של חשבונות הלקוחות, לרבות שמות החשבונות.

בחירת החשבונות, תעשה על פי מזהה החשבון הראשי של הלקוח אצל מקור המידע, אשר מאגד תחתיו את כלל הפעילויות באותו חשבון (לדוגמא, מזהה חשבון עו"ש, מזהה חשבון תמורה), והכל כאמור בסטנדרט ; על אף האמור ברישא, אצל מקור מידע שהוא חברת כרטיסי אשראי, בפעילות הנפקת אמצעי תשלום מסוג כרטיס חיוב, מזהה החשבון לכרטיס חיוב, כפי שנדרש בסטנדרט, יהיה המספר הממוסך של כרטיס החיוב.

23.2. על אף האמור בסעיף 23.1, בנוגע לשירות מידע פיננסי על כרטיסי חיוב, מקור מידע, שהוא חברת כרטיסי אשראי, יאפשר בחירת כרטיסי חיוב של הלקוח באמצעות נותן שירות מידע פיננסי רק בעת חידוש ההרשאה, אלא אם מקור המידע מאפשר לנותן שירות מידע פיננסי לקבל את המספרים המזהים הממוסכים של כרטיסי החיוב.

24. בטרם ייתן הלקוח למקור מידע את הרשאת הגישה לנותן שירות מידע פיננסי, יציג מקור המידע ללקוח את פרטי ההרשאה הבאים באופן ברור בשפה פשוטה ותמציתית ובממשק נוח למשתמש:

24.1. שם נותן שירות מידע פיננסי ושם האפליקציה, כפי שמופיע בסרטיפיקט שלו;

24.2. סלי המידע שבחר הלקוח אצל נותן שירות מידע פיננסי, בהתאם לשמות המפורטים להלן:

24.2.1. מידע אודות חשבון עו"ש בשקלים;

24.2.2. פרטי חשבון העו"ש ויתרות חשבון העו"ש בשקלים;

24.2.3. פרטי חשבון העו"ש ותנועות בחשבון העו"ש בשקלים;

24.2.4. מידע אודות חשבון עו"ש בכלל המט"ח בחשבון;

24.2.5. פרטי חשבון העו"ש ויתרות חשבון בכלל המט"ח;

24.2.6. פרטי חשבון העו"ש ותנועות בחשבון העו"ש בכלל המט"ח;

24.2.7. מידע על כרטיסי חיוב;

24.2.8. מידע על כרטיסי חיוב ויתרות חיובים בכרטיסי חיוב, בכלל המטבעות בכרטיס החיוב;

24.2.9. מידע על כרטיסי חיוב ותנועות בכרטיסי חיוב, בכלל המטבעות בכרטיס החיוב;

24.2.10. מידע על חסכונות בכלל המטבעות בחשבון החסכון;

24.2.11. מידע על חסכונות ויתרות החסכונות בכלל המטבעות בחשבון החסכון;

24.2.12. מידע על חסכונות ותנועות בחשבון החסכון בכלל המטבעות בחשבון החסכון;

24.2.13. מידע על אשראי בכלל המטבעות בחשבון האשראי/ההלוואה;

24.2.14. מידע על אשראי ויתרות האשראי בכלל המטבעות בחשבון האשראי/ההלוואה;

24.2.15. מידע על אשראי ותנועות בחשבון האשראי/ההלוואה בכלל המטבעות בחשבון האשראי/ההלוואה;

24.2.16. מידע על מאפייני חשבון ניירות ערך ורשימת הניירות המוחזקים בו;

24.2.17. מידע על מאפייני חשבון ניירות ערך ומידע על ניירות הערך המוחזקים בחשבון והכמות המוחזקת של כל נייר ערך;

24.2.18. מידע על מאפייני חשבון ניירות ערך ומידע על ניירות הערך המוחזקים בחשבון ושינוים בכמות המוחזקת של כל ניירות ערך אלו, לרבות הוראות לביצוע פעולות בניירות ערך~~.~~;

24.2.19. מידע אודות חשבון סליקה;

24.2.20. פרטי חשבון הסליקה ויתרות חשבון הסליקה;

24.2.21. פרטי חשבון הסליקה ותנועות בחשבון הסליקה.

24.3. המזהים של החשבונות, כאמור בסעיף 23 ושמות החשבונות לגביהם נותן הלקוח את הרשאת הגישה;

24.4. תוקף ההרשאה;

24.5. הודעה על כך שלאחר אישור הלקוח תשלח הודעה לכלל הבעלים בחשבון, ככל שמדובר בחשבון משותף; בנוסף בחשבון משותף שאינו חשבון משותף ביחד ולחוד, הודעה על הצורך בהסכמות בעלים נוספים;

24.6. האפשרויות העומדות בפני הלקוח לצפייה בהרשאות הגישה הקיימות בחשבונות הלקוח, וכן האפשרויות לביטול או לשינוי הרשאות הגישה האמורות;

24.7. ככל שמקור מידע מעוניין בכך, רשאי הוא להציג מידע והסברים נוספים אודות הרשאת הגישה של נותן שירות מידע פיננסי ומשמעותה, וזאת באופן שלא יהווה השפעה בלתי הוגנת, שאינו עולה על 20% משטח תוכן המסך כולו, ובגודל טקסט קטן יותר מזה של יתר התוכן במסך.

האפשרות שתינתן ללקוח לאשר הרשאת גישה לנותן שירות מידע פיננסי, והאפשרות שלא לאשר הרשאה כאמור, תוצגנה באופן גלוי וברור וכן באופן שהאפשרות לאשר תמוקם משמאל לאפשרות לא לאשר.

25. בטל.

26. בטל.

26א. חשבון משותף

26א(1) הודעה שמקור מידע נדרש לשלוח לפי סעיף 43(ב) לחוק שירות מידע פיננסי, תכלול את כל הפרטים המהותיים הנדרשים ללקוח, ובכלל זאת, שם נותן שירות מידע פיננסי לו ניתנה גישה למידע פיננסי על אודות הלקוח; תוקף ההרשאה; סלי המידע; שם הבעלים שנתן את הרשאת הגישה; זכות הלקוח לבטל הרשאה זו בכל עת, והדרך לעשות כן; ההבדל בין ביטול בסמוך למתן ההרשאה לבין ביטול במועד מאוחר יותר.

26א(2) חשבון משותף, שבו נדרש כי הרשאת הגישה תינתן בידי יותר מבעלים אחד בחשבון- ניתנה הרשאת גישה בידי אחד הבעלים בחשבון, יודיע מקור המידע לכל יתר הבעלים בחשבון שלא התקבלה הסכמתם למתן הגישה כאמור, וזאת בהקדם האפשרי. ההודעה תכלול, לכל הפחות, את שם נותן שירות מידע פיננסי לו ניתנה הרשאת גישה למידע פיננסי על אודות הלקוח, וכן זכות הלקוח לתת את הסכמתו למתן הרשאת הגישה או לבטל את ההרשאה והדרך לעשות כן. כמו כן, מקור המידע יאפשר ליתר הבעלים לתת הסכמתם למתן הרשאת גישה, מיד עם קבלת הסכמת הבעלים הראשון לכך, לפחות בערוצים האינטרנטיים, באופן קל נגיש ונוח ללקוח, וזאת לכל הפחות במשך 5 ימי עסקים ממועד מסירת ההודעה. לא הושלם התהליך בתוך פרק הזמן שנקבע, יראה מקור המידע בהסכמה למתן הרשאת הגישה על ידי הבעלים הראשון לחשבון זה כבטלה.

26א(3) ההודעה שמקור מידע נדרש לשלוח ללקוח לפי סעיף 80(ב) לחוק שירות מידע פיננסי, תכלול לכל הפחות התייחסות לנושאים הבאים:

26א(3)(א) בהתאם לחוק שירות מידע פיננסי, הרשאת הגישה שייתן כל אחד מהבעלים בחשבון תיחשב כהרשאת גישה שניתנה בידי כל בעלי החשבון;

26א(3)(ב) בעת הקמת הרשאת גישה על ידי אחד מבעלי החשבון, יקבלו כל הבעלים בחשבון הודעה על כך, כאמור בסעיף 43(ב) לחוק האמור;

26א(3)(ג) האפשרות של כל אחד מבעלי החשבון המשותף לבטל הרשאות גישה שיינתנו.

26א(4) מקור מידע ישלח לכל אחד מבעלי החשבון את ההודעות האמורות בסעיפים 26א(1)-26א(3) באופן בו נוהג מקור המידע למסור לאותו לקוח הודעות. מבלי לגרוע מהאמור ברישא, ישלח מקור המידע ללקוחות גם הודעה בערוץ תקשורת המאפשר מסירת הודעה באופן מידי ונגיש, כדוגמת מסרון כתוב, מסרון קולי או דואר אלקטרוני, לפי העניין, והכל ככל שיש למקור המידע את פרטי ההתקשרות הרלוונטיים. במסגרת הודעה זו רשאי מקור המידע למסור מידע תמציתי ולהפנות לערוץ תקשורת אחר לצורך קבלת מידע מפורט.

27. בטל.

28. ניהול הרשאות גישה

28.1. בטל.

28.2. מקור מידע יציג לכלל הבעלים בחשבון בכל עת, בערוצים האינטרנטיים את ההרשאות התקפות לגישה למידע ובחשבון משותף שאינו ביחד ולחוד גם את ההרשאות שניתנו על ידי אחד הבעלים או יותר וממתינות למתן הרשאת הגישה על ידי הבעלים הנוספים. לגבי כל הרשאת גישה יוצגו הפרטים המפורטים בסעיפים 24.1 עד 24.4 לעיל.

28.3. אם מקור מידע אינו מציג את פרטי ההרשאות ההיסטוריות שניתנו בחשבון של לקוח, ימסור מידע כאמור לבקשת לקוח תוך 3 ימי עסקים, לפחות בערוצים האינטרנטיים.

29. בטל.

30. בטל.

30א. מסירת הודעות מאת מקור מידע לנותן שירות מידע פיננסי או ללקוח

30א(1) הודעה לנותן שירות מידע פיננסי על מניעת גישה או הסרת המניעה, בהתאם לסעיף 41(א) לחוק שירות מידע פיננסי, תימסר בהקדם האפשרי, כמענה לפניה שבגינה לא ניתנה גישה, כאמור בסטנדרט. מבלי לגרוע מהאמור ברישא, ההודעה על מניעת הגישה, יכולה להימסר גם באמצעות הודעת דואר אלקטרוני לכתובת הדואר הרשומה בסרטיפיקט או באמצעות הודעה בדחיפה כאמור בסטנדרט (push notification).

30א(2) הודעה לנותן שירות מידע פיננסי על ביטול הרשאת גישה על ידי לקוח, כאמור בסעיף 45(ג) לחוק שירות מידע פיננסי, תימסר בהקדם האפשרי באמצעות הודעת דואר אלקטרוני לכתובת הדואר הרשומה בסרטיפיקט או באמצעות הודעה בדחיפה כאמור בסטנדרט (push notification) וכן בהתאם להגדרות בסטנדרט.

30א(3) הודעה על ביטול הרשאת גישה כאמור בסעיף 45(ג) לחוק שירות מידע פיננסי שנעשה על ידי אחד מבעלי החשבון בחשבון משותף, תימסר לכל יתר בעלי החשבון באופן בו נוהג מקור המידע למסור לאותו לקוח הודעות. כמו כן, ההודעות תשלחנה באופן מקוון, בערוץ תקשורת המאפשר מסירת הודעה באופן מידי ונגיש, כדוגמת מסרון כתוב, מסרון קולי או דואר אלקטרוני, לפי העניין, והכל ככל שיש למקור המידע את פרטי ההתקשרות הרלוונטיים.

## **פרק ג1'- גישה לחשבון תשלום של משלם -עבור שירות ייזום בסיסי**

30ב.

30ב(1) קיבל מנהל חשבון תשלום למשלם מאת יוזם בסיסי פרטי הוראת תשלום או פרטים לביטול הוראת תשלום (להלן בפרק זה – '**בקשה**'), יודיע למשלם על קבלת הבקשה וכיצד ניתן לאשרה או לדחותה. הודעה כאמור תישלח למשלם בכתב בדרך שמאפשרת תקשורת מיידית ונגישה, ככל האפשר.

(2) סעיף קטן (1) לא יחול כאשר קיבל מנהל חשבון תשלום למשלם מאת יוזם בסיסי בקשה הכוללת דרישה לקבלת קישור לצורך ניתוב המשלם לערוצים הישירים של מנהל החשבון האמור (לדוגמא: redirect) ומנהל החשבון מסר קישור כאמור.

30ג. מנהל חשבון תשלום למשלם יאפשר למשלם, בכל עת, להודיע באופן פשוט ונוח על רצונו שלא לקבל בקשות בחשבונו; מנהל חשבון התשלום למשלם, יודיע למשלם אודות אפשרות זו לכל הפחות עם קבלת בקשה כאמור לראשונה בחשבון התשלום של המשלם.

30ד. מנהל חשבון תשלום למשלם יאפשר למשלם לאשר או לדחות את הבקשה שנכתבה על ידי יוזם בסיסי. נשלחה בקשה אחת הכוללת פרטים של מספר הוראות תשלום לביצוע או לביטול, יאפשר מנהל חשבון תשלום למשלם לאשר או לדחות את כלל הוראות התשלום הכלולות בבקשה, בבת אחת.

30ה. מבלי לגרוע מהוראת סעיף 39(א) לחוק הסדרת העיסוק בשירותי תשלום, אימות זהות המשלם לצורך קבלת אישור הבקשה או דחייתה, יהיה בהתאם לניהול הסיכונים של מנהל חשבון התשלום למשלם ובהתאם לכל דין, לרבות סעיף 60 בהוראה 367, וללא הוספת דרישות על אלו הנדרשות בעת קבלת אותה הוראה באופן ישיר על ידי המשלם בערוצים האינטרנטיים אצל מנהל חשבון התשלום למשלם. בכלל זאת, גורמי האימות הנדרשים לצורך קבלת אישור המשלם לביצוע הבקשה או לדחייתה, ייבחרו בהתאם לגורמי האימות אותם נוהג מנהל חשבון התשלום למשלם לבקש מהמשלם עבור שירותים דומים הניתנים על ידו.

30ו. הגדיר היוזם הבסיסי את התקופה לאישור הבקשה או לדחייתה, מנהל חשבון התשלום למשלם יאפשר למשלם לאשרה או לדחותה לאורך התקופה האמורה, ובלבד שמדובר בתקופה סבירה. לא הגדיר היוזם הבסיסי את התקופה כאמור, מנהל חשבון התשלום למשלם יאפשר למשלם לאשר את הבקשה תוך זמן סביר.

30ז. (1) מנהל חשבון התשלום למשלם יציג למשלם רשימה של כל הבקשות, שטרם פג תוקפן, ושהמשלם טרם אישר או דחה אותן. לגבי כל בקשה, מנהל חשבון התשלום למשלם יציג את המועד האחרון לאישורה וכן יאפשר למשלם לאשר את הבקשה או לדחותה.

(2) סעיף קטן (1) לא יחול כאשר קיבל מנהל חשבון תשלום למשלם מאת יוזם בסיסי בקשה הכוללת דרישה לקבלת קישור לצורך ניתוב המשלם לערוצים הישירים של מנהל החשבון האמור (לדוגמא: redirect) ומנהל החשבון מסר קישור כאמור.

30ח. בטרם אישור בקשה או דחייתה, על ידי המשלם, מנהל חשבון תשלום למשלם יציג למשלם, באופן ברור, את פרטי הבקשה, באותו האופן בו הוא מציג לו בערוצים אינטרנטיים לגבי הוראה שנכתבה ישירות למנהל חשבון התשלום למשלם על ידי המשלם. המידע שיוצג למשלם יכלול, לכל הפחות, את הפרטים הבאים:

30ח(1) שם היוזם הבסיסי ושם האפליקציה; אם התקבלה הבקשה בממשק הגישה לחשבונות, יוצגו השמות כפי שמופיעים בסרטיפיקט;

30ח(2) השם והמספר המזהה של המוטב אליו מועבר התשלום, כפי שהתקבלו מהיוזם הבסיסי; אם התקבלה הוראת התשלום בממשק הגישה לחשבונות, יוצגו הפרטים כאמור בשדה account reference בנספח א-1 ובנספח א-5 להוראה זו);

30ח(3) מספר חשבון התשלום ושם חשבון התשלום של המשלם בו תינתן הוראת התשלום לאחר אישור הבקשה;

30ח(4) סכום התשלום, לרבות סוג המטבע בו יבוצע התשלום, כפי שהתקבל מהיוזם הבסיסי;

30ח(5) מועד קבלת הבקשה מאת היוזם הבסיסי;

30ח(6) מועד ביצוע הוראת התשלום, ככל שהבקשה תאושר;

30ח(7) קיומה של דרישה להסכמות נוספות של בעלים בחשבון, מיופה כוח בחשבון או מורשה חתימה בחשבון (להלן בפרק זה בעל עניין בחשבון);

30ח(8) בתשלום תקופתי מחזורי (recurring /periodic payment) – תדירות התשלומים ומועד תחילת התשלום. וככל שהתקבלו מהיוזם הבסיסי, גם מספרם או מועד התשלום האחרון;

30ח(9) מועד אחרון לאישור הבקשה, כאמור בסעיף ~~30ח~~30ו להוראה; אם התקבלה הבקשה בממשק הגישה לחשבונות,- יוצג המועד כאמור בשדה requestedExpiryDateTime.

30ח(9א) מידע נוסף אודות התשלום, ככל שהתקבל מידע זה מהיוזם הבסיסי; אם התקבלה הבקשה בממשק הגישה לחשבונות, יוצג המידע כאמור בשדה remittanceInformation Unstructured.

30ח(10) ככל שמנהל חשבון התשלום למשלם מעוניין בכך, רשאי הוא להציג מידע והסברים נוספים אודות אישור הבקשה ומשמעותו וזאת באופן שלא יהווה השפעה בלתי הוגנת.

30ט. חשבון תשלום עם מספר בעלי עניין

30ט(1) מבלי לגרוע מהוראות סעיף 39(א) לחוק הסדרת העיסוק בשירותי תשלום, בעת קבלת אישור לבקשה מאת אחד מבעלי העניין בחשבון התשלום, לא יבצע מנהל חשבון תשלום למשלם את הוראת התשלום בטרם יוודא, כי האישור עולה בקנה אחד עם האמור בהסכם עם המשלם לעניין האישורים הנדרשים בחשבון לשם מתן הוראות

תשלום ובהתאם לניהול הסיכונים של מנהל חשבון התשלום למשלם. כל זאת, ללא הוספת דרישות על אלו הנדרשות לקבלת אותה הוראת תשלום באופן ישיר על ידי מי מבעלי העניין בערוצים האינטרנטיים אצל מנהל חשבון התשלום למשלם.

30ט(2) אם נדרש אישור של יותר מבעל עניין אחד בחשבון תשלום, לצורך מתן הוראת התשלום, אזי מנהל חשבון התשלום למשלם יאפשר ליתר בעלי העניין לתת את האישור האמור, מיד עם קבלת האישור של בעל העניין הראשון, לפחות בערוצים האינטרנטיים, באופן קל נגיש ונוח ללקוח, וזאת, לכל הפחות, במשך 5 ימי עסקים ממועד קבלת האישור הראשון, אלא אם העביר היוזם הבסיסי מועד אחר לפקיעת התוקף של הבקשה, כאמור בסעיף 30ה להוראה.

30י. מבלי לגרוע מהאמור בסעיף 16 לחוק שירותי תשלום ומהאמור בסעיף 39 לחוק הסדרת העיסוק, אישר משלם בקשה שנכתבה על ידי יוזם בסיסי, מנהל חשבון התשלום למשלם יאפשר למשלם לאשר פרטי הוראת ביטול להוראת תשלום שנכתבו על ידי אותו יוזם בסיסי.

30יא. מסירת הודעות מאת מנהל חשבון תשלום למשלם ליוזם בסיסי בהתאם לסעיף 36(ג) לחוק הסדרת העיסוק בשירותי תשלום - הודעה ליוזם בסיסי על מניעת גישה או הסרת המניעה כאמור, תימסר בהקדם האפשרי, כמענה לפניה שבגינה לא ניתנה גישה. מבלי לגרוע מהאמור ברישא, התקבלה הפניה בממשק הגישה לחשבונות אזי ההודעה יכולה להימסר גם באמצעות הודעת דואר אלקטרוני לכתובת הדואר הרשומה בסרטיפיקט או באמצעות הודעה בדחיפה (push notification).

30יב. ייזום הרשאה לחיוב וייזום ביטול הרשאה לחיוב

(1) ההוראות לפי פרק זה יחולו גם על פרטי בקשה ליצירת הרשאה לחיוב או על פרטי בקשה לביטול הרשאה לחיוב שנכתבה על ידי יוזם בסיסי.

(2) על אף האמור בסעיף קטן (1), לא יחולו סעיפים 30ח(4) ו-30ח(8). במקומם יציג מנהל חשבון תשלום למשלם את תקרת סכום החיוב בפעולות תשלום הנעשות מכוח ההרשאה לחיוב ומועד פקיעת תוקפה של ההרשאה לחיוב ככל שהועברו על ידי היוזם הבסיסי.

## **פרק ~~ד'~~ ג'2 – הרשאה של משלם לגישה של יוזם מתקדם**

30יג. קיבל מנהל חשבון תשלום למשלם מאת יוזם מתקדם בקשה למתן הרשאת גישה לחשבון של משלם, יודיע ללקוח שלטובתו מנוהל חשבון התשלום (להלן בפרק זה - **הלקוח**), על קבלת הבקשה וכיצד ניתן לאשרה או לדחותה. הודעה כאמור תישלח ללקוח בכתב, בדרך שמאפשרת תקשורת מידית ונגישה, ככל האפשר.

30יד. מבלי לגרוע מהוראת סעיף 39ב(ג) לחוק שירותי תשלום, לעניין זיהוי הלקוח המבקש לתת הרשאת גישה לחשבון יחול גם סעיף 18 להוראה.

30טו. שינוי בהרשאת גישה מסוימת לחשבון שנתן משלם ליוזם מתקדם, באמצעות ממשק הגישה לחשבונות, תעשה בדרך של הקמת הרשאת גישה לחשבון חדשה וביטול ההרשאה הקיימת.

30טז. מנהל חשבון תשלום למשלם ינהל לכל משלם הרשאת גישה לחשבון , אחת בלבד, ביחס לכל חשבון תשלום המנוהל אצל מנהל חשבון התשלום, עבור אותו יוזם מתקדם באותה תשתית טכנולוגית.

מנהל חשבון התשלום למשלם יתריע בפני המשלם בבואו להקים הרשאת גישה נוספת לאותו חשבון תשלום עבור אותו יוזם מתקדם, בתשתית טכנולוגית שונה. מנהל חשבון התשלום יציג בפני המשלם את המאפיינים של כל אחת מהרשאות גישה- הקיימות ובבקשה, כאמור בסעיף 30יג לעיל ויעדכן אותו על האפשרויות העומדות בפניו.

30יז. בטרם אישור בקשה להרשאת גישה או דחייתה, על ידי הלקוח, מנהל חשבון תשלום למשלם יציג ללקוח, באופן ברור, את פרטי הבקשה להרשאת גישה, ולכל הפחות את הפרטים הבאים:

(1) שם היוזם המתקדם ושם האפליקציה;

(2) מועד אחרון לאישור הבקשה, שהוא מועד סביר בין היתר בשים לב לבקשת היוזם המתקדם, ככל שביקש;

(3) פרטי חשבון התשלום שבו תינתן הרשאת הגישה (מספר חשבון התשלום ושם חשבון התשלום), ככל שהתקבלו מהיוזם המתקדם. ככל שלא התקבלו, מנהל חשבון התשלום למשלם יאפשר ללקוח לבחור את חשבון התשלום האמור;

(4) תקרת סכום החיוב בהוראות תשלום הניתנות מכוח ההרשאה, ככל שהתקבלה מהיוזם המתקדם. ככל שלא התקבלה, מנהל חשבון התשלום למשלם יאפשר ללקוח לקבוע את התקרה כאמור, אם הלקוח בחר להגבילה. מנהל חשבון התשלום למשלם יאפשר ללקוח להגביל את תקרת הסכום לתקופה וכן יאפשר להגביל את תקרת הסכום בהוראת תשלום בודדת המתקבלת מהיוזם המתקדם;

(5) תוקף ההרשאה, ככל שהתקבל מהיוזם המתקדם. ככל שלא התקבל, מנהל חשבון התשלום למשלם יאפשר ללקוח לקבוע את תוקף ההרשאה, אם הלקוח בחר להגבילה.

(6) הודעה על כך שלאחר אישור הלקוח, תשלח הודעה לכלל הבעלים בחשבון, ככל שמדובר בחשבון תשלום משותף; בנוסף בחשבון תשלום משותף שאינו חשבון משותף ביחד ולחוד, הודעה על הצורך בהסכמות בעלים נוספים;

(7) האפשרויות העומדות בפני הלקוח לצפייה בהרשאות הגישה לחשבון הקיימות, וכן האפשרויות לביטול או לשינוי הרשאות מסוג זה;

(8) ככל שמנהל חשבון תשלום למשלם מעוניין בכך, רשאי הוא להציג מידע והסברים נוספים אודות הרשאת הגישה לחשבון עבור יוזם מתקדם ומשמעותה, וזאת באופן שלא יהווה השפעה בלתי הוגנת, כאמור בסעיף 39א(ב) לחוק שירותי תשלום, שאינו עולה על 20% משטח תוכן המסך כולו, ובגודל טקסט קטן יותר מזה של יתר התוכן במסך.

האפשרות שתינתן ללקוח לאשר הרשאת גישה לחשבון עבור יוזם מתקדם, והאפשרות שלא לדחות הרשאה כאמור, תוצגנה באופן גלוי וברור וכן באופן שהאפשרות לאשר תמוקם משמאל לאפשרות לא לאשר.

30יח. חשבון תשלום משותף

(1) חשבון תשלום משותף, שבו נדרש כי הרשאת הגישה תינתן בידי יותר מבעלים אחד בחשבון- ניתנה הרשאת גישה לחשבון בידי אחד הבעלים בחשבון, יודיע מנהל חשבון

התשלום למשלם לכל יתר הבעלים בחשבון שלא התקבלה הסכמתם למתן הגישה כאמור, וזאת בהקדם האפשרי. ההודעה תכלול, לכל הפחות, את שם היוזם המתקדם לו ניתנה הרשאת הגישה לחשבון, וכן זכות הבעלים לתת את הסכמתו למתן הרשאת הגישה לחשבון או לבטל את ההרשאה והדרך לעשות כן. כמו כן, מנהל חשבון התשלום יאפשר ליתר הבעלים לתת הסכמתם למתן הרשאת גישה לחשבון, מיד עם קבלת הסכמת הבעלים הראשון לכך, לפחות בערוצים האינטרנטיים, באופן קל נגיש ונוח ללקוח, וזאת לכל הפחות במשך 5 ימי עסקים ממועד מסירת ההודעה. לא הושלם התהליך בתוך פרק הזמן שנקבע, יראה מנהל חשבון התשלום למשלם בהסכמה למתן הרשאת הגישה על ידי הבעלים הראשון לחשבון זה כבטלה.

(2) מנהל חשבון תשלום למשלם ישלח לכל אחד מבעלי החשבון את ההודעה האמורה בסעיף הקודם באופן בו נוהג מנהל החשבון למסור לאותו לקוח הודעות. מבלי לגרוע מהאמור ברישא, ישלח מנהל חשבון התשלום למשלם ללקוחות גם הודעה בערוץ תקשורת המאפשר מסירת הודעה באופן מידי ונגיש, כדוגמת מסרון כתוב, מסרון קולי או דואר אלקטרוני, לפי העניין, והכל ככל שיש למנהל חשבון התשלום למשלם את פרטי ההתקשרות הרלוונטיים. במסגרת הודעה זו רשאי מנהל חשבון התשלום למשלם למסור מידע קצר ותמציתי ולהפנות לערוץ תקשורת אחר לצורך קבלת מידע מפורט.

30יט. ניהול הרשאות גישה לחשבון – מנהל חשבון תשלום למשלם יציג לכלל הבעלים בחשבון התשלום בכל עת, בערוצים האינטרנטיים את ההרשאות התקפות לגישה לחשבון וכן את הבקשות להרשאות גישה הממתינות לאישור.

30כ. הודעות למשלם ולבעלי עניין נוספים והודעות ליוזם

(1) הודעה ליוזם מתקדם הפועל באמצעות ממשק הגישה לחשבונות- הודעה על ביטול הרשאת גישה, כאמור בסעיפים 39ה(ג) או 39ו לחוק שירותי תשלום, תימסר מאת מנהל חשבון התשלום למשלם באמצעות הודעת דואר אלקטרוני לכתובת הדואר הרשומה בסרטיפיקט או באמצעות הודעה בדחיפה כאמור בסטנדרט (push notification) וכן בהתאם להגדרות בסטנדרט.

(2) הודעה על ביטול הרשאת גישה לחשבון, לרבות כאמור בסעיפים 39ה-39ו לחוק שירותי תשלום, תמסר לכל אחד מבעלי החשבון, באופן בו נוהג מנהל חשבון התשלום למסור הודעות לעניין חשבון זה. כמו כן, ההודעות תשלחנה באופן מקוון, בערוץ תקשורת המאפשר מסירת הודעה באופן מידי ונגיש, כדוגמת מסרון כתוב, מסרון קולי או דואר אלקטרוני, לפי העניין, והכל ככל שיש למנהל חשבון התשלום את פרטי ההתקשרות הרלוונטיים.

## **פרק ד' - כללים לרמת שירות**

רמת שירות לשירותים הניתנים מכוח חובת הגישה

31. מקור מידע או מנהל חשבון תשלום למשלם יקבע מדיניות לעניין רמת השירות לספקי צד ג', לרבות שירותי תמיכה ביחס להיבטים טכנולוגיים הנדרשים לספק צד ג' על מנת להשתמש

בשירותי הבנקאות הפתוחה של מקור המידע או של מנהל חשבון התשלום למשלם ואופן הטיפול בתקלות ובפניות של ספק צד ג' לעניין רמת השירות, לרבות כאמור בסעיף 33.7.1 להלן (להלן – **'מדיניות רמת השירות'**). עיקרי המדיניות האמורה, הרלוונטיים לספקי צד ג', לרבות המדיניות לגבי מדדי הזמינות וזמני התגובה, יפורסמו בפורטל המפתחים.

32. שמירת תיעוד

32.1. מקור מידע או מנהל חשבון תשלום למשלם ישמר את כלל הרישומים הממוכנים (logs) הקשורים לפניות ותגובות לשירותי בנקאות פתוחה במסגרת הסטנדרט.

32.2. מבלי לגרוע מהאמור לעיל, מקור המידע או מנהל חשבון תשלום למשלם יתעד במערכותיו את הסיבות למניעת הגישה, את אופן מניעת הגישה, את מועדי מניעת הגישה ומועד הסרת המניעה.

32.3. מקור מידע או מנהל חשבון תשלום למשלם ימדוד את הזמינות שלו ואת זמני התגובה שלו באופן שוטף ולאורך כל שעות היממה וישתמש במידע זה כחלק מחישוב הזמינות בפועל וזמני התגובה בפועל.

33. רמת השירות שיספק מקור מידע או מנהל חשבון תשלום למשלם לספק צד ג' תהיה לכל הפחות בהתאם למפורט להלן:

33.1. רמת זמינות – מקור מידע או מנהל חשבון תשלום למשלם נדרש לעמוד במדדי זמינות גבוהים שיאפשרו רמת שירות נאותה כמפורט להלן:

33.1.1. בשנת הפעילות הראשונה של מקור המידע או מנהל חשבון התשלום למשלם – זמינות חודשית שלא תפחת מ-97 אחוזים;

33.1.2. בשנת הפעילות השנייה של מקור המידע או מנהל חשבון התשלום למשלם – זמינות חודשית שלא תפחת מ-98 אחוזים;

33.1.3. בשנת הפעילות השלישית של מקור המידע או מנהל חשבון התשלום למשלם – זמינות חודשית שלא תפחת מ-99 אחוזים;

33.1.4. משנת הפעילות הרביעית של מקור המידע או מנהל חשבון התשלום למשלם – זמינות חודשית שלא תפחת מ-99.5 אחוזים.

לעניין זה –

"זמינות"- מתייחסת לכל אחד מהשירותים הבאים:

בשירות מידע פיננסי – כאמור בסעיף 36, למעט סעיפים 36.2, 36.3, 36.6, 36.9, 36.12, 36.15, ו- 36.17.

בשירות ייזום תשלום – כאמור בסעיף 38, למעט סעיף 38.7. וכאמור בסעיף 38א, למעט סעיפים 38א(2) ו- 38א(5).

"זמינות חודשית" תחושב לפי משך הזמינות בפועל של ~~מפשק~~השירותים הרלוונטיים בממשק הגישה לחשבונות על פני החודש, ~~בנפרד לשירות~~בהפרדה בין שירות מידע פיננסי ~~משירות~~ ובין שירות ייזום ~~בסיסי~~, תשלום; השבתות מתוכננות ותקלות שמקור המידע או מנהל חשבון התשלום למשלם היה מודע אליהן ייחשבו כאי זמינות.

33.2. מקור מידע או מנהל חשבון תשלום למשלם ייתמך בזמני תגובה גבוהים וכאשר הלקוח מקושר ישירות לספק צד ג' באופן מקוון (on-line) יהיו זמני התגובה זהים לפחות לזמני

התגובה בערוצים האינטרנטיים, והכל בהתחשב בעומס בקשות גבוה המתאים למתאר השימוש בשרותי בנקאות פתוחה, שיקבע במדיניות רמת השירות של מקור המידע או מנהל חשבון התשלום למשלם, לפי העניין.

33.3. מקור המידע יאפשר לנותן שירות מידע פיננסי לקבל את המידע אודות לקוח בהתאם למידע הקיים בערוצים האינטרנטיים. לעניין מידע אודות תנועות בחשבון העו"ש ואודות תנועות ויתרות של כרטיסי חיוב (כאמור בסעיפים 36.5, 36.6, 36.7 ו-36.8) המידע יהיה לפחות לתקופה של 12 חודשים שקדמו למועד הבקשה של נותן שירות מידע פיננסי.

33.4. מקור מידע יספק מידע פיננסי של לקוח או מידע אודות סטטוס הרשאת הגישה, ברמת עדכניות זהה לרמת עדכניותם בערוצים האינטרנטיים ולכל היותר בעיכוב של עד 30 שניות ביחס למעודכן בערוצים האינטרנטיים שלהם.

33.5. עדכון בדבר סטטוס הרשאת הגישה– פנה נותן שירות מידע פיננסי למקור מידע או פנה יוזם מתקדם למנהל חשבון תשלום למשלם לברר סטטוס הרשאת גישה מאת לקוח או את פרטי ההרשאה (כאמור בסעיף 36.2~~,~~ ובסעיף 38א(2)), שלא אגב הקמתה או ביטולה, רשאי מקור המידע או מנהל חשבון תשלום למשלם להגביל את מספר הפניות היומיות בנושא זה במסגרת מדיניות רמת השירות, למספר פניות סביר.

33.6. עדכון בדבר סטטוס בקשה~~, בקשה~~ בהתאם לסעיף 30ב(1) ובהתאם לסעיף 30יב שפרטיה נכתבו על ידי יוזם בסיסי והוראת תשלום שהעביר יוזם מתקדם לביצוע:

33.6.1. פנה יוזם ~~בסיסי~~תשלום למנהל חשבון תשלום למשלם לברר סטטוס בקשה מסוימת או סטטוס הוראת תשלום, רשאי מנהל חשבון התשלום למשלם להגביל את מספר הפניות היומיות בנושא זה במסגרת מדיניות רמת השירות, למספר פניות סביר.

33.6.2. רמת העדכניות של מידע זה תהיה בהתאם לערוצים האינטרנטיים ולכל היותר בעיכוב של עד 30 שניות ביחס למעודכן בערוצים האינטרנטיים שלהם.

33.7. אופן הטיפול בתקלות או בפניות:

33.7.1. מקור מידע או מנהל חשבון תשלום למשלם יכלול במדיניות רמת השירות שלו התייחסות למתן תמיכה, למתן מענה לפניות, לאופן סיווג תקלות, למועד תחילת הטיפול בתקלה ולמועדי העדכון שמקור המידע או מנהל חשבון התשלום למשלם נדרש לתת לספק צד ג'.

33.7.2. מקור מידע או מנהל חשבון תשלום למשלם ייתן לספק צד ג' שירותי תמיכה וטיפול בתקלות אצל מקור המידע או מנהל חשבון התשלום למשלם המשפיעות על הממשק בינו ובין ספק צד ג'. שירותי התמיכה והטיפול בתקלות יכללו את כלל ההיבטים הטכנולוגיים הנדרשים לצורך שימוש תקין בשירותי הבנקאות הפתוחה המוגדרים בהוראה זו, וביחס לכלל הגרסאות הנתמכות בסביבת הייצור ובסביבת הסאנדבוקס.

33.7.3. מועד תחילת הטיפול בתקלה יהא בסמוך ככל האפשר למועד קבלת הפנייה. משך הזמן לטיפול בתקלה יהיה סביר, לפי נסיבות העניין.

33.7.4. מקור מידע או מנהל חשבון תשלום למשלם יסווג תקלה כאמור, בין היתר, על פי מידת השפעתה על תפקודה התקין של סביבת הבנקאות הפתוחה והמשתתפים בה.

33.7.5. פנה ספק צד ג' בדבר תקלה, ייתן מקור מידע או מנהל חשבון תשלום למשלם מענה ראשוני מיידי על עצם קבלת הפנייה ועל מועד העדכון הבא. כמו כן, נדרש מקור המידע או מנהל חשבון התשלום למשלם לעדכן את ספק צד ג' באופן שוטף אודות התקדמות הטיפול בתקלה האמורה.

33.7.6. מקור מידע או מנהל חשבון תשלום למשלם ייתן שירותי תמיכה וטיפול בתקלות לספק צד ג' באמצעות פורטל מפתחים או בדרך אחרת המאפשרת זמינות ותיעוד ראויים. מקור מידע או מנהל חשבון תשלום למשלם יפרסם בפורטל המפתחים באילו ערוצי תקשורת ניתנים שירותי התמיכה והטיפול בתקלות.

33.7.7. ככל ~~שתקלה גורמת להשבתה~~ שישנה השבתה של שירות ~~ומשפיעה~~ והשפיעה על יותר מספק צד ג' אחד, יעדכן מקור מידע או מנהל חשבון תשלום למשלם בפורטל המפתחים אודות ~~התקלה~~ ההשבתה, מועד איתורה, הצפי ~~לתיקונה~~ לסיום ההשבתה ומועד השלמת הטיפול בה~~.~~ בפועל.
לעניין סעיף זה, "השבתה של שירות", בין אם מתוכננת ובין אם נגרמה כתוצאה מתקלה.

34. בטל.

35. מדיניות רמת ~~השירות~~ שירות

35.1. מדיניות רמת השירות של מקור מידע תהיה שוויונית לכל נותני שירות מידע פיננסי.

35.2. מדיניות רמת השירות של מנהל חשבון תשלום למשלם תהיה שוויונית לכל ~~היוזמים הבסיסיים~~ יוזמי התשלום.

הגדרת השירותים הניתנים בהתאם לסטנדרט

36. מקור מידע נדרש לאפשר לנותן שירות מידע פיננסי, המוגדר בסרטיפיקט כ-PSP_AI או כ-PSP_AS, גישה למידע פיננסי על אודות הלקוח, באמצעות ממשק הגישה לחשבונות, הכוללת את השירותים הבאים, לפי העניין, וזאת ללא התקשרות הסכמית בין הצדדים:

36.1. הקמת הרשאת גישה מאת לקוח להעברת מידע בחשבון או בחשבונות מסוימים;

36.2. שירותים הנלווים להרשאת הגישה כאמור בסעיף 36.1: מידע אודות סטטוס ההרשאה, מידע אודות פרטי ההרשאה וביטול ההרשאה;

36.3. מידע על מאפייני חשבון הבנק או חשבון התשלום;

36.4. מידע אודות היתרה בחשבון העו"ש;

36.5. מידע אודות תנועות בחשבון העו"ש;

36.6. מידע אודות מאפייני כרטיס החיוב;

36.7. מידע אודות סך החיובים בכרטיס חיוב;

36.8. מידע אודות עסקאות בכרטיס חיוב;

36.9. מידע אודות מאפייני חשבון הלוואות;

36.10. מידע אודות היתרות בחשבון הלוואות;

36.11. מידע אודות תנועות בחשבון הלוואות;

36.12. מידע אודות מאפייני פיקדונות וחסכונות;

36.13. מידע אודות היתרות של פיקדונות וחסכונות;

36.14. מידע אודות תנועות של פיקדונות וחסכונות;

36.15. מידע אודות מאפייני חשבון ניירות ערך ורשימת הניירות המוחזקים בו;

36.16. מידע אודות הכמות המוחזקת של כל נייר ערך בחשבון;

36.17. מידע אודות שינוים בכמות המחוזקת של ניירות ערך בחשבון;

36.18. מידע אודות הוראות לביצוע פעולות בחשבון ניירות ערך~~.~~

36.19. מידע אודות מאפייני חשבון סליקה;

36.20. מידע אודות יתרות חשבון הסליקה;

36.21. מידע אודות תנועות בחשבון הסליקה.

~~37. בטל. תאגיד בנקאי נדרש לאפשר לגוף נותן אשראי, המוגדר בסרטיפיקט כ-PSP_IC או PSP_AS, גישה למידע פיננסי על אודות הלקוח לשם קבלת מידע אודות יתרה בחשבון העו"ש, באמצעות ממשק הגישה לחשבונות, לפי סוג מטבע, לרבות הקמת הסכמת לקוח לשם כך והשירותים הנלווים להסכמה זו, זאת ללא התקשרות הסכמית בין הצדדים, כאמור בסעיף .~~

38. ~~37.~~ מנהל חשבון תשלום למשלם נדרש לאפשר ליוזם בסיסי, המוגדר בסרטיפיקט כ-PSP_PI או כ- PSP_AS, גישה לחשבון תשלום של משלם, באמצעות ממשק הגישה לחשבונות, הכוללת את השירותים הבאים וזאת ללא התקשרות הסכמית בין הצדדים:

38.1. ~~37.1.~~ כתיבת פרטי הוראת תשלום חד פעמית, בשקלים או במט"ח;

38.2. ~~37.2.~~ כתיבת פרטי מספר הוראות תשלום בחשבון תשלום של משלם אחד (bulk payment);

38.3. ~~37.3.~~ כתיבת פרטי הוראת תשלום מחזורית בשקלים או במט"ח;

38.4. ~~37.4.~~ כתיבת פרטי הוראה לביטול הוראת תשלום שנכתבה בידי אותו יוזם בסיסי ושטרם בוצעה;

38.5. ~~37.5.~~ כתיבת פרטי בקשה להקמה של הרשאה לחיוב;

38.6. ~~37.6.~~ כתיבת פרטי בקשה לביטול של הרשאה לחיוב;

38.7. ~~37.7.~~ מתן מידע אודות סטטוס הבקשה (בקשה כאמור בסעיף 30ב(1) ובסעיף 30יב(1)).

38א. מנהל חשבון תשלום למשלם נדרש לאפשר ליוזם מתקדם, המוגדר בסרטיפיקט כ-PSP_IC או כ- PSP_AS, גישה לחשבון תשלום של משלם, באמצעות ממשק הגישה לחשבונות, הכוללת את השירותים הבאים וזאת ללא התקשרות הסכמית בין הצדדים:

38א(1). הקמת הרשאת גישה מאת משלם ליזום מתקדם בחשבון תשלום של משלם;

38א(2). שירותים הנלווים להרשאת הגישה כאמור בסעיף 38א(1): מידע אודות סטטוס ההרשאה, מידע אודות פרטי ההרשאה וביטול ההרשאה;

38א(3). מתן הוראת תשלום חד פעמית, בשקלים;

38א(4). מתן הוראה לביטול הוראת תשלום שנכתבה בידי אותו יוזם מתקדם ושטרם בוצעה;

38א(5). מתן מידע אודות הוראות התשלום שניתנו על ידי היוזם המתקדם בחשבון המשלם לרבות הסטטוס שלהן.

~~38.~~39. שירותים נוספים

~~38.1.~~39.1. מקור מידע או מנהל חשבון תשלום למשלם רשאי לעשות שימוש בתשתית ממשק הגישה לחשבונות, לצורך מתן שירותים נוספים, הכוללים שירותים אופציונליים (שירותים המוגדרים כרכיב אופציונלי בסטנדרט) ושירותים שאינם מוגדרים בסטנדרט.

~~38.2.~~39.2. מקור מידע או מנהל חשבון תשלום למשלם יתקשר בהסכם, המסדיר את מתן השירותים הנוספים כאמור בסעיף 39.1 לעיל.

~~38.3.~~39.3. מקור מידע יקבע מדיניות שיוונית לעניין התקשרות למתן שירותים כאמור בסעיף זה ולעניין רמת השירות.

~~38.4.~~39.4. מנהל חשבון תשלום למשלם יקבע מדיניות שיוונית לעניין התקשרות למתן שירותים כאמור בסעיף זה ולעניין רמת השירות.

## פרק ה' – ארכיטקטורה, אבטחת מידע והגנת הסייבר בממשק הגישה לחשבונות

~~39.~~40. מקור מידע או מנהל חשבון תשלום למשלם לא יאפשר לספק צד ג' לממש את חובת הגישה באמצעות ממשק הגישה לחשבונות, אלא אם:

~~39.1.~~40.1. ספק צד ג' הזדהה בפניו בשכבת התעבורה עם סרטיפיקט מתאים וכאמור בסטנדרט;

~~39.2.~~40.2. לספק צד ג' יש את התפקיד המתאים בסרטיפיקט לשירות אותו הוא מבקש לקבל, כמפורט בפרק ד';

~~39.3.~~40.3. הסרטיפיקט תקף.

~~40.~~41. מקור מידע או מנהל חשבון תשלום למשלם ישתמש רק בפרוטוקול https להעברת מסרים בינו לספק צד ג', תוך שימוש בשכבת תעבורה מאובטחת מסוג mTLS (להלן – **'ערוץ TLS'**), שהוקמה על ידי יוזם הפניה. מקור המידע או מנהל חשבון תשלום למשלם ידרוש מספק צד ג', כחלק מהקמת ערוץ ה-TLS, להזדהות באמצעות הסרטיפיקט כאמור בסעיף 40.1.

~~41.~~42. מקור מידע או מנהל חשבון תשלום למשלם רשאי לסגור ערוץ TLS קיים משיקולי אבטחת מידע כפי שהוגדרו במסמך המדיניות שלו.

~~42.~~43. מקור מידע או מנהל חשבון תשלום למשלם רשאי לא לאפשר גישה של ספק צד ג', בהתאם למדיניות האמורה בסעיף 14.1. כמו כן, מקור המידע או מנהל חשבון התשלום למשלם, יפעל כאמור בסעיף 30א ובסעיף 30יא לעיל, לפי העניין. מקור המידע או מנהל חשבון התשלום למשלם יתעד במערכותיו את הסיבות למניעת גישה של ספק צד ג' ולהסרתה וידווח על כך, כאמור בסעיף 63 להלן.

~~43.~~44. מנהל חשבון תשלום למשלם יקבל רק פניות שנחתמו באמצעות סרטיפיקט לחותם אלקטרוני (Electronic Seal) על ידי אותו יוזם בסיסי שהזדהה בשכבת התעבורה.

~~44.~~45. בקשות ותשובות בממשק הגישה לחשבונות יהיו במבנה המוגדר בסטנדרט.

~~24. מקור מידע או מנהל חשבון תשלום למשלם מחויב ליישם טכנולוגיות ניטור לפניות של ספקי צד ג' ובקרה עליהן ולכל הפחות ניטור אנומליות עסקיות וכן הטעיה והסטה. בנוסף, מקור מידע או מנהל חשבון תשלום למשלם יבצע מעקב אחר תקריות סייבר הקשורות לממשקי API וזאת כחלק מתוכנית הניטור הכוללת של אירועי סייבר.~~

46. בטל.

## פרק ו' – תאגיד בנקאי כנותן שירות מידע פיננסי

~~45.~~47. בטל.

47א. בקשת אישור המפקח על הבנקים למתן שירות מידע פיננסי

47א(1) תאגיד בנקאי מסוג בנק, בנק חוץ, תאגיד עזר, בעל רישיון נותן שירותי תשלום יציבותי ותאגיד שבשליטתו המבקש לשמש כנותן שירות מידע פיננסי, יגיש בקשה רשמית לאישור הפעילות של מתן שירות מידע פיננסי, כאמור בסעיף 14(א) לחוק שירות מידע פיננסי. הבקשה כאמור תוגש מטעם המנהל הכללי ותכלול את הפרטים הקבועים בחוק זה ולכל הפחות גם את הפרטים הבאים:

47א(1)(א) עיקרי התוכנית העסקית לעניין מתן שירות מידע פיננסי, שתכלול, בין היתר, את הפרטים הבאים: פירוט השימושים שבכוונת התאגיד הבנקאי לעשות במידע, אוכלוסיית היעד, הכלים ליישומה של התכנית העסקית ושיתופי פעולה לצורך יישומה, ככל שקיימים;

47א(1)(ב) המסמכים הנלווים לאישור מוצר חדש, כאמור בהוראה 310, לרבות מיפוי הסיכונים בשירות זה והכלים לניהולם, וכן פרוטוקול הדיון בדירקטוריון, ככל שנדרש על פי מדיניות התאגיד הבנקאי (להלן – **'מוצר חדש'**);

47א(1)(ג) מסמכים המעידים על קיומם של אמצעים טכנולוגיים מתאימים למתן שירות מידע פיננסי.

~~46.~~48. בטל.

~~47.~~49. הסכמת לקוח לקבלת שירותים

~~47.1.~~49.1. בטל.

~~47.2.~~49.2. נותן שירות מידע פיננסי יאפשר ללקוח לבחור את סלי המידע, כאמור בסעיף 24.2, זאת בהתאם לשירותים אותם ביקש הלקוח לקבל. נותן שירות מידע פיננסי יציג ללקוח את שמות סלי המידע, בהתאם לשמות סלי המידע המוגדרים בהוראה זו.

~~47.3.~~49.3. בטל.

~~47.4.~~49.4. נותן שירות מידע פיננסי לא יבקש מלקוח את מספר כרטיס החיוב שלו, לצורך מתן הרשאת גישה למידע פיננסי.

~~47.5.~~49.5. נותן שירות מידע פיננסי רשאי לעשות שימוש במידע שהתקבל ממקור המידע ולהציע ללקוח שירותים שונים בכפוף לאמור בחוק שירות מידע פיננסי ולתנאים הבאים:

~~47.5.1.~~49.5.1. בטל;

~~47.5.2.~~49.5.2. בטל;

~~47.5.3.~~49.5.3. סוגי השירותים והשימושים אושרו על ידי ~~הדירקטוריון של נותן שירות מידע פיננסי~~ התאגיד הבנקאי כמוצר חדש.

~~48.~~50. ניהול הרשאות גישה למידע פיננסי

~~48.1.~~50.1. נותן שירות מידע פיננסי יציג ללקוח בכל עת, בערוצים האינטרנטיים, את ההרשאות התקפות לגישה למידע פיננסי אודותיו, שניתנו לנותן שירות המידע הפיננסי. לגבי כל הרשאה יוצגו הפרטים המפורטים להלן:

~~48.1.1.~~50.1.1. שם מקור המידע;

~~48.1.2.~~50.1.2. סלי המידע שבחר הלקוח אצל נותן שירות מידע פיננסי;

~~48.1.3.~~50.1.3. מזהה החשבונות, כאמור בסעיף 23.1 ושמותיהם לגביהם נתן הלקוח את ההרשאה;

~~48.1.4.~~50.1.4. תוקף ההרשאה.

~~48.2.~~50.2. נותן שירות מידע פיננסי יאפשר ללקוח לשנות את הרשאת הגישה בכל עת בדרך של צמצום הרשאת הגישה או הרחבתה, בערוצים האינטרנטיים. שינה לקוח את הרשאת הגישה לנותן שירות מידע פיננסי, יודיע נותן שירות מידע פיננסי למקור המידע על הקמת הרשאה חדשה, כאמור בסטנדרט.

~~48.3.~~50.3. היה נותן השירות גם מקור מידע הנותן שירותים ללקוח, יפריד את הדיווח אודות הרשאות הגישה כאמור בסעיף 28.2 מהדיווח אודות ההרשאות כאמור בסעיף 50.

~~49.~~51. ביטול הסכם למתן שירות מידע פיננסי או צמצומו

~~49.1.~~51.1. מתן האפשרות ללקוח לבטל או לצמצם את ההסכם עם נותן השירות, לרבות תנאיו או פרטיו, בהתאם לאמור בסעיף 28(א) לחוק שירות מידע פיננסי, יעשה בכל האמצעים המקובלים לקבלת הוראות מאת הלקוח. צמצם הלקוח את ההסכם עם נותן שירות מידע פיננסי, יוודא נותן שירות מידע פיננסי כי הרשאת הגישה הותאמה להסכם החדש.

~~49.2.~~51.2. נותן שירות מידע פיננסי מחויב ליישם שירות של ביטול הרשאת גישה למידע, כאמור בסטנדרט.

~~49.3.~~51.3. נותן שירות מידע פיננסי יראה בביטול ההסכם למתן שירות מידע פיננסי של לקוח, כביטול כלל הרשאות הגישה של הלקוח מול כלל מקורות המידע וההסכמות לשימוש במידע.

~~49.4.~~51.4. בטל.

~~49.5.~~51.5. הודעת נותן שירות מידע פיננסי למקור מידע בדבר ביטול הרשאת הגישה למידע על ידי הלקוח, כאמור בסעיף 28(ג)(2) לחוק שירות מידע פיננסי, תעשה על פי האמור בסטנדרט.

~~49.6.~~51.6. בטל.

~~49.7.~~51.7. בטל.

~~49.8.~~51.8. ביטל נותן שירות מידע פיננסי ביוזמתו את ההסכם עם הלקוח, יחולו הוראות 28(ג) לחוק שירות מידע פיננסי. כמו כן, יודיע על כך ללקוח באופן בו הוא מוסר הודעות ללקוח זה.

~~49.9.~~51.9 וידוא על ידי נותן שירות מידע פיננסי, כי הלקוח מודע לכך שהרשאת הגישה לנותן שירות מידע פיננסי עומדת בעינה, בהתאם לקבוע בסעיף 26(ב) לחוק שירות מידע פיננסי יבוצע באחד מהאמצעים הבאים :

~~49.9.1.~~51.9.1 באמצעות כלים ממוחשבים שיאפשרו לנותן שירות מידע פיננסי לקבוע האם הלקוח נוהג לעשות שימוש בשירותיו ;

~~49.9.2.~~51.9.2 קבלת מענה מאת הלקוח, כי הוא מעוניין להמשיך ולקבל את שירותיו של נותן שירות מידע פיננסי ולהתיר לו לעשות שימוש בהרשאת הגישה.

~~49.10.~~51.10 לא הצליח נותן שירות מידע פיננסי לוודא כאמור בסעיף 51.9, יפעל כאמור להלן :

51.10.1. יראה בהסכם למתן שירות מידע פיננסי כמבוטל, בהתאם לסעיף 26(ב) לחוק שירות מידע פיננסי ;

51.10.2. יודיע ללקוח באופן בו הוא מוסר הודעות ללקוח על ביטול ההסכם למתן שירות מידע פיננסי ועל ביטול הרשאות הגישה.

52. בטל.

53. מתן שירותים ללקוח על ידי נותן שירות מידע פיננסי יבוצע לאחר אימות זהות הלקוח, כאמור בהוראה 367.

53א. נותן שירות מידע פיננסי אשר מרכז מידע פיננסי עבור לקוח, כמשמעותו בסעיף 25(א)(1) לחוק שירות מידע פיננסי, אחת לשנה לפחות ובעת סיום הסכם למתן שירות מידע פיננסי, יציע ללקוח ריכוז של המידע הפיננסי שאסף עבורו כפי שהיה ביום שליחת הריכוז או ביום סיום הסכם מתן שירות מידע פיננסי, כשם שהציג לו אותו בתקופת מתן השירותים. ריכוז המידע יועבר ללקוח באופן מאובטח ובהתאם להעדפת הלקוח למסירת הודעות. הפורמט שבו יועבר המידע יהיה באופן שניתן לשמירה ולהדפסה על ידי הלקוח.

54. כללים לרמת שירות

54.1. נותן שירות מידע פיננסי נדרש לוודא כי לפחות 99% מכלל הבקשות הנשלחות בשנה קלנדרית למקור מידע יהיו בקשות תקינות. לעניין זה, בקשה תקינה היא בקשה במבנה נתונים המתאים לשירות כמוגדר בסטנדרט ובשם לקוח מקור המידע מקבל הבקשה בלבד.

54.2. מספר הבקשות שנותן שירות מידע פיננסי יפנה למקור המידע יהיה בהתאם לאופי השירותים שביקש הלקוח.

55. ארכיטקטורה ואבטחת מידע

55.1. נותן שירות מידע פיננסי יממש את הרכיבים המוגדרים לנותן שירות מידע פיננסי, בהתאם לסימונים המוגדרים בסעיף 6 לעיל וכן הרכיבים הנדרשים בתיעוד המפורט בפורטל המפתחים של מקור המידע.

55.2. נותן שירות מידע פיננסי יעביר את המסרים רק בפרוטוקול https, על גבי ערוץ TLS שהוקם על ידו.

55.3. נותן שירות מידע פיננסי מחויב להזדהות באופן מקוון באמצעות סרטיפיקט ייעודי ובהתאם לסטנדרט בכל פניה באמצעות ממשק הגישה לחשבונות. נותן שירות מידע פיננסי לא יעשה שימוש בסרטיפיקט אם אינו תקף.

55.4. בטל.

55.5. בקשות במערכת ממשק הגישה לחשבונות למידע פיננסי יהיו במבנה המוגדר בסטנדרט.

55.6. נותן שירות מידע פיננסי ינהג במידע, שנאסף או נצבר במסגרת פעילותו בבנקאות פתוחה, באופן בו הוא נוהג במידע פיננסי שנוצר אצלו, ויפעל, בין היתר, לפי העקרונות לעניין אבטחת מידע המפורטים בהוראה ~~357~~364, בהוראת ניהול בנקאי תקין מספר 359A בנושא "מיקור חוץ", בהוראה ~~361~~, 364, בהוראת ניהול בנקאי תקין מספר 363 בנושא "שרשרת אספקת מידע" ובהוראה 367, לפי העניין.

55.7. קיבל נותן שירות מידע פיננסי סרטיפיקט אגב האישור למתן שירות מידע פיננסי, ישמור אותו ברכיב מאובטח ולא יעבירו לאחר.

55.8. נותן שירות מידע פיננסי ישמור את הבעלות על הדומיין, המוגדר בסרטיפיקט, לצורך קבלת הודעות ממקור המידע, זאת כל עוד קיימות הסכמות בתוקף, שהוקמו עם הסרטיפיקט בו מוגדר אותו דומיין.

55.9. היה ונותן שירות מידע פיננסי התקשר עם ספקים לצורך הפעלת שירות מידע פיננסי, לא יאפשר לספקים אלו שימוש בתעודות, שלא באמצעות מחשבי נותן שירות מידע פיננסי ובפיקוח ובקרה של עובדיו, שהוסמכו לכך.

55א. נותן שירות מידע פיננסי יעביר למקורות המידע הרלוונטיים, הודעה על אירוע אבטחה חמור בהתאם לסעיף 31 לחוק שירות מידע פיננסי, באמצעות פורטל המפתחים של מקור המידע ולפי ההנחיות שהגדיר בפורטל המפתחים.

56. נותן שירות מידע פיננסי ישמור את כלל הרישומים הממוכנים (logs) הקשורים לפניות ותגובות לשירותי מידע פיננסי במסגרת הסטנדרט לתקופה של שבע שנים לפחות.

56א. שמירת המידע כאמור בסעיף 27(ג)(1) לחוק שירות מידע פיננסי במאגר נפרד מכל מאגר מידע אחר, תעשה תוך עמידה בהוראות הבאות:

56א(1) יקבעו נהלים לגישה למידע ולשימוש בו, לרבות בעניינים המפורטים בהמשך;

56א(2) תוגבל הגישה למאגר הנפרד רק לעובדי נותן שירות מידע פיננסי, הנדרשים למידע זה ולצרכים המנויים בחוק שירות מידע פיננסי;

56א(3) יתועדו פרטי העובדים שנגשו בפועל למאגר הנפרד על מנת להוציא מידע, המועד בו נגשו, המידע אליו נגשו ומטרת הגישה למידע;

56א(4) ככל שהוצא מידע מזוהה של לקוח, יסומן מידע זה כמידע ברמת רגישות גבוהה וינהגו בו בהתאם, לרבות העברתו רק לגורמים המורשים לכך לפי חוק שירות מידע פיננסי;

56א(5) תתקיים בקרה שוטפת שאכן גישה זו נדרשה כאמור בחוק שירות מידע פיננסי.

57. בטל.

57א. העברת מידע מנותן שירות מידע פיננסי לאחר לפי סעיף 29 לחוק שירות מידע פיננסי תעשה בהתאם לכללים הבאים:

57א(1) קיומו של הסכם בכתב עם הגוף האחר, אשר יכלול לכל הפחות, היבטים של אופן ביצוע העברת המידע, אחריות, אבטחת מידע, הגנת פרטיות, השימוש שיעשה במידע על ידי הגוף האחר, מנגנוני דיווח לעניין התקשרות עם לקוח או ביטול התקשרות עם לקוח;

57א(2) וידוא כי העברת המידע תעשה לגורם מורשה אצל הגוף האחר;

57א(3) העברת המידע יכולה להעשות באמצעות הסטנדרט או באמצעות ממשק מאובטח אחר. ביקש נותן שירות מידע פיננסי להעביר מידע, כאמור בסעיף זה, תוך שימוש בממשק מאובטח שאינו הסטנדרט, ימסור הודעה למפקח על הבנקים, לפחות 60 ימים לפני תחילת הפעילות, הכוללת פירוט באשר למאפייני הממשק;

57א(4) כלל הרישומים הממוכנים (logs) הקשורים להעברת המידע לגוף האחר ישמרו לתקופה של שבע שנים לפחות.

57ב. לעניין קבלת תמורה מגורם אחר, בקשר עם מתן שירות מידע פיננסי, כאמור בסעיף 24(2) לחוק שירות מידע פיננסי (בסעיף זה – '**גורם אחר**'), יחולו ההוראות הבאות:

57ב(1) נותן שירות מידע פיננסי יקבע נהלים לעניין תמורה מאחר שיבטיחו, בין היתר, שהסדר התמורה המוסכם בינו ובין גורם אחר, לא ישפיע על טיב שירות שנותן שירות מידע פיננסי מציע ללקוח (בסעיף זה – **הנהלים**).

57ב(2) ההנהלה הבכירה של נותן שירות מידע פיננסי תוודא, אחת לתקופה שתקבע על ידה, ולא פחות מאחת לשנה כי הסדרי התמורה לא פוגעים הלכה למעשה בטיב השירות ללקוח.

57ב(3) נותן שירות מידע פיננסי יעגן את הסדר התמורה בינו ובין גורם אחר באמצעות הסכם בכתב, בהתאם לנהלים שקבע.

57ב(4) מבלי לגרוע מהאמור לעיל, לעניין נותן שירות מידע פיננסי המציע שירות השוואת עלויות, לרבות שירות השוואת עלויות שניתן כחלק משירות תיווך, יחולו גם ההוראות הבאות:

57ב(4)(א) הנהלים יתייחסו במפורש למניעת השפעה של הסדר התמורה על השירות שניתן ללקוח, באופן שלא תינתן עדיפות לגורם אחר מסוים על פני אחר.

57ב(4)(ב) הנהלים יתייחסו במפורש למניעת השפעה של הסדר התמורה על השירות שניתן ללקוח, באופן שלא יהיו לנותן השירות תמריצים לעודד לקוח להגדלת היקף השירות המוצע לו.

57ב(4)(ג) נותן השירות לא יציע שירות השוואת עלויות, אלא אם התקשר עם שלושה מציעים לפחות.

57ב(4)(ד) נותן השירות יגלה ללקוח בכתב מיהם הגופים שאיתם הוא התקשר לשם מתן שירות השוואת עלויות וכן את העובדה שהוא מקבל תמורה, ככל שהוא מקבל.

58. בטל.

## **פרק ז' – תאגיד בנקאי כיוזם ~~בפיקוח~~**

58א. בטל.

58א1. תאגיד בנקאי, המבקש לשמש כיוזם ~~בסיסי~~תשלום יגיש בקשה רשמית לאישור הפעילות של מתן שירות ייזום בסיסי או שירות ייזום מתקדם, לפי העניין, כאמור בסעיף 15(א) לחוק הסדרת העיסוק בשירותי תשלום. הבקשה כאמור תוגש מטעם המנהל הכללי ותכלול את הפרטים הקבועים בחוק זה ולכל הפחות גם את הפרטים הבאים:

58א1(1) עיקרי התוכנית העסקית לעניין מתן שירות ייזום בסיסי או שירות ייזום מתקדם, שתכלול בין היתר את הדברים הבאים: פירוט השירותים שבכוונת המבקש לספק, אוכלוסיית היעד, הכלים ליישומה של התוכנית העסקית, ושיתופי פעולה לצורך יישומה, ככל שקיימים;

58א1(2) המסמכים הנלווים לאישור מוצר חדש, כאמור בהוראה 310, לרבות מיפוי הסיכונים בשירות זה והכלים לניהולם, וכן פרוטוקול הדיון בדירקטוריון, ככל שנדרש על פי מדיניות התאגיד הבנקאי, (להלן – '**מוצר חדש**');

58א1(3) מסמכים המעידים על קיומם של אמצעים טכנולוגיים מתאימים למתן שירות ייזום בסיסי או שירות ייזום מתקדם, לפי העניין, תוך ציון התשתית הטכנולוגית שיפעל באמצעותה.

58ב. יוזם ~~בסיסי~~תשלום המציע שירות תוך שימוש בממשק הגישה לחשבונות, רשאי להציע שירותים שונים בכפוף לכך שסוגי השירותים אושרו על ידי ~~הדירקטוריון של היוזם הבסיסי~~ התאגיד הבנקאי כמוצר חדש.

58ב1. יוזם ~~בסיסי~~תשלום יפתח כלים לניהול הסיכונים הכרוכים בפעילות זו, לרבות סיכונים מתחום ההונאות, וזאת לטובת הלקוחות, נותני שירותי התשלום ומערכת התשלומים. ~~בכלל זאת~~, כמו כן יוזם תשלום יקבע ~~היוזם הבסיסי~~ הליכי בדיקה בטרם צירוף מוטב לשירות וכן נהלי מעקב אחר אופן השימוש של מוטב בשירות לאורך זמן.

58ב2. ביטול הוראת תשלום אצל יוזם בסיסי

הציע יוזם בסיסי שירות של ביטול הוראת תשלום שפרטיה נכתבו בידיו או ביטול הרשאה לחיוב (להלן יחד – '**הוראת ביטול**'), וניתנה ליוזם הבסיסי הודעת המשלם על ביטול כאמור:

58ב2(1) יודיע למשלם כי ככל שלא יאשר אצל מנהל חשבון התשלום למשלם, הוראת הביטול לא תבוצע.

58ב2(2) יודיע על כך למנהל חשבון התשלום למשלם, מיד עם קבלת הודעת המשלם כאמור.

58ג. סעיף 54.1 בדבר כללים לרמת שירות, יחולו על יוזם ~~בסיסי~~תשלום, הפועל באמצעות ממשק הגישה לחשבונות, בשינויים המחויבים.

58ד. ארכיטקטורה ואבטחת מידע- יוזם ~~בסיסי~~תשלום, הפועל בממשק הגישה לחשבונות, יפעל כאמור להלן:

58ד(1) יוזם ~~בסיסי~~תשלום יפעל בהתאם לסעיפים 55 ו-56 לעיל, בשינויים המחויבים.

58ד(2) יוזם ~~בסיסי~~תשלום נדרש לחתום כל פניה שלו למנהל חשבון התשלום למשלם בסרטיפיקט לחותם אלקטרוני שהונפק בהתאם לסטנדרט.

58ד(3) בטל.

58ה. יוזם ~~בסיסי~~תשלום רשאי לפעול באמצעות ממשק טכנולוגי מאובטח ומקוון השונה מהסטנדרט, המאפשר גישה לחשבון תשלום של משלם, לצורך מתן שירות ייזום

~~בסיסי~~תשלום, ובלבד שיפעל בהתאם להוראה זו (למעט להוראות הנוגעות לסטנדרט עצמו), בשינויים המחויבים. כמו כן יפעל בהתאם להוראות סעיף 56 לעיל.

58ו. ניהול הרשאות גישה לחשבון

58ו(1). בטרם העברת הבקשה לאישור הרשאת הגישה על ידי המשלם למנהל חשבון התשלום שלו, יציג היוזם המתקדם למשלם באופן ברור, את פרטי הבקשה להרשאת גישה, ולכל הפחות את הפרטים הבאים:

(א) קיומן של הרשאות גישה נוספות עבור אותו יוזם באותו חשבון לאותו משלם ופרטיהן;

(ב) תקרת סכום החיוב בהוראות תשלום הניתנות מכוח ההרשאה;

(ג) תוקף ההרשאה;

(ד) ;

(ה) האפשרויות העומדות בפני הלקוח לצפייה בהרשאות הגישה הקיימות עבור אותו יוזם מתקדם, וכן האפשרויות לביטול או לשינוי הרשאות מסוג זה;

58ו(2). יוזם מתקדם יציג למשלם בכל עת, בערוצים האינטרנטיים, את ההרשאות התקפות לגישה לחשבון התשלום שלו, שניתנו ליוזם המתקדם וכן הרשאות הממתינות לאישור המשלם. לגבי כל הרשאה יוצגו לכל הפחות הפרטים המפורטים להלן:

(א) שם מנהל חשבון התשלום למשלם;

(ב) מספר חשבון התשלום ושם חשבון התשלום של המשלם;

(ג) תקרת סכום החיוב בהוראות התשלום הניתנות מכוח ההרשאה, לרבות סוג המטבע בו יבוצע התשלום;

(ד) תוקף ההרשאה;

58ז. מתן הוראת תשלום על ידי משלם ליוזם מתקדם- בטרם מתן הוראת תשלום על ידי המשלם, יוזם מתקדם יציג למשלם באופן ברור, את פרטי הבקשה. המידע שיוצג למשלם יכלול, לכל הפחות, את הפרטים הבאים:

(1) השם והמספר המזהה של המוטב אליו מועבר התשלום;

(2) מספר חשבון התשלום ושם חשבון התשלום של המשלם אליו תועבר הוראת התשלום לביצוע, כפי שמופיע אצל היוזם המתקדם בפרטי ההרשאה;

(3) סכום התשלום, לרבות סוג המטבע בו יבוצע התשלום;

(4) המועד המבוקש לביצוע הוראת התשלום, על ידי מנהל חשבון התשלום למשלם, ככל שהבקשה תאושר על ידי המשלם;

(5) בתשלום תקופתי מחזורי (recurring /periodic payment) – תדירות התשלומים ומועד תחילת התשלום. וככל שהמשלם מעונין לקבוע תקופה – גם מספרם או מועד התשלום האחרון;

58ח. ביטול הוראת תשלום שניתנה אצל יוזם מתקדם והועברה למנהל חשבון התשלום בממשק הגישה לחשבונות - הודעה של יוזם מתקדם למנהל חשבון תשלום למשלם לעניין זה, כאמור בסעיף 16(א)(2) לחוק שירותי תשלום תשלח כאמור בסטנדרט.

## פרק ח' - פניות לקוחות

59. בטל.
60. בטל.
61. בטל.
62. בטל.

## פרק ח1' – הוראות לגוף פיננסי

62א. בנק, בנק חוץ, תאגיד עזר, בעל רישיון נותן שירותי תשלום יציבותי ותאגיד בשליטתו, רשאים לקבל מידע אודות לקוח, מנותן שירות מידע פיננסי לשם מתן הצעה מטעמו להתקשרות עם הלקוח (להלן בפרק זה – '**גוף פיננסי**'), כאמור בסעיף 29 לחוק שירות מידע פיננסי, ובלבד שהתנאים הבאים מתקיימים:

62א(1) הגוף הפיננסי התקשר עם נותן שירות למידע פיננסי בהסכם להעברת המידע, בהתאם לסעיף 57א(1) לעיל.

62א(2) הגוף הפיננסי ינהג במידע המתקבל באופן האמור בסעיף 55.6.

62א(3) הגוף הפיננסי ישמור את כלל הרישומים הממוכנים (logs) הקשורים לקבלת המידע מנותן שירות מידע פיננסי לתקופה של שבע שנים לפחות.

## פרק ט' - דיווחים

63. תאגיד בנקאי ידווח לפיקוח על הבנקים, במקרה של מניעת גישה בהתאם לפירוט להלן:

63.1. ביחס למניעת גישה לנותן שירות מידע פיננסי – דיווח לעניין סעיף 41(א) לחוק שירות מידע פיננסי, שיכלול את הפרטים הבאים: שם מקור המידע או שם נותן שירות מידע פיננסי, לפי העניין, מועד מניעת הגישה והסרתה (אם ידוע) והסיבה לכך.

63.2. ביחס למניעת גישה ליוזם ~~בסיסי~~תשלום – דיווח לעניין סעיף 36(ג) לחוק הסדרת העיסוק בשירותי תשלום, שיכלול את הפרטים הבאים: שם מנהל חשבון התשלום למשלם או שם ~~היוזם הבסיסי~~יוזם התשלום לפי העניין, מועד מניעת הגישה והסרתה (אם ידוע) והסיבה לכך.

63א. מקור מידע או מנהל חשבון תשלום למשלם ידווח לפיקוח על הבנקים אודות תקלות משביתות שירות. הדיווח יתייחס למהות התקלה, מועד איתורה, מועד השלמת הטיפול או המועד הצפוי להשלמת הטיפול.

64. תאגיד בנקאי ידווח לפיקוח על הבנקים אודות פעילותו בבנקאות פתוחה כמקור מידע, כמנהל חשבון תשלום למשלם או כספק צד ג' וגוף פיננסי.

65. מבנה הדיווח ומועדי הדיווח לפי פרק זה יפורטו בהוראת דיווח לפיקוח על הבנקים לעניין בנקאות פתוחה.

* * *

4. **עדכונים**

| חוזר מס' | פרטים | גרסה | תאריך |
|---|---|---|---|
| 2606 | חוזר מקורי | 1 | 24/02/20 |
| 2669 | עדכון | 2 | 30/09/21 |
| 2698 | עדכון | 3 | 23/02/22 |
| 2707 | עדכון | 4 | 15/05/22 |
| 2734 | עדכון | 5 | 22/01/23 |
| 2778 | עדכון | 6 | 07/04/24 |
| 2796 | עדכון | 7 | 10/10/24 |
| 2815 | עדכון | 8 | 20/04/25 |

# Bank Of Israel

# Open Banking IL

## Implementation Guidelines

נספח א'8 להוראת ניהול בנקאי תקין 368

Version 2.0

27 August 2026

THE Berlin GROUP

A EUROPEAN STANDARDS INITIATIVE

# openFinance API Framework

# Implementation Guidelines

## Protocol Functions and Security Measures

Version 2.3

31 October 2025

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  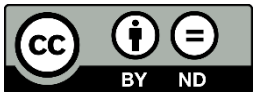

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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by socalled Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an "access to account interface" (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework now has been opened up to extended services. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client's bank for KYC processes.

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**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to "asset broker" and "asset holder" resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as "API provider".

**Note**: At some places, the openFinance API Framework is still using the technical TPP notion also for the openFinance APIs, e.g. in redirection related header parameters. In this context, the TPP is not necessarily a licensed TPP as mentioned above, but for certain services may just be any "third party provider".

The following account access methods are covered by this framework:

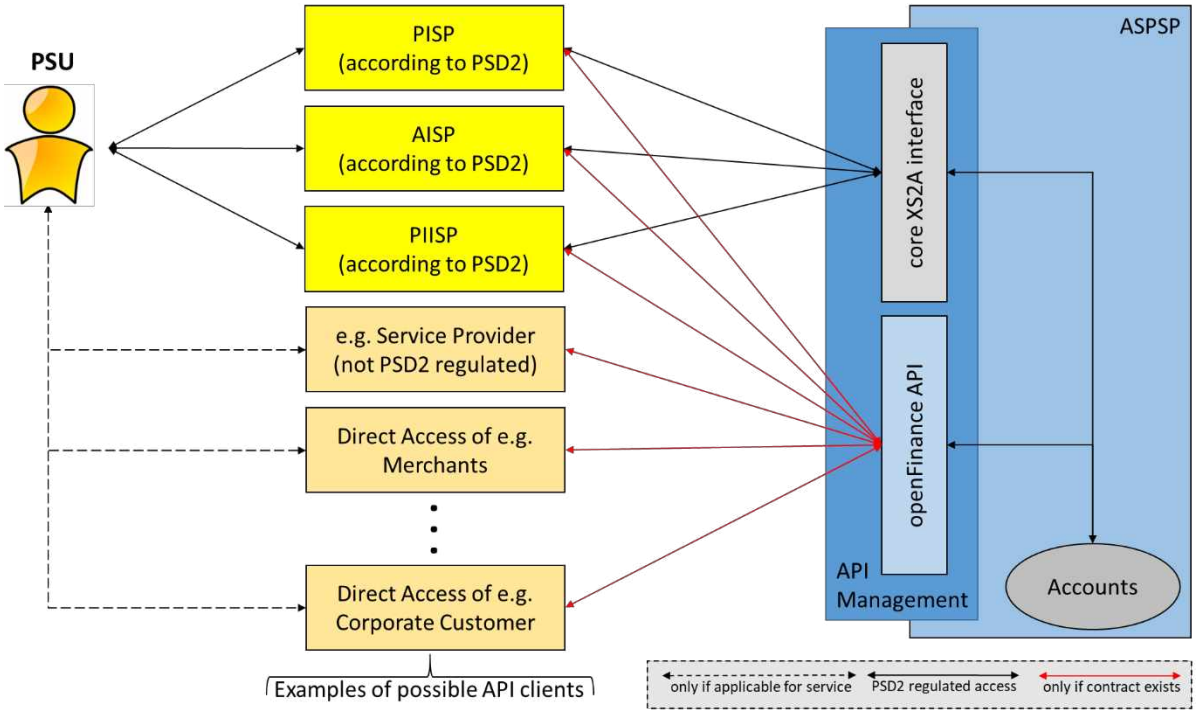


Figure 1: Core XS2A interface and openFinance API

The ASPSP may restrict the access to the services offered at its openFinance API and require dedicated onboarding. The requirements for the rights to access to services offered at the openFinance API are out of scope of this document. These requirements are in detail in [oFA-IG-ADM].

In contrast to the services of the openFinance API the ASPSP has to offer access to the services of his core XS2A API to any TPP without any discrimination as long as the TPP has got the necessary licence to access a service as a PISP, AISP or PIISP from an NCA according to the regulations of [PSD2].

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## 1.2 Protocol Functions supported by XS2A and openFinance API

The addressed services within the XS2A API and the openFInance API share many protocol functions. Such functions are defined in this Framework document and cover e.g.

- dynamic protocol steering by hyperlinks,
- how to address transaction authorisation resource,
- how to push resource status changes to API clients or
- how to handle protocol preferences of the API Clients.

Such generic protocol functions are explained only within this document. Service specifications using these functions then just refer to this openFinance API Framework documentation for better readability. For better readability, the document refers in most parts to the openFinance API Framework only instead of addressing both, the XS2A API and the openFinance API. Where needed, the two APIs are addressed separately.

## 1.3 Security Measures supported by XS2A and openFinance API

Specific API protocol functions are security measures to be supported by an API. XS2A and openFinance API according to the specifications of the Berlin Group support different security measures and approaches for the authentication of a PSU. Examples are the authentication of an API Client either at the transport level or the support of different approaches for the execution of a strong customer authentication of a PSU.

Some of these security measures and approaches for PSU authentication have to be supported by an API mandatorily, for other the support is an option for the ASPSP. In any case an API Client has to secure his access to an XS2A or openFinance API by a security measure or has to use a special approach for PSU authentication if requested by an ASPSP.

This document describes how different security measures and approaches for PSU authentication are supported by an XS2A or openFinance API. For each it is defined if the support at an XS2A API and/or at an openFinance API is mandatory (i.e. has to be supported by each ASPSP) or optional (i.e. the ASPSP can decide to support it or not). If special restrictions for values, parameters, variants, etc. for the support of a security measure exist, these are also described.

Please notice that this document contains only the specification of how security measures are supported by an API, but not the specification of the security measures itself.

## 1.4 Document Structure

This document specifies the Protocol Functions and Security Measures supported by an XS2A or openFinance API (if based on one of the Berlin Group specifications) in detail. It has to be

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considered in combination with any other Implementation Guidelines published by the Berlin Group. This document defines the following building bricks:

- Character sets and primitive data types supported by all services in Section 2.1
- Notations used within all services definitions and in the openFinance API Framework documentation in Section 2.2
- REST API principles within the openFinance API Framework in Section 3
- Error handling in Section 4
- Authentication of API Clients and ASPSP at transport layer in Section 5
- Signing messages on application layer in Section 6
- Signing message bodies in Section 0
- Encryption of message bodies in Section 7.2
- SCA Approaches supported in Section 8
- Authorisation processes supported in Section 9
- Introduction of the different payment formats and definition for SEPA and cross-border payment products supported in Section 10
- Signing basket function to group transactions for authorisation in Section 11
- Resource status notification function (formerly called Lean Push Service) in Section 12

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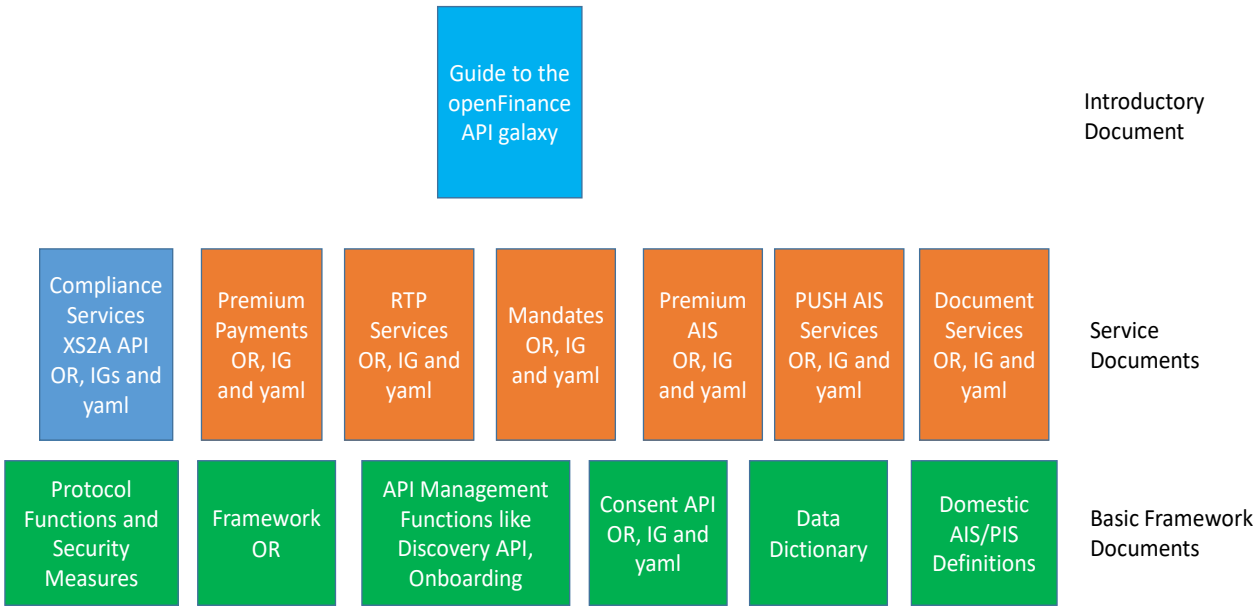
This document fits into the overall structure of the documentation as follows:




## 1.5 Document History

| Version | Change/Note | Approved |
|---|---|---|
| Version 2.0 | Initial Version of the openFInance API Framework documentation. | 2023-10-5 openFinance TF |
| Version 2.1 | Enhancing the Framework by the SCA approach "ASPSP-Channels" when using asynchronous SCA procedures via e.g. the ASPSP online channels.<br><br>Renaming some authorisation related HTTP headers to prepare the API Framework for direct access for corporates.<br><br>Extending the embedded and decoupled SCA approach by an option to add the debtor account during the authorisation process, via an account selection process.<br><br>Extending message signing routines by headers protecting the resources addressed. | |

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| Version | Change/Note | Approved |
|---|---|---|
| | Errata and clarifications.<br><br>Details are covered in the Annex of this document. | |
| Version 2.2 | MaxXLength data structures have been clarified to have a minimum length of one character (in compliance with ISO20022).<br><br>Improving the structure of the guidelines by introducing two different natures of services, one of which is related to transactions and the other is related to the creation of service resources.<br><br>In more details, the description of a service resource, the header parameters of a servie resource creation request and the links of the response of the service resource creation are correspondingly added.<br><br>The header Client Brand Logging Information is restricted to Max140Text.<br><br>The requirement not to restrict redirect URIs to TPP domains protected by the QWAC has been detailed.<br><br>Some new features have been added to support the integration of a Verification of payee function into payment initiation APIs.<br><br>The examples for signing messages is completely reworked in Section 6.2.3<br><br>New OAuth scope key words for document services and user management services have been added.<br><br>Further detailed information is covered in the Annex in Section 13.3.2 of this document. | |

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| Version | Change/Note | Approved |
|---|---|---|
| Version 2.3 | Revision of Section 0 on signing the body of a message. Due to the fundamentally different approach of the process of signing the body (with JAdES_JS) that is now specified in detail, the specifications do no longer support the signing process relying on the signature profile XAdES that was included in this standard beforehand.<br><br>Added a new section 10 on payment formats to be used by payment initiation services, where the different payment formats are introduced and SEPA and cross-border payment products are defined.<br><br>Further detailed information is covered in the Annex in Section 13.3.3 of this document. | 31 October 2025openFinance TF |

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## 2 Character Sets and Notations

This section introduces character sets and notations used throughout the openFinance API Framework.

### 2.1 Character Set and Data Types

#### HTPP body parameters

The character set within the openFinance API Framework for parameters transported in HTTP bodies is UTF 8 encoded. This specification is only using the basic data elements "String", "Boolean", "ISODateTime", "ISODate", "UUID", "Integer" (with a byte length of 32 bits), "Decimal Number" (with 18 tota digits and 17 fraction digits) and ISO based code lists. For codes defined by ISO, a reference to the corresponding ISO standard is given on service specification or data dictionary level.

Max35Text, Max70Text, Max140Text Max500Text, Max1000Text, Max2000Text are defining strings with a minimum of one and a maximum length of 35, 70, 140, 500, 1000 and 2000 characters respectively. Further lengths might also be used analogously.

ASPSPs will accept for strings at least the following character set:

a b c d e f g h i j k l m n o p q r s t u v w x y z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9

/ - ? : ( ) . , ' +

Space

**BOI remarks:** the Hebrew alphabet must be supported as part of the character set :

א ב ג ד ה ו ז ח ט י כ ך ל מ ם נ ן ס ע פ ף צ ץ ק ר ש ת

ASPSPs may accept further character sets for text fields like names, addresses, text. Corresponding information will be contained in the ASPSP documentation of the related service. ASPSPs might convert certain special characters of these further character sets, before forwarding e.g. submitted payment data.

Complex data types and code lists are defined in the data dictionary [oFA DD] or in related service specifications.

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### HTTP query and header parameters

Encoding follows the HTTP specification. Specific additions might be provided for HTTP parameters introduced specifically by this specification.

## 2.2 Notation

**BOI Remarks:**

This document contains examples based on specific sections of the IG. The examples do not reflect all of the fields required for an implementation.

### 2.2.1 Notation for Requests

For API request calls, query parameters, HTTP header parameters and body content parameters are specified within this openFinance API Framework as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| attribute tag | type of attribute | condition | description of the semantic of the attribute and further conditions. |

The "Type" is referring to either basic or complex data types as introduced in Section 2.1.

The following conditions may be used when describing data to be submitted by the client:

- Optional: The attribute is supported by the server, usage is optional for the client. The server may ignore the parameter if mentioned in the “Description” column of the table above.
- Conditional: The attribute is supported by the server and might be mandated by
  - the server provider in its own documentation of the support of the related API or
  - by certain rules as defined in the “Description” column of the table above.
- Mandatory: The attribute is supported by the server and shall be used by the client.
- Optional if supported by API provider: It is optional for the server to support this attribute. If the server is supporting the attribute as indicated in its own documentation of the related service, it might be used by the client optionally. If the server is not supporting the attribute, then the request is rejected when it is contained.

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**Remark**: Please note that the conditions “Optional if supported by API provider” is used rarely in the openFinance API Framework.

### 2.2.2 Notation for Responses

For API call responses, parameters, HTTP header parameters and body content parameters are specified within the openFinance API Framework as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| attribute tag | type of attribute | condition | description of the semantic of the attribute and further conditions. |

The "Type" is referring to either basic or complex data types as introduced in Section 2.1.

The following conditions can be set on data to be provided by the server:

- Optional: The attribute is supported optionally by the server
- Conditional: The attribute is supported by the server under certain conditions as indicated in the “Description” column of the table above.
- Mandatory: The attribute is always supported by the server.

**BOI remarks**: "Conditional" throughout this document means that the attribute has to be supported by the server if the attribute is supported in the ASPSP online site or app.

### 2.2.3 Notations used for Requests as well as Responses

The following additional conditions apply to both, requests from the client to the server as well as responses from the server to the client:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | {Or | |
| | | Or | |
| | | Or} | |
| | | {Or – Optional | |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | Or – Optional | |
| | | Or – Optional} | |

- {Or: The **first** element in a sequence of elements of which **exactly one** has to be included.
- Or: An element in a sequence of elements of which **exactly one** has to be included. The element is **neither the first nor the last** within this sequence.
- Or}: The **last** element in a sequence of elements of which **exactly one** has to be included.
- {Or – Optional: The **first** element in a sequence of elements of which **at most one** may be included.
- Or – Optional: An element in a sequence of elements of which **at most one** may be included. The element is **neither the first nor the last** within this sequence.
- Or – Optional}: The **last** element in a sequence of elements of which **at most one** may be included.

**Note:** Specifications for the openFinance API are accompanied by an openAPI interface description (as a yaml file). Within these openAPI descripitions, elements with conditions "{Or", "Or", "Or}", "{Or – Optional", "Or – Optional", "Or – Optional}" will be treated as (pure) optional elements at the moment. It is the responsibility of the implementer to ensure the additional checks.

### 2.2.4 Base64 Notations

Base64 encoding:

Base64 encoding according to [RFC4648].

Base64url encoding:

According to [RFC7515] base64 encoding using the URL- and filename-safe character set defined in Section 5 of [RFC4648], with all trailing '=' characters omitted (as permitted by Section 3.2) and without the inclusion of any line breaks, whitespace, or other additional characters. Note that the base64url encoding of the empty octet sequence is the empty string. (See Appendix C of [RFC7515] for notes on implementing base64url encoding without padding.)

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### 2.2.5 Notion of a Transaction

Transaction is used in two different contexts within this document respectively the openFinance API Framework:

- "Transaction" as meta description of a complex service interaction with the API to simplify the definitions in this document:
    - The notion of a transaction subsumes service interactions like payment initiation, consents for API interaction, subscriptions or signing baskets.
    - Such transactions are started by the API Client with a related initiation request, called throughout this document "Transaction Initiation Request", e.g. a
        - Payment Initiation Request,
        - Establish Consent Request,
        - Establish Signing Basket Request, or
        - Initiate Subscription Request.
    - The response to these initiations by the ASPSP is called "Transaction Initiation Response" throughout this document.
    - Transactions need normally to be authorised by the PSU by applying a Strong Customer Authentication (SCA).
    - Where transaction data is posted to the API, a related resource is created.
- Transaction as a banking transaction on an account:
    - Entries on an account are also addressed as transactions.

### 2.2.6 Notion of a Service Resource

Most of the technical POST requests supported in this API framework will lead to a generation of a resource with a related resource identification, which enables the API Client to address the related object later on. A prominent one is the Transaction Initiation Request defined above, where the object stored in the addressed resource is part of a complex interaction with the API.

In some cases, a resource is created, but only some restricted API interaction features are supported for this resource like the push resource status function. Such a resource is called

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"Service Resource" in this document, the related requests are called "Service Resource Creation Request" throughout the openFinance API documentation.

Examples of Service Resource Creation Request in the openFinance API Framework e.g. a:

- Document Submission Request
- Request to Pay Request

### 2.2.7 Notation for Access Methods

All service definitions in the openFinance API Framework will come with an overview on the http access methods supported.

These access methods are denoted by the following tables:

| Endpoints | Method | Condition | Description |
|---|---|---|---|
| service-endpoint | POST or GET or PUT or DELETE | Mandatory or Optional or Conditional | Description and reference to the section, where the related access point is |

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The following definitions apply for such tables throughout the openFinance API Framework documentation:

- Endpoints: This is the endpoint name.
- Method: This is the HTTP method to be applied. The HTTP methods POST; GET PUT and Delete are supported.
- Condition: The condition defines the condition for the ASPSP.
    - Mandatory: The access method shall be provided by the ASPSP
    - Optional: The access method may be provided by the ASPSP
    - Conditional: The access method shall be provided given certain conditions defined in the Description column.

    Please note that the condition is given relative to the parent node of the path, i.e. the condition e.g. on a method on /service-endpoint/{resourceId} applies only if the endpoint /service-enpoint is supported at all.
- Description: Gives an overview on the method and potentially conditions for the method as well as a reference to the section in the document, where the method is described in detail.

**BOI remarks**: "Conditional" throughout this document means that the attribute has to be supported by the server if the attribute is supported in the ASPSP online site or app.

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# 3 REST API Approach: Guiding Principles

This section introduces some basic technical rules on how to implement the REST API approach within the openFinance API Framework.

## 3.1 Location of Message Parameters

The openFinance API Framework definitions follow the REST service approach. This approach allows to transport message parameters at different levels:

- message parameters as part of the HTTP level (HTTP header)
- message parameters by defining the resource path (URL path information) with additional query parameters and
- message parameters as part of the HTTP body.

The content parameters in the corresponding HTTP body will be encoded either in JSON or in XML syntax. XML syntax is only used where

- an ISO 20022 based payment initiation (pain.001 message) with the corresponding payment initiation report (pain.002 message) or
- ISO 20022 based account information message (camt.052, camt.053 or camt.054 message)

is contained.

As an exception, response messages might contain plain text format in account information messages to support MT940, MT941 or MT942 message formats related to transaction reports.

The parameters are encoded

- in spinal-case (small letters) on path level,
- in spinal-case (starting capital letters) on HTTP header level and
- in lowerCamelCase for query parameters and JSON based content parameters.

The following principle is applied when defining the API:

Message parameters as part of the HTTP header:

- Definition of the content syntax,
- Certificate and Signature Data where needed,

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- PSU identification data (the actual data from the online banking frontend or access token),
- Protocol level data like Request Timestamps, Request/Transaction Identifiers or protocol preferences of the API Client.

Message parameters as part of the path level:

- All data addressing a resource:
  - Provider identification,
  - Service identification,
  - Payment product identification,
  - Account Information subtype identification,
  - Resource ID

Query Parameters:

- Additional information needed to process the GET request for filtering information,

Message parameters as part of the HTTP body:

- Business data content,
- PSU authentication data,
- Messaging Information
- Hyperlinks to steer the full TPP – ASPSP process

### 3.2 API Structure

The XS2A Interface resp. openFinance API is resource oriented. Resources can be addressed under the API endpoints

```
https://{provider}/v2/{service}{?query-parameters}
```

using additional content parameters {parameters}

where

- {provider} is the host and path of the related API, which is not further mentioned. The host or path may contain release version information of the ASPSP.


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- v2 is denoting the final version 2.x of the related implementation guidelines within the openFinance API Framework.

- **BOI remarks**:
- V2 is denoting the final version of this SPM file.
- Call by Major version will address by default to the latest full version as declared by BOI.

- For example:
- Contacting https://xxx.xxx.com/v2/ {payment-service} / {payment-product} will automatically refer to the latest full version in ASPSP
- Addressing to a specific version address will refer to the same specific version according to the version support procedure.
- For example:
- go to https://xxx.xxx.com /v2.0.8/{payment-service}/{payment-product} Address to v2.0.8 version if it is still supported.

**NOTE:** The addressed exact version of the Implementation Guidelines of the addressed service will be provided in a dedicated response header, cp. Section 3.3.

- {service} has the values consents, payments, bulk-payments, periodic-payments, accounts, card-accounts, signing-baskets or funds-confirmations for the XS2A Interface eventually extended by more information on product types like resource identification and request scope. For the openFinance API, more services are offered as provided in the extended service specifications of the openFinance API Framework.

  **Remark**: It is strongly recommended that the related resourceId for identifying a dedicated resource is a UUID.

- {?query-parameters} are parameters detailing GET based access methods, e.g. for filtering content data

- {parameters} are content attributes defined in JSON or XML and transported in the http body encoding according to the following

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- XML encoding appears only when ISO 20022 pain.001 messages are transported when demanded by the ASPSP for the corresponding payment product

**BOI remarks**: Any use of XML should get approved in advance

by the Bank Of Israel.

- all other request bodies are encoded in JSON

Resources

The structure of the request/response is described according to the following categories

- Path: Attributes encoded in the Path, e.g. "payments/sepa-credit-transfers" for {resource}
- Query Parameters: Attributes added to the path after the "?" sign as process steering flags or filtering attributes for GET access methods. Query parameters of type Boolean shall always be used in a form query-parameter=true or query-parameter=false.
- Header: Attributes encoded in the HTTP header of request or response
- Request: Attributes within the content parameter set of the request
- Response: Attributes within the content parameter set of the response, defined in XML, text or JSON:
  - XML encoding appears only, when camt.052, camt.053 or camt.054 messages (reports, notifications or account statements) or pain.002 payment status messages are transported. pain.002 messages will only be delivered for the GET Status Request, and only in cases where the payment initiation was performed by using pain.001 messages.
  - Text encoding appears only, when MT940, MT941 or MT942 messages (reports, notifications or account statements) are transported.
  - All other response bodies are encoded in JSON.

The HTTP response codes which might be used in the openFinance API Framework are specified in Section 3.7.1. This is not repeated for every API call definition.

**Remark:** For JSON based responses, this specification defines body attributes which are responded from ASPSP to API Clients following POST or PUT API calls. The ASPSP is free to return the whole addressed resource within the response, following usual REST methodologies.

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## 3.3 API Versioning

For calls on a dedicated service, the ASPSP might use the following HTTP header in responses:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Reference-API-Name | String | Optional | "Berlin Group openFinance API" |
| X-Reference-API-Document | String | Optional | The name of the Implementation Guideline document, where the service is based on, e.g. "Extended Payment Initiation Services". |
| X-Reference-API-Version | String | Optional | This is the exact version number of the openFinance API Framework Implementation Guidelines of the related service which is implemented, e.g. "2.1.3". |

**Note:** The usage of these header is recommended to use at least on root endpoints for an addressed service. It should be used independently of the http response code.

## 3.4 API Request Header Parameter

The following headers are defined generically within this document and will be instantiated to service definitions explicitly only via the related OpenAPI files. Such lean documentation is intended to enhance the readability of the service definitions.

### 3.4.1 Transaction Initiation Request Headers

Transaction Initiation Request messages (cp. Section 2.2.5 for a definition) are specific within the openFinance API Framework. These initiation messages for a business transaction not only transport business related information, but also context data and data steering the usage of openFinance API Framework functions. These headers are defined within this document and will be instantiated to service definitions explicitly only via the related OpenAPI files. Such lean documentation is intended to enhance the readability of the service definitions.

The openFinance API Framework foresees a.o. the following header parameters for Transaction Initiation Request messages

- PSU context data, cp. Section 8.2
- PSU identification data, cp. Section 8.3
- SCA Approach Preferences, cp. Section 8.4

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- API Client Notification data, cp. Section 12
- Client Brand Information Header, see Section 3.4.3

The usage of the headers mentioned above might lead to the usage of specific header parameters in the Transaction Initiation Response, as defined in the sections above. These headers will not be referred anymore in the related service implementation guidelines, but only generically in this document and in the related yaml files. Others like OAuth2 authorization headers or API Contract IDs are still addressed explicitly in the service implementation guidelines.

The same headers (besides the Client Brand Information Header) also apply to Payment Cancellation Request messages.

### 3.4.2 Service Resource Creation Request Headers

Service Resource Creation Request messages (cp. Section 2.2.6 for definition) are differently specified among different services in the openFinance API Framework. Nevertheless, one could predict a usual set of header parameters that are required to create the corresponding resource. These parameters include a.o.:

- Client Brand Logging Information Header, see Section 3.4.3
- API Client Notification data, cp. Section 12

These headers will not be referred anymore in the related service implementation guidelines, but only generically in this document and in the related yaml files. Others like OAuth2 authorization headers or API Contract IDs are still addressed explicitly in the service implementation guidelines.

### 3.4.3 Client Brand Information Header

The following header may be used within all Transaction Initiation Requests or Service Resource Creation Requests:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-Brand-Logging-Information | Max140Text | Optional | This header might be used by API Clients to inform the ASPSP about the brand used by the API Client towards the PSU. This information is meant for logging entries to enhance communication between ASPSP and PSU or ASPSP and API Client.<br><br>This header might be ignored by the ASPSP. |

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### 3.4.4 Signature related headers

In addition, the following header parameters might be used in all API request headers, where applicable:

- Signature related headers in a message signing context, cp. Section 6
- Signature related headers in a signed transaction request context (SCA), cp. Section 7.1.2.

### 3.4.5 Technical headers

The http requests come with certain technical headers, which are not specifically addressed in this specification. One of these headers is the "date" header which is typically added automatically on http protocol level by the API Client system.

Please further note that the http message signing procedure defined in Section 6 specifies a dedicated timestamp for the openFinance API Framework which is protected itself by signing.

## 3.5 Header Parameters for Idempotency

All requests **and** responses in this API framework come with the unique X-Request-Id, a UUID in requests and responses. The X-Request-Id in the response equals the X-Request-Id in the related request.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

The uniqueness implies the following:

A request B with the same X-Request-Id as request A should be responded as follows to achieve idempotency:

- If the business content of request B (e.g. path, query parameters, body and headers defined in this specification) equals the business content of request A and if the time deviation is not too high (implementation/request specific) and if potentially the internal state of the related resource has not changed in the meantime: The response message from the server to request B then also should equal the response message to request A.
- Otherwise the requested message should be rejected with a 40x response code.

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## 3.6 API Steering Process by Hyperlinks (HATEOAS)

The services defined within the openFinance API Framework require several requests from the API Client towards the ASPSP. With the Transaction Initiation Request specified in each service, a resource presentation is generated by the ASPSP for the related business transaction, e.g. a payment resource or a consent resource for AIS access. The location header of the response will usually contain a link to the created resource.

In addition, the ASPSP can embed a hyperlink together with a "tag" for the semantics of this hyperlink into the response to these first requests and to all succeeding requests within the services. This hyperlink must be a URI reference as defined in [RFC3986] and can be either a relative link, which is recommend to save space, for the host starting e.g. with "/psd2/v2/payments/sepa-credit-transfers" or it can be a global link like https://www.testbank.com/psd2/v2/payments/sepa-credit-transfers/asdf-asdf-asdf-1234.

The global links might be needed in some circumstances, e.g. a re-direct. The tag of the hyperlink transports the functionality of the resource addressed by the link, e.g. "authorise-transaction". This link indicates that results of a SCA method are to be posted to the resource addressed by this link to authorise e.g. a payment.

The steering hyperlinks are transported in the "_links" data element of type Link, cp. the related data dictionary. It may contain one or several hyperlinks. Services might define additional hyperlinks before they are integrated mid-term to the overall data dictionary within the openFinance API Framework maintenance.

The "_links" data element may contain more hyperlinks than specified in the related call. In this case, this will be documented in the ASPSP's API documentation or the hyperlinks can be ignored by the API Client.

Some hyperlinks might require additional data in the same response body which are then needed when following this hyperlink. The following table gives an overview on these specific steering hyperlinks to explain interconnection with the data elements.

| Hyperlink | Additional Link Related Data | Description |
|---|---|---|
| startAuthorisationWith PsuAuthentication | (challengeData) | The link to an endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where PSU authentication data shall be uploaded with the corresponding call.<br><br>Remark: In rare cases the ASPSP will ask only for some dedicated ciphers of the passwords. This information is then transported to the TPP by using the |


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| Hyperlink | Additional Link Related Data | Description |
|---|---|---|
| | | "challenge" data element, normally used only in SCA context. |
| startAuthorisationWith EncryptedPsuAuthentication | (challengeData) | Same as startAuthorisactionWith PsuAuthentication, but password is encrypted on application layer when uploaded. |
| updatePsuAuthentication | (challengeData) | The link to the authorisation sub resource, which needs to be updated by a PSU password and eventually the PSU identification if not delivered yet.<br><br>Remark: In rare cases the ASPSP will ask only for some dedicated ciphers of the passwords. This information is then transported to the TPP by using the "challenge" data element, normally used only in SCA context. |
| updateEncryptedPsu Authentication | (challengeData) | Same as updatePsuAuthentication, but password is encrypted on application layer when uploaded. |
| startAuthorisationWith AuthenticationMethodSelection | scaMethods | This is a link to and endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where the selected SCA method shall be uploaded with the corresponding call. |

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| Hyperlink | Additional Link Related Data | Description |
|---|---|---|
| selectAuthenticationMethod | scaMethods | This is a link to a resource, where the TPP can select the applicable strong customer authentication methods for the PSU, if there were several available authentication methods. |
| authoriseTransaction | challengeData, chosenScaMethod | A link to the resource, where a "Transaction Authorisation Request" can be sent to. This request transports the result of the SCA method performed by the customer, generating a response to the challenge data. |
| startAuthorisationWith TransactionAuthorisation | challengeData, chosenSCAMethod | A link to an endpoint, where an authorisation of a transaction or a cancellation can be started, and where the response data for the challenge is uploaded in the same call for the transaction authorisation or transaction cancellation at the same time in the Embedded SCA Approach. |

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## 3.7 Links in dedicated Responses

In the following, semantic links for dedicated response messages are defined. These links will not be specified anymore in related service implementation guidelines.

### 3.7.1 Links in Transaction Initiation Response

The Transaction Initiation Response message may contain many hyperlinks to indicate the next steps to be taken to authorise the transaction. These hyperlinks are independent of the actual transaction initiated. This is why they are defined once here generically and are not repeated on Implementation Guideline level, but only in related Open API files. The same applies to response messages of other transactions which might require authorisation, e.g. a Payment Cancellation Request.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"scaRedirect": In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.<br><br>"startAuthorisationWithPsuIdentification":<br><br>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU identification data.<br><br>"startAuthorisationWithPsuAuthentication":<br><br>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU authentication data.<br><br>"startAuthorisationWithEncryptedPsuAuthentication": Same as startAuthorisactionWithPsuAuthentication, but the |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | authentication data need to be encrypted on application level while uploading.<br><br>"startAuthorisationWithAuthentication MethodSelection":<br><br>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods"<br><br>"startAuthorisationWithTransactionAuthorisation":<br><br>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while authorising the transaction e.g. by uploading an OTP received by SMS.<br><br>"self": The link to the transaction initiation resource created by this request. This link can be used to retrieve the resource data.<br><br>"status": The link to retrieve the transaction status of the transaction initiated.<br><br>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource. This link is only contained, if an authorisation sub-resource has been already created. |

### 3.7.2 Links in Service Resource Creation Response

The possible links in Service Resource Generation Responses vary depending on the service, nevertheless, the following table contains all minimum links defined sofar for these dedicated response messages. These links will not be repeated in related service implementation guidelines.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | depend on the dynamical decisions of the ASPSP when processing the request.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"self": The link to the resource created by this request. This link can be used to retrieve the resource data.<br><br>"status": The link to retrieve the status of the resource created by this request. |

## 3.8 HTTP Response Codes

The HTTP response code is communicating the success or failure of an API Client request message. The 4XX HTTP response codes should only be given if the current request cannot be fulfilled, e.g. a payment initiation cannot be posted or account transactions cannot be retrieved. For further details on error handling cp. Section 4. A request to get the status of a transaction usually returns HTTP response code 200 since the actual request to retrieve the status succeeded, regardless if that transaction state is set to failure or not.

The openFinance API Framework supports the following HTTP response codes:

| Status Code | Description |
|---|---|
| 200 OK | PUT, GET Response Codes<br><br>This return code is permitted if a request was repeated due to a time-out. The response in that might be either a 200 or 201 code depending on the ASPSP implementation.<br><br>The POST for a Funds request will also return 200 since it does not create a new resource.<br><br>DELETE Response Code where a payment resource has been cancelled successfully and no further cancellation authorisation is required. |
| 201 Created | POST response code where a Transaction Request was correctly performed and a related resource was created, which is addressable further on by the API Client. |

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| Status Code | Description |
|---|---|
| 202 Accepted | DELETE response code, where a transaction resource, e.g. a payment resource can be cancelled in general, but where a cancellation authorisation is needed in addition. |
| 204 No Content | DELETE response code where a transaction resource, e.g. a consent resource was successfully deleted. The code indicates that the request was performed, but no content was returned. |
| 400 Bad Request | Validation error occurred. This code will cover malformed syntax in request or incorrect data in payload. |
| 401 Unauthorized | The TPP or the PSU is not correctly authorized to perform the request. Retry the request with correct authentication information. |
| 403 Forbidden | Returned if the resource that was referenced in the path exists but cannot be accessed by the API Client or the PSU. This code should only be used for non-sensitive id references as it will reveal that the resource exists even though it cannot be accessed. |
| 404 Not found | Returned if the resource or endpoint that was referenced in the path does not exist or cannot be referenced by the API Client or the PSU.<br><br>When in doubt if a specific id in the path is sensitive or not, use the HTTP response code 404 instead of the HTTP response code 403. |
| 405 Method Not Allowed | This code is only sent when the HTTP method (PUT, POST, DELETE, GET etc.) is not supported on a specific endpoint. It has nothing to do with the related transaction data model.<br><br>DELETE Response code in case of cancellation of a transaction resource, e.g. a payment resource, where the related transaction, e.g. a payment initiation cannot be cancelled due to legal or other operational reasons. |
| 406 Not Acceptable | The ASPSP cannot generate the content that the API Client specified in the accept header. |
| 408 Request Timeout | The server is still working correctly, but an individual request has timed out. |
| 409 Conflict | The request could not be completed due to a conflict with the current state of the target resource. |


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| Status Code | Description |
|---|---|
| 415 Unsupported Media Type | The API Client has supplied a media type which the ASPSP does not support. |
| 429 Too Many Requests | The API Client has exceeded the number of requests allowed by the consent or by the RTS. |
| 500 Internal Server Error | Internal server error occurred. |
| 503 Service Unavailable | The ASPSP server is currently unavailable. Generally, this is a temporary state. |

### 3.9 Data Extensions by the ASPSP

The ASPSP might add more data attributes to response messages. Such extensions then shall be documented in the ASPSP's documentation of its XS2A interface. These data attributes can be either ignored by the API Client or can be interpreted as defined by the above mentioned documentation.

The ASPSP might add additional optional data attributes to be submitted, e.g. for setting up additional services. In addition, an ASPSP can ask the API Client for a submission of proprietary data in a second step via the "proprietaryData" hyperlink. This shall be published by the ASPSP in its documentation.

> **Remark**: Before defining these additional proprietary data elements, the ASPSP is requested to submit the attribute description to the Berlin Group openFinance Taskforce, where it will be decided on a standardised approach for the related data attributes.

> **BOI remarks**: the ASPSP is requested to submit the attribute description in advance to BOI, where it will be decided on a standardised approach for the related data attributes in consultation with the Berlin Group NextGen Taskforce.

### 3.10 Multicurrency Accounts

**Definition:** A multicurrency account is an account which is a collection of different sub-accounts which are all addressed by the same account identifier like an IBAN by e.g. payment initiating parties. The sub-accounts are legally different accounts and they all differ in their currency, balances and transactions. An account identifier like an IBAN together with a currency always addresses uniquely a sub-account of a multicurrency account.

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This specification supports to address multicurrency accounts either on collection or on sub-account level. The currency data attribute in the corresponding data structure "Account Reference" allows to build structures like

```
{"iban": "DE40100100103307118608"}
```

or

```
{"iban": "DE40100100103307118608",
 "currency": "EUR"}
```

If the underlying account is a multicurrency account, then

- the first reference is referring to the collection of all sub-accounts addressable by this IBAN, and
- the second reference is referring to the euro sub-account only.

This interface specification is acting on sub-accounts of multicurrency accounts in exactly the same way as on regular accounts. This applies to payment initiation as well as to account information.

**BOI remarks**: The multi-currency account product support is mandatory .

IBAN with no currency attribute as part of a consent means request for all currencies connected to the account at any given time as long as the consent is valid.

### 3.11 Interval Borders Including Rules

Data attributes for dates, amounts or other discrete data come sometimes with the suffix "To" or "From", e.g. "dateTo", "validTo" or "baseAmountFrom". These attributes always define intervals. In **all** such cases, the "From" and "To" is including the value at the addressed border of the addressed interval. That means, that e.g. "dateFrom": "2023-04-05" means, that the 5th Aprill 2023 is included in the addressed interval.

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# 4 Error Handling

This section introduces the error handling in the openFinance API Framework. API data structures as defined here will not be repeated in service specifications. Instantiations to the related services will only be provided via the related OpenAPI files.

## 4.1 Responses in Error Cases

In order to achieve a better readability, the service definitions in the openFinance API Framework specify responses in case of a positive processing result only. The following section gives specific rules for the case of a negative processing result applicable to all services.

### 4.1.1 Header

In general, the same rules regarding the presence of header elements apply for both positive and negative responses. An exception is made for cases, where an error occurred before functional processing. Examples for such error cases are general server errors (typically with 50x http response code) and – depending on the implementation – the validation of the certificate. In those error cases, the ASPSP may omit the specified headers. However, when functional processing has already taken place, the ASPSP is still required to include the mandated (and if applicable conditional) headers also in a negative response.

### 4.1.2 Body

All descriptions of body elements in the service documents only apply to cases with a positive response. The related attributes need also be provided in the body, where possible and applicable. In addition, the API shall offer additional error information as described in Section 4.2, when the API server is technically able to provide it.

## 4.2 Additional Error Information

If necessary, the ASPSP **might** communicate additional error information to the API Client within a request/response dialogue which results in 4xx or 5xx HTTP response codes, in some exemptions also for HTTP response code 2xx, see also Section 3.7.1 This specification offers two possibilities for ASPSPs to communicate additional error information. The ASPSP might choose one of the solutions. Note that the major additional error information is the detailed error code which is of type "Message Code" as defined in [oFA DD] is used in both variants of additional error information.

In cases, where no message code is defined for an HTTP response code, the additional error information is not used, since the messageCode is a mandatory subfield. In this case, the HTTP code gives sufficient information about the error situation.

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### 4.2.1 openFinance API Framework Specific Solution

The openFinance API Framework offers a proprietary way to transport additional error information. In this solution, the additional error information is sent to the API Client using the data element apiClientMessages with the attribute category set to "ERROR". The attribute "code" indicates the error, and the attribute "path" the path of the element of the request message which provoked this error message, if applicable. It will further offer a free text field to describe the error context or actions to be taken to the API Client.

Usually, the usage of apiClientMessages accompanies a negative response. However, there are cases where the ASPSP sends a positive response but still includes an apiClientMessages attribute. This might occur, when the API Client sends a status request and the request itself is technically accepted but the requested status indicates some kind of banking processing issue/error or the requirement of additional action by the API Client or the PSU. In the same way, the requirement of additional actions can be indicated when (generally) accepting a payment initiation.

In addition, the response message might optionally contain a _links section containing a hyperlink to tell the API Client the next step to avoid further errors, cp. Section 3.6. This applies especially in case of PSU authentication errors where a resubmission of credentials by the API Client might be needed after new entering of credentials by the PSU.

**Response Code**

The HTTP response code is 4xx or 5xx as defined in Section 3.7.1 for response codes in case of errors.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | The string application/json is used. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| apiClientMessages | Array of Client Message Information | Optional | Error information |
| _links | Links | Optional | Should refer to next steps if the problem can be resolved e.g. for re-submission of credentials. |

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**Example 1 (Access token not correct):**

```
{ "apiClientMessages": [{
        "category": "ERROR",
        "code": "TOKEN_INVALID",
        "text": "additional text information of the ASPSP up to 500
characters"
   }]
}
```

**Example 2 (Password incorrect):**

```
{ "apiClientMessages": [{
        "category": "ERROR",
        "code": "PSU_CREDENTIALS_INVALID",
        "text": "additional text information of the ASPSP up to 500
characters"
   }],
  "_links": {
        "updatePsuAuthentication": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
            }
}
```

### 4.2.2 Standardised Additional Error Information

**BOI remarks:**

Standardised Additional Error Information is not supported. The only way to add additional error information is by following chapter 14.12

In [RFC7807] a standardised definition of reporting error information is described. In the following, requirements of how to use this standardised error information reporting in the context of openFinance API Framework are defined.

**RFU:** This section might be replaced in future by [RFC9457] which is the successor of [RFC7807].


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### Response Code

The HTTP response code is 4xx or 5xx as defined in Section 3.7.1 for response codes in case of errors. However, with the same reasoning as in Section 4.2.1, Additional Error Information may also be included in certain responses with positive response codes.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | The string application/problem+json is used. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Max70Text | Mandatory | A URI reference [RFC3986] that identifies the problem type.<br><br>**Remark for Future**: These URI will be provided by openFinance API Framework in future. |
| title | Max70Text | Optional | Short human readable description of error type. Could be in local language. To be provided by ASPSPs. |
| status | Integer | Optional | HTTP response code generated by the server.<br><br>If contained, this is more relevant as the actual http response code in the actual response, because it is introduced by the application server. |
| detail | Max500Text | Optional | Detailed human readable text specific to this instance of the error. |
| instance | Max256Text | Optional | This attribute is containing a JSON pointer (as defined in [RFC6901]) or XPath expression to indicate the path to an issue generating the error in the related request. |
| code | Message Code | Mandatory | Message code to explain the nature of the underlying error. |


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| | | | |
|---|---|---|---|
| additionalErrors | Array of Error Information | Optional | Might be used if more than one error is to be communicated |
| _links | Links | Optional | Should refer to next steps if the problem can be resolved e.g. for re-submission of credentials. |

**Example 1**

```
  HTTP/1.1 401 Unauthorized
  Content-Type: application/problem+json
  Content-Language: en
   {
    "type": "https://berlingroup.com/error-codes/TOKEN_INVALID",
    "title": " The OAuth2 token is associated to the TPP but is not valid
for the addressed service/resource.",
   "detail": " additional text information of the ASPSP up to 500
characters ",
    "code": "TOKEN_INVALID",
    "additionalErrors": [ {
            "title": "The PSU-Corporate-ID cannot be matched by the
addressed ASPSP.",
            "detail": "additional text information of the ASPSP up to 500
characters",
            "code": "CORPORATE_ID_INVALID"
    },… ],
    "_links": { }
   }
```

**Example 2**

The following example reflects a decline to a Bulk Payment request, where the first payment of the bulk contains an incorrect IBAN to identify the creditor account,


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```
HTTP/1.1 400 Bad Request
Content-Type: application/problem+json
Content-Language: en
 {
  "type": "https://berlingroup.com/error-codes/PAYMENT_FAILED",
  "title": "The payment initiation POST request failed during the
initial process. Additional information may be provided by the ASPSP.",
 "detail": "IBAN check failed.",
 "instance": "/creditTransfers/0/creditorAccount/iban"
  "code": " PAYMENT_FAILED",
  "_links": { }
 }
```


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# 5 Authentication of API Client and ASPSP at transport layer

The communication between an API Client and an ASPSP is always secured by using a TLS-secured connection. Client authentication is always used, i.e. a mutual authentication between the API Client and the ASPSP will be part of the setup of the TLS-secured connection.

TLS version 1.2 or higher has to be used. For the choice of cipher suite selections, NIST recommendations on the cryptographical strength should be followed. For ASPSPs, further cipher suite requirements of their national IT security agency or of a related API Access Scheme might apply.

Two TLS-secured connections have to be distinguished:

- TLS-secured connection established by the API Client (as TLS-client) to access the BG API provided by an ASPSP (as TLS-server) for usual API services defined by the XS2A Framework or the openFinance API Framework. See section 5.1.
- TLS-secured connection established by an ASPSP (as TLS-client) to access an API provided by an API Client (as TLS-server) for pushed-based services defined by the openFinance Framework. See section 5.2.

## 5.1 TLS-secured connection established by API Client

Support for this security measures is mandatory for any ASPSP and any API Client.

For all services offered at an XS2A API the TLS-secured connection has to be established by the API Client as TLS-client. The ASPSP acts as TLS-server in this case.

This is also true for most of the extended services offered at an openFinance API. Only for push-based extended services the TLS-secured connection has to be established by the ASPSP. See section 5.2 for this case.

**For the case of an XS2A API:**

The API Client has to establish the TLS-secured connection including client authentication, i.e. authentication of the API Client as TLS-client. For this authentication the API Client has to use a qualified certificate for website authentication (QWAC). This qualified certificate has to be issued by a qualified trust service provider according to the eIDAS regulation [eIDAS]. The content of the certificate has to be compliant with the requirements of [EBA-RTS] and the technical specification of ETSI [ETSI TS 119 495]. The certificate of the API Client has to indicate all roles the API Client is authorised to use (according to [PSD2] and [EBA-RTS].

**Remark:** For getting a QWAC compliant with the requirements of [EBA-RTS] and [ETSI TS 119 495] the API Client has to get the necessary licence to access a service as a PISP, AISP or PIISP from an NCA according to the regulations of [PSD2].

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**For the case of an openFinance API:**

The requirements for the certificate for website authentication to be used by the API Client for the client authentication as TLS-client will be defined by the ASPSP. In any case a QWAC of an API Client enabling him to access the XS2A API of an ASPSP can also be used by the API Client to access the openFinance API of the ASPSP.

**BOI remarks**:

The TPP has to use QWAC certificate issued by Gov CA in order to perform client (i.e. TPP) authentication by the ASPSP.

**In any case within the openFinance API Framework:**

This specification does not define any further requirements for the certificates used by an ASPSP as TLS-server. Of course, the certificates should be compliant with general requirements defined by [RFC5280] and the best practise recommendations of the CA/Browser Forum.

If an ASPSP wants to support any push-based services it is recommended that the certificate of the ASPSP supports also the client authentication as TLS-client. See section 5.2 for further details.

### 5.2 TLS-secured connection established by ASPSP

Support for this security measures is conditional for an ASPSP and for an API Client. It shall be supported by an ASPSP if the ASPSP wants to offer pushed-based services. It shall be supported by an API Client if the API Client wants to use pushed-based services offered by an ASPSP.

For push-based extended services it is necessary that the TLS-secured connection is established by the ASPSP. In this case the ASPSP acts as TLS-client and the API Client as TLS-server.

The ASPSP **shall** use the same certificate for his authentication as TLS-client as he will use for his authentication as TLS-server as described in section 5.1. For this it this necessary that the certificate of the ASPSP supports also the client authentication, i.e. the certificate shall contain the field extendedKeyUsage with both attributes clientAuth and serverAuth.

The API Client **should** use the same QWAC for his authentication as TLS-server as he will use for his authentication as TLS-client as described in section 5.1.

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The URIs which are provided by an API Client to an ASPSP for push-based services shall comply with the domain secured by the certificate of the API Client (used for his authentication as TLS-server), i.e. as contained in one of the fields CN or SubjectAltName of the certificate of the API Client. Please note that in case of example-TPP.com, a certificate entry Client-Notification-URI like

- https://example-TPP.com/xs2a-client/v2/ASPSPidentifcation/mytransaction-id/notifications or
- https://push-server.example-TPP.com/xs2a-client/v2/ASPSPidentifcation/mytransaction-id/notifications

would be compliant.

Wildcard definitions shall be taken into account for compliance checks by the ASPSP.

**NOTE:** The URI should be addressable by the ASPSP just by presenting his certificate for his authentication as TLS-client as part of the establishment of the TLS-secured connection. No further pre-steps of any kind should be mandated by the API Client.

### 5.3 Certificate Requirements on Redirect URIs

The TPP can provide several URIs to the ASPSP as parameters for succeeding protocol steps. For security reasons, it should be ensured that these URIs are secured by the TPP eIDAS QWAC used for identification of the TPP. The following applies:

URIs which are provided by TPPs in Client-Redirect-URI or Client-Nok-Redirect-URI should comply with the domain secured by the eIDAS QWAC certificate of the TPP in the field CN or SubjectAltName of the certificate. Please note that in case of example-TPP.com as certificate entry Client-Redirect-URI like

- www.example-TPP.com/xs2a-client/v2/ASPSPidentifcation/mytransaction-id or
- redirections.example-TPP.com/xs2a-client/v2/ASPSPidentifcation/mytransaction-id

would be compliant.

Wildcard definitions shall be taken into account for compliance checks by the ASPSP.

**NOTE**: In PSD2 compliance services, the ASPSP shall not reject requests if the provided URIs do not comply, if not mandated by applicable regulations. In premium services, ASPSPs may reject requests, if the provided URIs do not comply and if agreed in related contracts or if mandated by applicable regulations.

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# 6 Signing HTTP request messages at the application level

Support for this security measure is optional for an ASPSP.

Support for the security measure is mandatory for an API Client. If an ASPSP requests signing a HTTP request message at the application level the API Client shall sign the HTTP request message at application level.

If requested by an ASPSP only the HTTP request message has to be signed at application level by the API Client. HTTP response messages are not signed by the ASPSP, if not stated otherwise explicitly in the ASPSP documentation.

**Remark for Future**: Future versions might also support explicit specification of signing HTTP response messages at application level.

Signing of HTTP request messages at application level used for push-based services is also possible. The ASPSP (or related API access scheme) decides if he signs an HTTP request message used for a pushed-based service at the application level.

Signing of an HTTP request message at application level is always done using the signature profile based on JSON Web signature [RFC7515] adapted for signing HTTP request messages (taking [OBEsign] as best practise approach into account). See section 6.2 for the description of this signature profile.

## 6.1 Certificates to be used

**For the case of an XS2A API:**

For signing an HTTP request message at application level, the API Client has to use a qualified certificate for electronic seals (QSealC). This qualified certificate has to be issued by a qualified trust service provider according to the eIDAS regulation [eIDAS]. The content of the certificate has to be compliant with the requirements of [EBA-RTS] and the technical specification of ETSI [ETSI TS 119 495] . The certificate of the API Client has to indicate all roles the API Client is authorised to use (according to [PSD2] and [EBA-RTS].

Remark: For getting a QSealC compliant with the requirements of [EBA-RTS] and [ETSI TS 119 495] the API Client has to get the necessary licence to access a service as a PISP, AISP or PIISP from an NCA according to the regulations of [PSD2].

**For the case of an openFinance API:**

The requirements for the certificate for signing HTTP request messages to be used by the API Client will be defined by the ASPSP. In any case a QSealC of an API Client enabling him to

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sign HTTP request messages at the XS2A API of an ASPSP can also be used by the API Client to sign HTTP request messages at the openFinance API of the ASPSP.

**In any case of a BG API:**

This specification does not define any further requirements for the certificates used by an ASPSP to sign HTTP request messages as part of a push-based service. Of course, the certificates should be compliant with general requirements defined by [RFC5280].

**BOI remarks**: signing request messages is mandatory for TPP on all requests (except the request that are part of the oAuth2).

The TPP has to use QSEALC certificate issued by Gov CA in order to sign request messages.

## 6.2 Signing HTTP messages based on [RFC7515]

The following signature profile is compliant with the requirements of [RFC7515] (JSON Web Signature) and [ETSI TS 119 182-1] (JAdES profile of ETSI). It is based on the best practise approach defined by [OBEsign].

### 6.2.1 Extensions to the HTTP message

#### 6.2.1.1 Path

None.

#### 6.2.1.2 Header parameter

The following parameters have to be added to the header of the HTTP request message:


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Digest | String | Conditional<br><br>**BOI remarks**:<br><br>**Mandatory** | Contains the hash value calculated over the content of the body of the HTTP request message. See section 6.2.2.1. |
| x-jws-signature | String | Conditional<br><br>**BOI remarks**:<br><br>**Mandatory** | JSON Web Signature containing the base64url encoded JWS Protected Header and the base64url encoded JWS Signature Value (separated by ".."). See section 6.2.2.2. |

Table 1: Header parameters for HTTP message signature according to [OBEsign].

**Remark on the row "condition":**

If the HTTP request message has to be signed using this signature profile both attributes are mandatory.

**Remark on the transport of the certificate:**

The attribute TPP-Signature-Certificate used in former versions of the specifications for the transport of the certificate is not available for version 2 of the specification. Instead the recommendations of [OBEsign] are used for the transport of the certificate. These are summarized as follows:

- If the certificate used by the API Client to sign the HTTP request message is not already known by the ASPSP the API Client shall include his certificate into the JWS Protected Header using the element x5c. See requirement 9 of [OBEsign].
- If the certificate used by the API Client to sign the HTTP request message is already known by the ASPSP (by some prior arrangements out of scope of this specification) one of the elements x5c (containing the certificate) or x5t#S256 (containing a digest of the certificate using SHA 256) shall be part of the JWS Protected Header. Not both elements shall be part of the JWS Protected Header at the same time. See requirement 7 of [OBEsign].
- The ASPSP may require in any case that the certificate is included into the JWS Protected Header using the element x5c.

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- If the JWS Protected Header contains the element x5t#S256 (containing a digest of the certificate using SHA 256), the JWS Protected Header may also contain the element x5u with further information to identify the certificate. See option 14 of [OBEsign].

#### 6.2.1.3 Message body

None.

### 6.2.2 How to build the extensions?

#### 6.2.2.1 Attribute Digest

When an API Client includes a signature according to this signature profile, he also must include a "Digest" header as defined in [RFC3230]. The "Digest" Header contains a Hash of the message body. If the message does not contain a body, the "Digest" header must contain the hash of an empty byte list. The only hash algorithms that may be used to calculate the Digest within the context of this specification are SHA-256 and SHA-512 as defined in [RFC5843].

**Remark:** In case of a multipart message the same method is used to calculate the digest. I.e. a hash of the (whole) message body is calculated including all parts of the multipart message as well as the separators.

#### 6.2.2.2 Attribute x-jws-signature

The attribute x-jws-signature contains the JSON Web Signature. This consists of the following three elements:

| Element | Type | Condition | Description |
|---|---|---|---|
| JWS Protected Header | String | Mandatory | Contains the JWS Protected Header base64url encoded. |
| Delimiter | String | Mandatory | Constant string **".."**. |
| JWS Signature Value | String | Mandatory | Contains the JWS Signature Value base64url encoded. |

Table 2: Elements of the JSON Web Signature according to [OBEsign].

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### JWS Protected Header

The JWS Protected Header is a JSON structure which defines how the signature is created. It contains the following elements:

| Element | Type | Condition | Description |
|---|---|---|---|
| typ | String | Mandatory | Fixed string "JOSE". |
| b64 | Boolean | Mandatory | Parameter according to [RFC 7797] indicating that the payload does not need to be base64url re-encoded<br><br>According to [OBEsign] this element has to be included and has to be set to "false". |
| x5c | String | Conditional | Certificate used by the API Client to sign the HTTP request message.<br><br>The certificate has to be included base64url encoded.<br><br>This element may include the full certificate chain up to a trust anchor. See option 10 in [OBEsign].<br><br>This element shall be part of the JWS Protected Header if the certificate is not already known by the ASPSP (by some prior arrangements out of scope of this specification). The ASPSP may require that this element is included. The ASPSP informs about this as part of the discovery API. |
| x5t#S256 | String | Conditional | Hash value over the certificate of the API Client used for signing the request message.<br><br>SHA 256 has to be used for calculating this hash value. The hash value has to be included base64url encoded.<br><br>This element shall be part of the JWS Protected Header if and only if the element x5c is not part of this JWS protected header. |

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| Element | Type | Condition | Description |
|---|---|---|---|
| x5u | String | Optional | An URI pointing to the resource where the X.509 signing certificate (with or without the certification path) may be retrieved from.<br><br>This element may be part of the JWS Protected Header only if also the element x5t#S256 is also part of the JWS Protected Header |
| crit | List | Mandatory | List of names of elements of the JWS Protected Header which are marked critical.<br><br>According to [OBEsign] this element has to be included and has to contain the following list:<br><br>["b64", "sigT", "sigD"]<br><br>Other elements shall not be marked critical for BG API. |
| sigT | DateTime | Mandatory | Claimed signing time. The time shall be UTC (ending in "Z") and shall indicate date and time to the second. |
| sigD | JSON | Mandatory | This element shall contain the two sub-elements pars and mid.<br><br>The sub-element pars contains the list of HTTP header parameters which are used to create the data to be signed. The names of the HTTP header parameters shall be given lowercase in this list.<br><br>The sub-element mid identifies the mechanism used to identify the data to be signed. This sub-element shall contain the fixed value http://uri.etsi.org/19182/HttpHeaders<br><br>For using this signature profile with BG API, the following restrictions concerning the sub-element pars shall be considered:<br><br>The list shall contain at least "digest" and "x-request-id".<br><br>Conditionally the list shall include: |


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| Element | Type | Condition | Description |
|---|---|---|---|
| | | | • "api-contract-id", If and only if "API-Contract-ID" is included as a header of the HTTP-Request.<br>• "psu-id", if and only if "PSU-ID" is included as a header of the HTTP-Request.<br>• "psu-corporate-id", if and only if "PSU-Corporate-ID" is included as a header of the HTTP-Request.<br>• "Client-Redirect-uri", if and only if "Client-Redirect-URI" is included as a header of the HTTP-Request.<br>The list may include further HTTP header parameters. |
| alg | String | Mandatory | This element identifies the cryptographic algorithm used to create the JWS Signature Value.<br><br>According to [OBEsign] this element has to be included and shall not have the value "none".<br><br>Identifiers should be used (if possible) according to [RFC7518].<br><br>For using this signature profile with BG API, the following restrictions concerning the algorithm to be used shall be considered:<br><br>The algorithm shall identify the same algorithm for the signature as described for the public key (Subject Public Key Info) in the certificate (already known by the ASPSP or contained in the element "x5c") of this Request. Otherwise the request message shall be rejected. |


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| Element | Type | Condition | Description |
|---|---|---|---|
| aud | String | Mandatory | Parameter according to [RFC7519] containing the method and the target of the HTTP-Request as a string. The target is identified by the relative URI starting with /v2/. If the HTTP-Request contains query parameters, these are also included in this element.<br><br>Examples for the content of the aud element:<br><br>"POST /v2/deferred-payments/sepa-credit-transfers"<br><br>"GET /v2/deferred-payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/initiations?dateFrom=2024-04-15" |

Table 3: Elements of the JWS Protected Header according to [OBEsign].

**Remarks:**

- The element aud according to [RFC7519] is an extension to [OBEsign]. It is used to protect the method and the relative path of the HTTP-request by the signature.
- If the element x5t#S256 is used: For the current version the algorithm SHA 256 shall be used to calculate the hash value over the certificate. This might be enhanced to further hash algorithms in future versions of this specification.
- If the element x5t#S256 is used: It is recommended that the relying party checks the hash value contained in X5t#S256 against the certificate of the API Client (already known to the ASPSP by some prior arrangements out of scope of this specification).
- Remark: If the element x5t#S256 is used, the hash value can be used as key id to identify a certificate/public key exchanged between API Client and ASPSP before.
- For the element sigD the RECOMMENDATION-23 of [OBEsign] is not followed, i.e. (request-target), Content-Type, Content-Encoding and Host may not be part of the sub-element pars.
- For the element sigD the ASPSP may not require more HTTP header parameters to be included. The API Client may decide which HTTP header parameters are included into the generation of the signature as long as the restrictions mentioned above are met.

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- For the element alg the ASPSP may introduce further restrictions about the algorithms to be used. Information will be given by the discovery API of the ASPSP.

**JWS Signature Value**

The signature shall be calculated using the algorithm indicated by the element alg of the JWS Protected Header. The key to be used shall be the private key corresponding to the certificate (e.g. QSealC) of the API Client.

To calculate the signature, proceed as follows:

1. Encode the JSON structure JWS Protected Header into base64url.

2. Collect the HTTP header parameters as indicated by the sub-element pars of the element sigD of the JWS Protected Header (using the sequence defined by the content of pars) to form a string as follows:

   a) For an HTTP header name contained in the element pars create the header field string by concatenating the lowercased header field name followed with a colon ':', a space character, and the header field value. Any leading and trailing white spaces are removed. If there are multiple instances of the same header field, all header field values associated with the header field shall be concatenated, separated by an ASCII comma and an ASCII space ', ', and used in the order in which they will appear in the transmitted HTTP message.

   b) Insert newline character after all but the last HTTP header value.

   c) Concatenate the header field strings.

   See 5.2.8.2 of [ETSI TS 119 182-1] [for this procedure.

3. Prepare the signature input by combining the JWS Protected Header base64url coded (see step 1.) with the result string of step 2 separated by **"."**.

4. Compute the JWS Signature value using the signature input from step 3 using the signature algorithm determined by the element alg of the JWS Protected Header.

### 6.2.3 Example

**Disclaimer:**

The following example is only an informative part of this specification. Its objective is just to give an example for the different steps to build the signed HTTP message starting from a given HTTP message. It should not be taken as a reference point for implementations for signing HTTP messages. In addition, the sequence of steps shown


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in the example could be changed by a real implementation if the same result is produced. The RSA keys used in this example are 768 bits long, which is too short for real-world applications, but sufficient for illustrative purposes here. The certificate used in this example is a self-signed X.509 certificate, generated using the aforementioned RSA keys along with some additional data. Below we provide it in the PEM format.

Throughout this example we use the following RSA key pair and X.509 certificate.

**RSA keys:**

| | | |
|---|---|---|
| Modulus (hex) | n | 97555bcfbb51d5a001dbcb343a56b61d18ff5ae0c64379cd<br>b148838d0280b5dfc785eb4c0bcb9707e30bbbe683eca309<br>73d29afe7af469f6e1a60af9fc9e350637d9084b42cb1169<br>4d8ff15deeef1810a473d41ecba5d2cad9da91b7069d5403 |
| Public exponent (hex) | e | 3 |
| Private exponent (hex) | d | 1938e4a29f384e4555a4a1de09b91e5a2ed539d0210b3ef7<br>9d8c15ecd5c01e4ff69651e201f743d6a5d749fbc0a77081<br>51b190736e31904a2e0cf8857290349d667ef674664c699c<br>4601410c3aa50dc89b05d268c07c44a664da691928b605af |
| First prime factor (hex) | p | c3e31710d5a7cba9da2feede9ebfc331abfcea1bd77d90b7<br>8bdd525f571bfcbe6f42a44cb44bb8d2c4385c7ddd5968a7 |
| Second prime factor (hex) | q | c5c6213910233c8ff32848faae7d362424e2577505830708<br>1dab18b537f4c89e930e415d94707e11b883bea234ffc945 |

Note: Many programming languages, e.g., Python and Rust, allow the creation of an RSA key pair from the above data (e.g., using the OpenSSL library).

**X.509 certificate:**

| | |
|---|---|
| Certificate in PEM format | -----BEGIN CERTIFICATE-----<br>MIIB5DCCAW6gAwIBAgIUFNIhspmc7vzDwkYUfYdwpc2ElKQwDQYJKoZIhvcNAQEL<br>BQAwUjELMAkGA1UEBhMCREUxDDAKBgNVBAgMA05SVzENMAsGA1UEBwwEQm9ubjEQ<br>MA4GA1UECgwHRXhhbXBsZTEUMBIGA1UEAwwLZXhhbXBsZS5jb20wHhcNMjcxMTEx<br>MTExMTExWhcNMjgxMTEwMTExMTExWjBSMQswCQYDVQQGEwJERTEMMAoGA1UECAwD<br>TlJXMQ0wCwYDVQQHDARCb25uMRAwDgYDVQQKDAdFeGFtcGxlMRQwEgYDVQQDDAtl<br>eGFtcGxlLmNvbTB6MA0GCSqGSIb3DQEBAQUAA2kAMGYCYQCXVVvPu1HVoAHbyzQ6<br>VrYdGP9a4MZDec2xSIONAoC138eF60wLy5cH4wu75oPsowlz0pr+evRp9uGmCvn8<br>njUGN9kIS0LLEWlNj/Fd7u8YEKRz1B7LpdLK2dqRtwadVAMCAQMwDQYJKoZIhvcN<br>AQELBQADYQBCX1mw+zkSCrJY2/o9CcBQ6GBa1I+FlGbV6z1xhP/WRsZD/VE2DBhs<br>+lE+JKR53O1A53uSmjUz6+PD0eoxw57U3D5eew3O8x8fd/M4dVe+eftAyculvO8Q<br>q/xPzmX3Pw0=<br>-----END CERTIFICATE----- |
| Certificate SHA-256 hash (hex) | f041622e4e2d689d272edc6dbda66b9cfc5cef85f878fa89d27bddbaf0dca712 |


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| | |
|---|---|
| Certificate SHA-256 hash (base64) | `8EFiLk4taJ0nLtxtvaZrnPxc74X4ePqJ0nvduvDcpxI=` |

Note: One can create the certificate from the PEM-formatted data by saving it as a PEM file and then using, for example, the OpenSSL library to compute the hash of the certificate (also known as fingerprint).

Below the content of this certificate is shown in “pretty format” as used to generate the certificate. Since the certificate is self-signed, the Issuer and the Subject are the same.

**Certificate:**

**Data:**

Version: 2

Serial Number: 1188659073880520102641618372868882149731984068 20

Signature Algorithm: sha256WithRSAEncryption

**Issuer:**

Country Name: DE

State or Province Name: NRW

Locality Name: Bonn

Organization Name: Example

Common Name: example.com

**Subject:**

Country Name: DE

State or Province Name: NRW

Locality Name: Bonn

Organization Name: Example

Common Name: example.com

**Validity:**

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Not Before: 2027-11-11 11:11:11+00:00

Not After: 2028-11-10 11:11:11+00:00

Note: The public key information of the certificate is not shown again, since it was already given before.

**Step 0: Take the HTTP message (HTTP Headers + HTTP Body)**

Description: Prepare unsigned HTTP message input to JWS function.

Note: Each line is terminated with a pair of carriage return and line feed character (0x0D0A), including the last line.

```
POST /v2/payments/sepa-credit-transfers HTTP/1.1
Host: api.testbank.com
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address: 192.168.8.78
PSU-GEO-Location: GEO:52.506931,13.144558
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date: Mon, 26 Oct 2020 11:24:37 GMT

{
"instructedAmount": {"currency": "EUR", "amount": "123.50"},
"debtorAccount": {"iban": "DE40100100103307118608"},
"creditor": {"name": "Merchant123"},
"creditorAccount": {"iban": "DE02100100109307118603"},
"remittanceInformationUnstructured": ["Ref Number Merchant"]
}
```

Note: The line `Gecko/20100101 Firefox/54.0` is actually part of the line `PSU-User-Agent` (i.e. no CRLF before `Gecko`).

**Step 1: Create JWS Protected Header**

Description: Produce JWS header parameters which define how the signature is created:

"b64": false means don't base64url encode header data to be signed

"x5t#S256": "…." Hash of signing certificate (base64url encoded)

"crit": ["sigT","sigD","b64"]

"sigT": "…." Claimed signing time


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"sigD": {….} Lower case HTTP Header fields to be signed

"alg": "RS256" Signature algorithm

Note: This is shown below in a pretty print layout. It will be sent as a single string without line breaks or extra spaces. Escape characters are not used.

```
{
"b64": false,
"x5t#S256": "8EFiLk4taJ0nLtxtvaZrnPxc74X4ePqJ0nvduvDcpxI=",
"crit": [ "sigT", "sigD", "b64"],
"sigT":"2020-10-26T11:26:57Z",
"sigD":{
      "pars":["x-request-id", "digest" ],
      "mId":"http://uri.etsi.org/19182/HttpHeaders"
      },
"alg":"RS256"
}
```

### Step 2: Encode JWS Protected Header into Base64url

Description: Convert JWS Protected Header (without line breaks or extra spaces) into a Base64url encoded string.

```
eyJiNjQiOmZhbHNlLCJ4NXQjUzI1NiI6IjhFRmlMazR0YUowbkx0eHR2YVpyblB4Yzc0WDRlUHF
KMG52ZHV2RGNweEk9IiwiY3JpdCI6WyJzaWdUIiwic2lnRCIsImI2NCJdLCJzaWdUIjoiMjAyMC
0xMC0yNlQxMToyNjo1N1oiLCJzaWdEIjp7InBhcnMiOlsieC1yZXF1ZXN0LWlkIiwiZGlnZXN0I
l0sIm1JZCI6Imh0dHA6Ly91cmkuZXRzaS5vcmcvMTkxODIvSHR0cEhlYWRlcnMifSwiYWxnIjoi
UlMyNTYifQ==
```

### Step 3a: Compute Digest of HTTP Body

Description: Calculate the SHA-256 hash of the HTTP Body "as it is" (i.e. payload without HTTP header and following empty line).

With the example body above SHA-256 hash is:

| | |
|---|---|
| Hash of the body (hex) | `98420e321d1e9514e464261450dce761f57d546d4c4efef1c1313d4bcc8da632` |
| Hash of the body (base64) | `mEIOMh0elRTkZCYUUNznYfV9VG1MTv7xwTE9S8yNpjI=` |

### Step 3b: Collect HTTP Headers to be signed


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Description: Create HTTP header string, as selected using the JWS header parameter sigD, including Digest (base64 encoded).

```
x-request-id: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
digest: SHA-256=mEIOMh0elRTkZCYUUNznYfV9VG1MTv7xwTE9S8yNpjI=
```

Note: Recall from step 2.b) of the description of the JWS Signature Value at the end of section 6.2.2.2 that each line of the HTTP header ends with line feed character (0x0A), but not the last line.

**Step 4: Prepare input for Signature Value Computation**

Description: Combine Base64url encoded JWS Protected Header with HTTP Header to be signed, separated by ".", ready for computation of signature value.

```
eyJiNjQiOmZhbHNlLCJ4NXQjUzI1NiI6IjhFRmlMazR0YUowbkx0eHR2YVpyblB4Yzc0WDRlUHF
KMG52ZHV2RGNweEk9IiwiY3JpdCI6WyJzaWdUIiwic2lnRCIsImI2NCJdLCJzaWdUIjoiMjAyMC
0xMC0yNlQxMToyNjo1N1oiLCJzaWdEIjp7InBhcnMiOlsieC1yZXF1ZXN0LWlkIiwiZGlnZXN0I
l0sIm1JZCI6Imh0dHA6Ly91cmkuZXRzaS5vcmcvMTkxODIvSHR0cEhlYWRlcnMifSwiYWxnIjoi
UlMyNTYifQ==.x-request-id: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
digest: SHA-256=mEIOMh0elRTkZCYUUNznYfV9VG1MTv7xwTE9S8yNpjI=
```

**Step 5: Compute JWS Signature Value**

Description: Compute the digital signature cryptographic value calculated over a sequence of octets derived from the JWS Protected Header and HTTP Header Data to be Signed. This is created using the signing key associated with the certificate identified in the JWS Protected Header "x5t#S256" and using the signature algorithm identified by "alg".

The RSA Signature of the example is

| | |
|---|---|
| Hex | 690b5db491d54e190697e1f35d8694471e1f32a18245753e001c957601387cb849b6c5680e361fb77df4c705a0e4b892b590b63cdf1edf4b0377158120d911730b1d6b898fdc89d697d8fd264079c5662da59a723244a0f83367b98c3cd7aef3 |
| base64URL | aQtdtJHVThkGl-HzXYaURx4fMqGCRXU-AByVdgE4fLhJtsVoDjYft330xwWg5LiStZC2PN8e30sDdxWBINkRcwsda4mP3InWl9j9JkB5xWYtpZpyMkSg-DNnuYw8167z |


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### Step 6: Build JSON Web Signature

Description: Create JSON Web Signature containing the Base64url encoded JWS Protected header and ".." and the JWS Signature Value. This is encoded using JWS compact serialisation with the HTTP Header Data to be Signed detached from the signature.

```
eyJiNjQiOmZhbHNlLCJ4NXQjUzI1NiI6IjhFRmlMazR0YUowbkx0eHR2YVpyblB4Yzc0WDRlUHF
KMG52ZHV2RGNweEk9IiwiY3JpdCI6WyJzaWdUIiwic2lnRCIsImI2NCJdLCJzaWdUIjoiMjAyMC
0xMC0yNlQxMToyNjo1N1oiLCJzaWdEIjp7InBhcnMiOlsieC1yZXF1ZXN0LWlkIiwiZGlnZXN0I
l0sIm1JZCI6Imh0dHA6Ly91cmkuZXRzaS5vcmcvMTkxODIvSHR0cEhlYWRlcnMifSwiYWxnIjoi
UlMyNTYifQ==..aQtdtJHVThkGl-HzXYaURx4fMqGCRXU-AByVdgE4fLhJtsVoDjYft330xwWg5
LiStZC2PN8e30sDdxWBINkRcwsda4mP3InWl9j9JkB5xWYtpZpyMkSg-DNnuYw8167z
```

### Step 7: Insert JSON Web Signature into HTTP Message to form HTTP Signed Message

Description: The HTTP message as sent over the network with the JSON Web Signature inserted.

```
POST /v2/payments/sepa-credit-transfers HTTP/1.1
Host: api.testbank.com
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address: 192.168.8.78
PSU-GEO-Location: GEO:52.506931,13.144558
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date: Mon, 26 Oct 2020 11:24:37 GMT
Digest: SHA-256=mEIOMh0elRTkZCYUUNznYfV9VG1MTv7xwTE9S8yNpjI=
x-jws-signature: eyJiNjQiOmZhbHNlLCJ4NXQjUzI1NiI6IjhFRmlMazR0YUowbkx0eHR2YV
pyblB4Yzc0WDRlUHFKMG52ZHV2RGNweEk9IiwiY3JpdCI6WyJzaWdUIiwic2lnRCIsImI2NCJdL
CJzaWdUIjoiMjAyMC0xMC0yNlQxMToyNjo1N1oiLCJzaWdEIjp7InBhcnMiOlsieC1yZXF1ZXN0
LWlkIiwiZGlnZXN0Il0sIm1JZCI6Imh0dHA6Ly91cmkuZXRzaS5vcmcvMTkxODIvSHR0cEhlYWR
lcnMifSwiYWxnIjoiUlMyNTYifQ==..aQtdtJHVThkGl-HzXYaURx4fMqGCRXU-AByVdgE4fLhJ
tsVoDjYft330xwWg5LiStZC2PN8e30sDdxWBINkRcwsda4mP3InWl9j9JkB5xWYtpZpyMkSg-DN
nuYw8167z

{
"instructedAmount": {"currency": "EUR", "amount": "123.50"},
"debtorAccount": {"iban": "DE40100100103307118608"},
"creditor": {"name": "Merchant123"},
"creditorAccount": {"iban": "DE02100100109307118603"},
"remittanceInformationUnstructured": "Ref Number Merchant"
}
```

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Note: As before, the line `Gecko/20100101 Firefox/54.0` is actually a part of the line `PSU-User-Agent`.

## 7. Security measures for securing (parts of) the message body

BOI Remark – Not Supported

### 7.1 Signing the body

The body of a request or response message may be signed by one or more responsible entities. Who is responsible for signing the body depends on the single use case. The following are possible examples:

- For a request message sent by an API Client to the openFinance API of an ASPSP the body may be signed by one or more PSU.
- For a response message to a request of an API Client the body may be signed by a responsible department or one or more responsible employees of the ASPSP.
- For a request message as part of a pushed-based service the body may be signed by a responsible department or one or more responsible employees of the ASPSP.

**Remark:**

- Signing the body of a request message for a signed payment request should not be confused with the signing of an HTTP request message according to section 6. Signing the HTTP message according to section 6 will authenticate the API Client sending the request message to openFinance API of the ASPSP. It will not authenticate the PSU and for this reason cannot substitute an SCA of the PSU.
- To distinguish the case of a request message with a signed body (indicating the consent of the PSU) from signed HTTP messages (indicating the proof of origin by the API Client) these request messages with signed bodies will be called in general **signed transaction requests**.
- For the current version, only signed transaction requests sent by the API Client are considered. Signed response messages and push-based request messages with signed body sent by the ASPSP will be described in detail in a future version.

For a signed transaction request further SCA procedures for the strong customer authentication of the PSU involved might not be necessary if the creation of the corresponding signatures is compliant with the requirements for an SCA according to [PSD2] and [EBA-RTS].

It is up to the ASPSP if it supports signed transaction initiation requests at its openFinance API. For some use cases an ASPSP might mandate that the body of a request message sent by an API Client has to be signed by one or more PSUs.

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This specification does not define any requirements about the quality of the process to generate the signature for a signed transaction request. It is possible that the ASPSP will define further requirements for this as for example

- special algorithms to be used,
- key length to be used,
- quality of certificates to be used.

Different signature procedures and profiles based on asymmetric and symmetric cryptography will be supported in future by this specification. The phrase "signing a body" will be used regardless if the body will be secured by an electronic signature or an electronic seal based on asymmetric cryptography or by some kind of cryptogram based on symmetric cryptography, as for example an EMV cryptogram generated by a payment card.

### 7.1.1 Variants for sending signature related data

For a signed transaction request the data necessary for the signature verification has to be sent to the ASPSP by the API Client. The data to be sent for the verification depends on the signature procedure and profile used to create the signature.

For sending the data necessary for the signature verification to an ASPSP the openFinance API Framework currently supports only the **Explicit Authorisation Process** (as defined in section 9). In this case, the HTTP transaction initiation request contains only the request data in its body, while for each signature the necessary data for its verification is sent independently through an (explicit) authorization process. A detailed description is provided in section 7.1.3. Note that it is not necessary that the PSU-signatures needed for the authorisation of the transaction have to be already available at the time the API Client sends the initiation of the transaction to the openFinance API of the ASPSP. It is possible that the signature of a PSU needed for the authorisation of the transaction may be generated by the PSU after the initiation of the transaction. All PSU-signatures needed for the authorisation can be generated by the PSU and sent by the API Client to the openFinance API of the ASPSP at various times after the initiation of the transaction. It might also be that the signatures are applied via different technical API Clients. For this reason, these signatures will be called **distributed signatures**.

**RFU:** In the future further variants of signed transaction requests might be added to the openFinance API Framework (e.g., multipart HTTP messages transporting all signatures needed for authorising the related transaction).

### 7.1.2 Parameters for indicating signed transaction requests

Parameters are used to indicate and confirm that the authorisation of a transaction request will be done by signatures.

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By adding the following parameters to the header of the request message the API Client indicates his preference that body signature with the corresponding signature profile should be used for authorisation of the transaction:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-SCA-Approach-Preference | Max35Text | Conditional | Set to "signature" to indicate that the API Client prefers signed transaction request.<br><br>Shall be added for signed transaction requests. |
| Body-Sig-Profile-Preference | Max35Text | Conditional | Indicates the preferred signature profile used for signing (parts of) the body.<br><br>Shall only be used for signed transaction requests. |

Table 4: Header parameters to indicate the preference to use signatures

Remark:

- Client-SCA-Approach-Preference set to “signature” indicates only that an electronic signature in the mathematical sense of the word is used for SCA. This does not distinguish between a signature by a natural person or by a legal entity.
- Which kind of signatures are accepted and any quality requirements for signatures/ certificates to be used are determined by the (security) policy of the ASPSP.

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By adding the following parameters to the header of the response message the ASPSP confirms that signature with the corresponding signature profile has to be used for the authorisation of the transaction:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-SCA-Approach- | Max35Text | Conditional | Set to "signature" to confirm the use of signatures for authorisation.<br><br>Shall be used for a response message to a signed transaction request. |
| Body-Sig-Profile-Accepted | Max35Text | Conditional | Confirms the signature profile to be used by a PSU for signing the body.<br><br>Shall only be used for a response message for signed transaction requests. |

Table 5: Parameters to confirm the usage of signature

**Body-Sig-Profile:**

The parameters Body-Sig-Profile-Preference and Body-Sig-Profile-Accepted indicate the signature profile to be used for signing the message body.

Currently the following values are supported by this specification:

| | |
|---|---|
| JAdES_JS | The body is signed based on [RFC7515] using JWS JSON Serialization taking the requirements of [ETSI TS 119 182-1] for JAdES into account. |
| XAdES | FOR FUTURE USE ONLY (The body is signed based on [W3C XMLSig] taking the requirements of [ETSI EN 319 132-1] for XAdES into account). |
| EMV_AC | FOR FUTURE USE ONLY (The body (or parts of it) is secured using an EMV AC cryptogram). |
| EUDIW | FOR FUTURE USE ONLY (The body (or parts of it) is secured using an EUDI Wallet). |

Table 6: Supported signature profiles.

For the beginning, only JAdES_JS will be supported by this specification. Future versions of the specification may support further values for the signature profile.

EMV_AC may be added only if the API will be used in future also for payments, where the SCA of the PSU is based on an EMV_AC cryptogram generated by a payment card of the PSU.

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EUDIW will be added only if the EUDI Wallet will be used in future for the authorisation of transactions.

XAdES and the usage of Associated Signature Container (ASiC) will be integrated in future as soon as this requirement has been submitted to the Task Force by a member of the Berlin Group.

**Remark:**

For signed transaction requests, not all header parameters as defined by section 3.4 may be applicable.

### 7.1.3 Explicit Authorisation Process (as defined in section 9)

In the case of explicit authorisation, it is assumed that the HTTP Transaction Initiation Request contains only the request data in its body. It is posted to the usual endpoint for the corresponding transaction to be initiated.

The required data for the verification of the signatures is sent separately using the explicit authorisation process. The explicit authorisation process has to be executed for each signature necessary for the authorisation of the transaction. The following picture gives an overview:

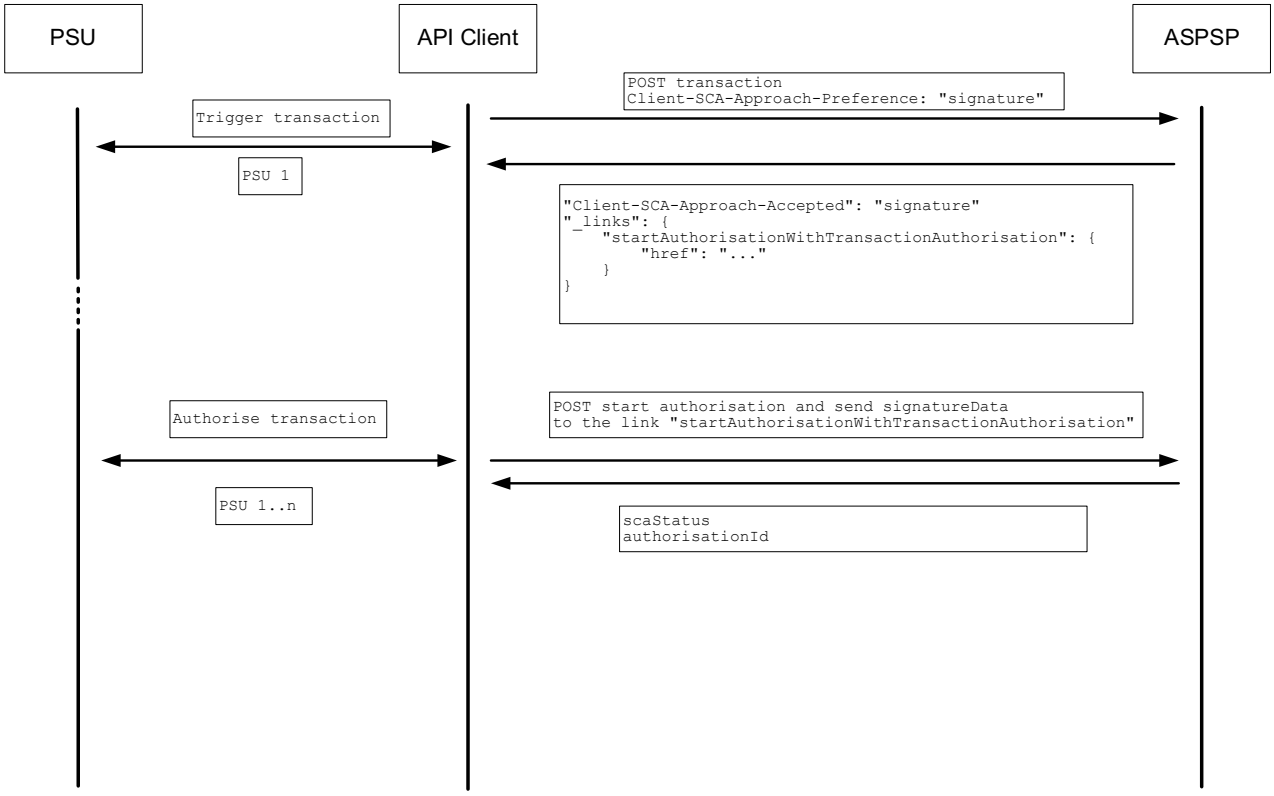


Table 7: Flow for signed transaction request with explicit authorisation

The following sub sections contain more details about the single calls.


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Remark:

The above picture and the following description are based on the simplified one-step authorisation process consisting of a single POST request. If required, the longer two-step authorisation process, where the start of authorisation process and the sending of the signature data are split into a POST and a PUT request can be used by the API Client. The ASPSP has to decide whether the one- or two-step authorisation process has to be used by the API client.

#### 7.1.3.1 Transaction Initiation

**Call**

```
POST /v2/{resource-path} HTTP/1.1
Host: api.testbank.com
```

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/{product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |

**Query Parameters**

None.

**Request Header**

The following attributes have to be added to the Request Header to indicate the authorisation by signing the body.

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-SCA-Approach-Preference | Max35Text | Mandatory | Set to "signature" to indicate that the API Client prefers signed transaction request. |
| Body-Sig-Profile-Preference | Max35Text | Mandatory | Indicates the preferred signature profile used for signing (parts of) the body.<br><br>Shall only be used for signed transaction requests. |

Further header attributes might be used as needed in Transaction Initiation Requests, cp. Section 3.4.1

**Request Body**

Transaction or payment data in JSON or XML format as needed for the transaction initiation.

**Response Code**

HTTP response code equals 201.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-SCA-Approach | Max35Text | Mandatory | Set to "signature" to confirm the use of signatures for authorisation. |
| Body-Sig-Profile-Accepted | Max35Text | Mandatory | Confirms the signature profile to be used by a PSU for signing the body.<br><br>Shall only be used for signed transaction requests. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Id | Max70Text | Mandatory | Id of the transaction (e.g. paymentId, consentId etc) |
| _links | Links | Mandatory | "startAuthorisationWithTransactionAuthorisation":<br><br>The link to the authorisation end-point, where the signature data shall be posted in the next step. |

The body may contain further parameters.

As result of this transaction initiation the status of this transaction will be set by the ASPSP according to its implementation.

#### 7.1.3.2 Requesting the data to be signed

With the resource Id of the transaction the API Client can either start the authorisation process directly (see below) or first request the data to be signed. This step is optional for the API Client. This step may be executed only once or may be repeated by the API Client for each signer individually.

**Note**: This step could be omitted if the signer knows already the body data to be signed. This step is needed in cases where transaction data is submitted via one technical API Client, and e.g. a second signature is submitted via a different technical system, where the original transaction data is not known. Please note that such a dedicated call might filter some of the data to be signed from the technical resource data.

### Call

```
GET /v2/{resource-path}/{resourceId}?toBeSigned=true HTTP/1.1
Host: api.testbank.com
```

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/{product-type}, where<br><br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents |


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| Attribute | Type | Description |
|---|---|---|
| | | • {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |

### Query Parameters

| Attribute | Condition | Description |
|---|---|---|
| toBeSigned | Mandatory | toBeSigned=true<br><br>The API Client requests the exact representation of the resource, which needs to be signed. |

### Request Header

No special Request Headers.

### Request Body

None.

### Response Code

HTTP response code equals 200.

### Response Header

No special Response Headers.

### Response Body

The body contains the transaction or payment data to be signed “as it is”.

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#### 7.1.3.3 Authorisation process

With the link "startAuthorisationWithTransactionAuthorisation" sent by the ASPSP in the response body to the transaction initiation request, the API Client can start the authorisation process by sending signature data.

**Note:** This step has to be repeated by the API Client for each signature of a PSU needed for the authorisation of the transaction.

**Note:** For the creation of the signature the PSU has to use the signature profile as indicated by the ASPSP with the Body-Sig-Profile-Accepted parameter added to the response message of the transaction initiation.

**Call**

```
POST /v2/{resource-path}/{resourceId}/authorisations HTTP/1.1
Host: api.testbank.com
```

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/{product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |

**Query Parameters**

None.

**Request Header**

No special Request Headers.


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### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| signatureData | Signature Data | Mandatory | Data needed for the verification of the signature (e.g. JWS for JSON signatures) |

Note: Content and format of the Signature data depends on the signature profile used to create the signature. This shall correspond to the profile indicated by the special parameter Body-Sig-Profile-Accepted added by the ASPSP to the transaction initiation response message. See section 7.1.4 for the description how the data has to be created if JSON_JS is used as signature profile.

### Response Code

HTTP response code equals 201.

### Response Header

No special Response Headers.

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaStatus | SCA Status | Mandatory | Result of the verification of the signature. |
| authorisationId | String | Mandatory | Resource identification of the related authorisation sub-resource. |

If the signature data has been verified by the ASPSP successfully, the scaStatus is set to finalised. Note: This scaStatus reflects the verification status of this single signature.

#### 7.1.3.4 Remark on the two-step variant

In the above section the simplified one-step authorisation process is described. If required, the longer two-step authorisation process, where the start of authorisation process and the sending of the signature data are split into a POST and a PUT request can be used by the API Client.

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### 7.1.3.5 Example

The following example shows the use case "signing a payment transaction" using JSON Web Signature according to [RFC7515]

**Step 1.**

**Request:**

```
POST /v2/payments/sepa-credit-transfers HTTP/1.1
Host: api.testbank.com
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address: 192.168.8.78
Date: Mon, 26 Oct 2020 11:24:37 GMT
Client-SCA-Approach-Preference: "signature"
Body-Sig-Profile-Preference: "JAdES_JS"

{
"instructedAmount": {"currency": "EUR", "amount": "123.50"},
"debtorAccount": {"iban": "DE40100100103307118608"},
"creditor": {"name": "Merchant123"},
"creditorAccount": {"iban": "DE02100100109307118603"},
"remittanceInformationUnstructured": ["Ref Number Merchant"]
}
```

**Response:**

```
HTTP/1.1 201 Created
ASPSP-SCA-Approach: signature
Body-Sig-Profile-Accepted: JAdES_JS
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721

{
"paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
"transactionStatus": "RCVD",
"links": {
    "startAuthorisationWithTransactionAuthorisation": {
        "href": "/v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-
8765-a9c0ff861100/authorisations"
    }
}
}
```

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### Step 2.

Note: This step is optional.

### Request:

```
GET /v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100?toBeSigned=true HTTP/1.1
Host: api.testbank.com
X-Request-ID: 123e4567-e89b-12d3-a456-426614174000
Accept: application/json
```

### Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
X-Request-ID: 123e4567-e89b-12d3-a456-426614174000

{
"instructedAmount": {"currency": "EUR", "amount": "123.50"},
"debtorAccount": {"iban": "DE40100100103307118608"},
"creditor": {"name": "Merchant123"},
"creditorAccount": {"iban": "DE02100100109307118603"},
"remittanceInformationUnstructured": ["Ref Number Merchant"]
}
```

### Step 3.

### Request:

```
POST /v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/authorisations HTTP/1.1
Host: api.testbank.com
X-Request-ID: e7c8e990-5e3f-4c3f-9b7a-04c6ea843bd3
Content-Type: application/json

{
"signatureData": {
"protected":"eyJhbGciOiJSUzI1NiIsIng1YyI6WyJNSUlCNURDQ0FXNmdBd0lCQWdJVUZOSW
hzcG1jN3Z6RHdrWVVmWWR3cGMyRWxLUXdEUVlKS29aSWh2Y05BUUVMQlFBd1VqRUxNQWtHQTFVR
UJoTUNSRVV4RERBS0JnTlZCQWdNQTA1U1Z6RU5NQXNHQTFVRUJ3d0VRbTl1YmpFUU1BNEdBMVVF
Q2d3SFJYaGhiWEJzWlRFVU1CSUdBMVVFQXd3TFpYaGhiWEJzWlM1amIyMHdIaGNOTWpjeE1URXh
NVEV4TVRFeFdoY05Namd4TVRFd01URXhNVEV4V2pCU01Rc3dDUVlEVlFRR0V3SkVSVEVNTUFvR0
ExVUVDQXdEVGxKWE1RMHdDd1lEVlFRSERBUkNiMjV1TVJBd0RnWURWUVFLREFkRmVHRnRjR3hsT
VJRd0VnWURWUVFEREF0bGVHRnRjR3hsTG1OdmJUQjZNQTBHQ1NxR1NJYjNEUUVCQVFVQUEya0FN
```


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R1lDWVFDWFZWdlB1MUhWb0FIYnl6UTZWcllkR1A5YTRNWkRlYzJ4U0lPTkFvQzEzOGVGNjB3THk
1Y0g0d3U3NW9Qc293bHowcHIrZXZScDl1R21Ddm44bmpVR045a0lTMExMRVdsTmovRmQ3dThZRU
tSejFCN0xwZExLMmRxUnR3YWRWQU1DQVFNd0RRWUpLb1pJaHZjTkFRRUxCUUFEWVFCQ1gxbXcre
mtTQ3JKWTIvbzlDY0JRNkdCYTFJK0ZsR2JWNnoxeGhQL1dSc1pEL1ZFMkRCaHMrbEUrSktSNTNP
MUE1M3VTbWpVejYrUEQwZW94dzU3VTNENWVldzNPOHg4ZmQvTTRkVmUrZWZ0QXljdWx2TzhRcS9
4UHptWDNQdzA9Il0sInNpZ1QiOiIyMDIwLTEwLTI2VDExOjI2OjU3WiIsInN1YiI6IjNkOWE4MW
IzLWE0N2QtNDEzMC04NzY1LWE5YzBmZjg2MTEwMCJ9",
"signature":"ND2HOiK8njIS4POik4Pl09dY9vWySdctFVrD_qSJ-Sm3KCbMdGzzrtmzHBz9Me
121t2mYN7ymcOsdWR8t7pDLF-A6lzoTgGxq0-9f07sAifGOEkEnb2V_YPgLTKX4-JW"
}
}

**Response:**

```
HTTP/1.1 201 Created
X-Request-ID: e7c8e990-5e3f-4c3f-9b7a-04c6ea843bd3
Content-Type: application/json

{
"authorisationId": "550e8400-e29b-41d4-a716-446655440000”,
"scaStatus": "finalised"
}
```

Remark: For convenience we reproduce here the JWS protected header and the certificate data used in the above example.

Throughout this example we use the following RSA key pair and X.509 certificate. Note that the same certificate is used in Example 6.2.3 and all disclaimers mentioned there apply here as well.

**RSA keys:**

| | | |
|---|---|---|
| Modulus (hex) | n | 97555bcfbb51d5a001dbcb343a56b61d18ff5ae0c64379cd<br>b148838d0280b5dfc785eb4c0bcb9707e30bbbe683eca309<br>73d29afe7af469f6e1a60af9fc9e350637d9084b42cb1169<br>4d8ff15deeef1810a473d41ecba5d2cad9da91b7069d5403 |
| Public exponent (hex) | e | 3 |
| Private exponent (hex) | d | 1938e4a29f384e4555a4a1de09b91e5a2ed539d0210b3ef7<br>9d8c15ecd5c01e4ff69651e201f743d6a5d749fbc0a77081<br>51b190736e31904a2e0cf8857290349d667ef674664c699c<br>4601410c3aa50dc89b05d268c07c44a664da691928b605af |


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| | | |
|---|---|---|
| First prime factor (hex) | p | c3e31710d5a7cba9da2feede9ebfc331abfcea1bd77d90b7<br>8bdd525f571bfcbe6f42a44cb44bb8d2c4385c7ddd5968a7 |
| Second prime factor (hex) | q | c5c6213910233c8ff32848faae7d362424e2577505830708<br>1dab18b537f4c89e930e415d94707e11b883bea234ffc945 |

### X.509 certificate:

| | |
|---|---|
| Certificate in PEM format | -----BEGIN CERTIFICATE-----<br>MIIB5DCCAW6gAwIBAgIUFNIhspmc7vzDwkYUfYdwpc2ElKQwDQYJKoZIhvcNAQEL<br>BQAwUjELMAkGA1UEBhMCREUxDDAKBgNVBAgMA05SVzENMAsGA1UEBwwEQm9ubjEQ<br>MA4GA1UECgwHRXhhbXBsZTEUMBIGA1UEAwwLZXhhbXBsZS5jb20wHhcNMjcxMTEx<br>MTExMTExWhcNMjgxMTEwMTExMTExWjBSMQswCQYDVQQGEwJERTEMMAoGA1UECAwD<br>TlJXMQ0wCwYDVQQHDARCb25uMRAwDgYDVQQKDAdFeGFtcGxlMRQwEgYDVQQDDAtl<br>eGFtcGxlLmNvbTB6MA0GCSqGSIb3DQEBAQUAA2kAMGYCYQCXVVvPu1HVoAHbyzQ6<br>VrYdGP9a4MZDec2xSIONAoC138eF60wLy5cH4wu75oPsowlz0pr+evRp9uGmCvn8<br>njUGN9kIS0LLEWlNj/Fd7u8YEKRz1B7LpdLK2dqRtwadVAMCAQMwDQYJKoZIhvcN<br>AQELBQADYQBCX1mw+zkSCrJY2/o9CcBQ6GBa1I+FlGbV6z1xhP/WRsZD/VE2DBhs<br>+lE+JKR53O1A53uSmjUz6+PD0eoxw57U3D5eew3O8x8fd/M4dVe+eftAyculvO8Q<br>q/xPzmX3Pw0=<br>-----END CERTIFICATE----- |

### JWS Protected Header in pretty format:


```
{
"alg": "RS256",
"x5c":
["MIIB5DCCAW6gAwIBAgIUFNIhspmc7vzDwkYUfYdwpc2ElKQwDQYJKoZIhvcNAQELBQAwUjELM
AkGA1UEBhMCREUxDDAKBgNVBAgMA05SVzENMAsGA1UEBwwEQm9ubjEQMA4GA1UECgwHRXhhbXBs
ZTEUMBIGA1UEAwwLZXhhbXBsZS5jb20wHhcNMjcxMTExMTExMTExWhcNMjgxMTEwMTExMTExWjB
SMQswCQYDVQQGEwJERTEMMAoGA1UECAwDTlJXMQ0wCwYDVQQHDARCb25uMRAwDgYDVQQKDAdFeG
FtcGxlMRQwEgYDVQQDDAtleGFtcGxlLmNvbTB6MA0GCSqGSIb3DQEBAQUAA2kAMGYCYQCXVVvPu
1HVoAHbyzQ6VrYdGP9a4MZDec2xSIONAoC138eF60wLy5cH4wu75oPsowlz0pr+evRp9uGmCvn8
njUGN9kIS0LLEWlNj/Fd7u8YEKRz1B7LpdLK2dqRtwadVAMCAQMwDQYJKoZIhvcNAQELBQADYQB
CX1mw+zkSCrJY2/o9CcBQ6GBa1I+FlGbV6z1xhP/WRsZD/VE2DBhs+lE+JKR53O1A53uSmjUz6+
PD0eoxw57U3D5eew3O8x8fd/M4dVe+eftAyculvO8Qq/xPzmX3Pw0="],
"sigT":"2020-10-26T11:26:57Z",
"sub":"3d9a81b3-a47d-4130-8765-a9c0ff861100"
}
```


Note: Above the JWS protected header is shown in pretty format. In the signature computation it should be used without breaks and extra spaces. This can be checked against the BASE64 value of “protected” element in the “signatureData” in the request of step 3 in this example.

### 7.1.4 Signing the body using JAdES_JS

Only detached JWS signatures in the sense of appendix F of [RFC7515] shall be used. Moreover, only general JWS JSON Serialisation according to section 7.2.1 of [RFC7515] shall


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be supported. Finally, since all needed signatures are transported as a single signature, the flattened syntax according to section 7.2.2 of [RFC7515] shall be used.

Note: If more than one signature is needed for the authorisation, these signatures are considered as independent signatures and not as counter signatures. If one signature has to be protected by another signatures, counter signatures as described in section 5.3.2 of [ETSI TS 119 182-1] shall be used.

Each flattened detached JWS is the following JSON structure:

| Element | Type | Condition | Description |
|---|---|---|---|
| protected | String | Mandatory | Base64URL encoded JWS Protected Header.<br><br>BASE64URL(UTF8(JWS Protected Header)) |
| header | String | Optional | Content of the JWS Unprotected Header. |
| signature | String | Mandatory | Base64URL encoded JWS Signature.<br><br>BASE64URL(JWS Signature) |

Table 8: JSON structure of a JWS

For this JWS the element "payload" (with the value BASE64URL(JWS Payload)) is omitted as mandated by appendix F of [RFC7515] for detached signatures. Though, of course, this element is used for the generation and verification of the signature.

Note: [RFC7515] assumes JWS Payload and JWS Signature to be in binary form and JWS Protected Header and JWS Unprotected Header to be strings.

**JWS Protected Header**

The JWS Protected Header is mandatory, i.e. the element protected shall be part of the JWS. It shall contain at least the following sub elements:

| Element | Type | Condition | Description |
|---|---|---|---|
| alg | String | Mandatory | Identifier of the algorithm used for the creation of the signature according to [RFC7518].<br>Examples: RS256, PS256 |


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| Element | Type | Condition | Description |
|---|---|---|---|
| x5c | Array of String | {Or | The "x5c" (X.509 certificate chain) Header Parameter contains the X.509 public key certificate or certificate chain corresponding to the key used to generate the signature. The certificate or certificate chain is represented as a JSON array of certificate value strings. Each string in the array is a base64-encoded (**not** base64url-encoded) DER PKIX certificate value. The certificate containing the public key corresponding to the key used to generate the signature MUST be the first certificate. This MAY be followed by additional certificates, with each subsequent certificate being the one used to certify the previous one. The recipient MUST validate the certificate chain according to RFC 5280 and consider the certificate or certificate chain to be invalid if any validation failure occurs. |
| x5u | String | Or | The "x5u" (X.509 URL) Header Parameter is a URI that refers to a resource for the X.509 public key certificate or certificate chain corresponding to the key used to generate the signature. The identified resource MUST provide a representation of the certificate or certificate chain that conforms to RFC 5280 in PEM-encoded form, with each certificate delimited as specified in Section 6.1 of RFC 4945. The certificate containing the public key used to generate the signature MUST be the first certificate. This MAY be followed by additional certificates, with each subsequent certificate being the one used to certify the previous one. The protocol used to acquire the resource MUST provide integrity protection; an HTTP GET request to retrieve the certificate MUST use TLS; and the identity of the server MUST be validated, as per Section 6 of RFC 6125. |
| x5t#S256 | String | Or} | SHA-256 hash value of the certificate corresponding to the key used to generate the signature. |
| sigT | DateTime | Mandatory | Claimed signing time. The time shall be UTC (ending in "Z") and shall indicate date and time to the second. |


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| Element | Type | Condition | Description |
|---|---|---|---|
| sub | String | Conditional | Id of the resource (e.g. paymentId, consentId etc) received by the API client in the response to the transaction initiation request.<br><br>This element shall be included if the id of the resource to be protected already exists. |
| jti | String | Conditional | Unique identifier of this signature according to [RFC7519].<br><br>This element shall not be included if the element sub is included. |

Table 9: JSON structure of a JWS Protected Header

**Remarks:**

- The ASPSP can mandate algorithms to be supported for the creation of a signature.
- One of the elements x5u, x5c, and x5t#S256 shall be contained in the JWS Protected Header.
- The ASPSP may define further restriction for the content of the elements x5u, x5c, and x5t#S256. For example, the ASPSP may require that the element x5c is contained and that this element contains only the certificate itself but not the complete certificate chain.
- Only one of the elements sub and jt shall be contained in the JWS Protected Header.
- Further elements defined in section 5.1 and 5.2 of [ETSI TS 119 182-1] may be included. The ASPSP may define additional requirement on these elements, i.e. that an element shall be included or that an element shall not be included.
- All additional requirements defined by the ASPSP have to be described by the ASPSP specific documentation.
- It depends on the (security) policy of the ASPSP which of these elements and how these elements are verified by the ASPSP.

**JWS Unprotected Header**

The JWS Unprotected Header is optional, i.e. the element header may be missing. If the element header exists in the JWS, it shall contain only one sub element etsiU according to section 5.3.1 of [ETSI TS 119 182-1].


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If a signature A has to be secured by another signature B, i.e. a counter signature according to [ETSI TS 119 182-1], the JWS representing the counter signature B shall be enclosed in the unprotected header of the JWS representing the signature A. In this case the sub element etsiU of the element header (containing the JWS unprotected header) shall contain the element sigC containing the JWS representing the counter signature.

**JWS Signature**

The signature is calculated over the string

ASCII(BASE64URL(UTF8(JWS Protected Header)) || '.' || BASE64URL(JWS Payload))

using the private key corresponding to the certificates prescribed by the elements x5c, x5u, or x5t#S256, and using the algorithm identified by the element alg.

Note: Recall that [RFC7515] assumes JWS Payload to be in binary form. In our case this is the UTF8 encoded JSON structure.

### 7.1.5 Signing the body using XAdES

**RFU**: Not supported for the current version of the openFinance Framework. Support will be added as part of future versions.

### 7.1.6 Signing the body using EMV_AC

**RFU**: Not supported for the current version of the openFinance Framework. Support will be added as part of future versions.

### 7.1.7 Signing the body using EUDIW

**RFU:** Not supported for the current version of the openFinance Framework. Support will be added as part of future versions.

## 7.2 Encryption of (parts of) the body

Parts of a body or the complete body of a request or response message can be encrypted, if the body is JSON or XML encoded.

For the support of the encryption of (parts of) the body of a message the following holds.

- An ASPSP may support the encryption or decryption of (parts of) the body of a request or response message optionally.
- An ASPSP shall encrypt (parts of) a response message to be sent to an API Client only if the API Client accepts encrypted (parts of the) message bodies.

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- An ASPSP shall encrypt (parts of) a request message to be sent to an API Client as part of a pushed-based service only if the API Client accepts encrypted (parts of the) message bodies.

- An API Client shall support the encryption of (parts of) a body of a request message to be sent to an ASPSP.

- An API Client shall encrypt (parts of) the body of a request message to be sent to an ASPSP if this is requested by an ASPSP.

- An API Client may support the decryption of (parts of) a body of a response message receive from an ASPSP optionally.

- For pushed-based services: An API Client may support the decryption of (parts of) a body of a request message receive from an ASPSP or the encryption of (parts of) a body of a response message to be sent to an ASPSP optionally.

**Remark:**

API access schemes may define further requirements.

### 7.2.1 Overview

Encryption of (part of) the body of an http (request or response) message will be based on the specification of

- JSON Web Encryption ([RFC7516]) for the case of JSON encoded bodies,

- XML Encryption [XML ENC] for the case of XML encoded bodies.

For JSON encryption:

- If the complete body of the message will be encrypted the complete plain text content of the body will be replaced by a JWE data structure representing the encrypted (and integrity) protected content of the body.

- If only an attribute of a body of the message will be encrypted the plain text content of this attribute will be replaced by a JWE data structure representing the encrypted (and integrity protected) content of the attribute.

For XML encryption:

- If the complete body of the message will be encrypted the complete plain text content of the body will be replaced by an XML element representing the encrypted (and integrity protected) content of the body.

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- If only an element of a body of the message will be encrypted the plain text content of this element will be replaced by an XML element representing the encrypted (and integrity protected) content of the element.

Remark: The protection of the integrity of the encrypted content depends on the algorithm used for the encryption. If A256GCM is used the integrity of the content is protected in addition to the encryption of the content.

Only key encryption will be used as key management mode. A randomly generated CEK (content encryption key) is used for the encryption of the plain text using a symmetric encryption algorithm. A public key of the receiver is used for the encryption of the CEK using an asymmetric encryption algorithm.

For the current version of this specification only the following encryption algorithms may be used (see also [RFC7518] and [XML ENC]):

- A256GCM/AES256-GCM: Symmetric AES using the Galois/Counter mode of operation for the encryption of the plain text. For this the CEK shall be a 256-bit AES key.
- RSAES-OAEP: Asymmetric RSA with OAEP padding for the encryption of the CEK. MGF1 with SHA-1 mask generation function shall be used.

For JSON encryption only JWE Compact Serialisation according to section 3.1 of [RFC7516] is used.

**Remark:** It is possible that an ASPSP or a scheme mandates the support and usage of further encryption algorithms.

### 7.2.2 Extension to the http message

#### 7.2.2.1 Path

None.

#### 7.2.2.2 Query parameters

None.

#### 7.2.2.3 Header parameters

If (parts of) the body contains encrypted information the following header parameters may be added to the header of the HTTP request or response message:

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Body-Enc-Profile | String | Conditional | Indicates the encryption profile used for the encryption of (parts of) the body. |
| Body-Enc-List | List of names | Optional | Contains a List of names of data elements/ attributes of the body which contain encrypted information. |

Table 10: Header parameters to indicate the encryption of (parts of) the body.

Body-Enc-Profile

This parameter indicates the profile used for the encryption of (parts of) the message body. Currently only the values

- JWE_CS for "JSON Web Encryption using Compact Serialization" and
- XML_ENC for "XML Encryption" are supported.

Future versions of the specification may support further values for the encryption profile.

Note: This header parameter shall exist if encryption of the body or parts of the body is used.

Body-Enc-List

This parameter indicates which of the data elements/attributes of the body contain encrypted content. Example: ["password"]. If this parameter equals ["BODY"], the complete body of the message will be encrypted.

If this parameter is missing it has to be indicated by some other means which parts of the body contain encrypted information. For example, the name of a data element/attribute may by itself indicate that the content is encrypted, like for example the attribute encryptedPassword.

#### 7.2.2.4 Body

If the header parameter Body-Enc-List contains the name of a data element/attribute of the message body or if the name of a data element/attribute indicates that the content has to be encrypted, the plain text content of this data element/attribute has to be exchanged by

- (in the case of JSON encoding) the JWE built over using plain text content of that data element/attribute as described in section 7.2.3, or


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- (in the case of XML encoding) the EncryptedElementTag element build based on the plain text content of that element as described in section 7.2.4.

If the header parameter Body-Enc-List equals ["BODY"] the plain text of the complete body has to be exchanged by

- (in the case of JSON encoding) the JWE built using the complete plain text content of the message body as described in section 7.2.3, or
- (in the case of XML encoding) the EncryptedBody element build based on the plain text XML body as described in section 7.2.4.

For JSON encoding encryption can only be used for special attributes for which the message definition allows strings without further restrictions.

For XML encoding encryption can only be used for special elements for which the message definition allows the EncryptedElementTag element as content without further restrictions.

### 7.2.3 How to build a JWE

For the current version of this specification only Compact Serialisation according to section 3.1 of [RFC7516] is used. In this case the JWE is a string built by the concatenation of the following base64url encoded elements:

BASE64URL(UTF8(JWE Protected Header)) || '.' ||
BASE64URL(JWE Encrypted KEY) || '.' ||
BASE64URL(JWE Initialisation Vector) || '.' ||
BASE64URL(JWE Ciphertext) || '.' ||
BASE64URL(Authentication Tag)

The single elements are built as follows:

**JWE Protected Header**

The JWE Protected Header is a JSON structure with the following elements:

| Element | Type | Condition | Description |
|---|---|---|---|
| alg | String | Mandatory | Algorithm to be used for the encryption of the content encryption key (CEK).<br><br>For the current version of this specification only the value RSAES-OAEP is supported. |

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| Element | Type | Condition | Description |
|---|---|---|---|
| enc | String | Mandatory | Algorithm to be used for the encryption of the plain text using the CEK.<br><br>For the current version of this specification only the value A256GCM is supported. |
| x5c | JSON | {Or | The "x5c" (X.509 certificate chain) Header Parameter contains the X.509 public key certificate or certificate chain corresponding to the key used to encrypt the CEK. The certificate or certificate chain is represented as a JSON array of certificate value strings. Each string in the array is a base64-encoded (**not** base64url-encoded) DER PKIX certificate value. The certificate containing the public key corresponding to the key used to the encrypt the CEK MUST be the first certificate. This MAY be followed by additional certificates, with each subsequent certificate being the one used to certify the previous one. The recipient MUST validate the certificate chain according to RFC 5280 and consider the certificate or certificate chain to be invalid if any validation failure occurs. |
| X5u | URI | Or} | The "x5u" (X.509 URL) Header Parameter is a URI that refers to a resource for the X.509 public key certificate or certificate chain corresponding to the key used to encrypt the CEK. The identified resource MUST provide a representation of the certificate or certificate chain that conforms to RFC 5280 in PEM-encoded form, with each certificate delimited as specified in Section 6.1 of RFC 4945. The certificate containing the public key used to encrypt the CEK MUST be the first certificate. This MAY be followed by additional certificates, with each subsequent certificate being the one used to certify the previous one. The protocol used to acquire the resource MUST provide integrity protection; an HTTP GET request to retrieve the certificate MUST use TLS; and the identity of the server MUST be validated, as per Section 6 of RFC 6125. |

Table 11: JSON structure of a JWE Protected Header.

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**Remarks:**

- One of the elements x5u or x5c shall be contained in the JWE Protected Header.
- The ASPSP may define further restriction for the content of the elements x5u and x5c. For example, the ASPSP may require that the element x5c is contained and that this element contains only the certificate itself but not the complete certificate chain. These additional requirements have to be described by the ASPSP specific documentation.

**JWE Encrypted Key**

The sender of the message shall generate a random content encryption key (CEK). This CEK shall be usable with the algorithm indicated by the element "enc" as part of the JWE protected header.

For the current version of this specification the CEK shall be a 256-bit AES key.

The JWE Encrypted Key equals the encrypted CEK with the algorithm indicated by the element "alg" as part of the JWE protected header using the public key of the receiver of the message.

**JWE Initialisation Vector**

The sender of the message shall generate a random JWE Initialisation Vector. This initialisation vector shall be usable with the algorithm indicated by the element "enc" as part of the JWE protected header.

For the current version of this specification the JWE Initialisation Vector shall be a 128 bit long random value.

**JWE Ciphertext**

The plain text of the complete body or of the data element/attribute of the body has to be encrypted with the CEK using the encryption algorithm given by the element "enc" of the JWE Protected Header. For the current version of this specification only A256GCM is supported, i.e. the Galois/Counter mode of operation [GCMencryp]. By this the plain text is not only encrypted but also integrity protected.

For the Galois/Counter mode of operation "additional authenticated data" (AAD) is needed. This is defined by the following:

AAD = ASCII(BASE64URL(UTF8(JWE Protected Header)))

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### JWE Authentication Tag

The output of the Galois/Counter mode of operation of the AES algorithm delivers not only the ciphertext but also a 128-bit long authentication tag. This 128-bit output has to be used as JWE Authentication Tag.

### 7.2.4 How to build an EncryptedBody or EncryptedElementTag element

If the complete body has to be encrypted the corresponding encrypted body has the following content:

```
<EncryptedBody>
     <EncryptedData>
          See below
     </EncryptedData>
     <EncryptedKey ID="ID_CEK">
          See below
     </EncryptedKey>
</EncryptedBody>
```

Table 12: Elements of an encrypted XML message body

If an element with the tag ElementTag has to be encrypted the corresponding encrypted element has the following content:

```
<EncryptedElementTag>
     <EncryptedData>
          See below
     </EncryptedData>
     <EncryptedKey ID="ID_CEK">
          See below
     </EncryptedKey>
</EncryptedElementTag>
```

Table 13: Elements of an encrypted XML element with tag ElementTag

### Element EncryptedData

This element contains the encrypted data and shall contain the following:

```
<EncryptedData>
```

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```
        <EncryptionMethod Algorithm="URI_encryptionAlgorithm" />
        <KeyInfo>
           <RetrivalMethod URI="#ID_CEK"
           Type="http://www.w3.org/2001/04/xmlenc#EncryptedKey"/>
        </KeyInfo>
        <CipherData>
              <CipherValue>
              Base 64 coded cipher value of the encrypted content
              </CiperValue>
        </CipherData>
</EncryptedData>
```

URI_encryptionAlgorithm identifies the (symmetric encryption) algorithm which has been used for the calculation of the cipher value using the symmetric CEK (content encryption key). This CEK can be retrieved from the element EncryptedKey identified by "ID=ID_CEK".

URI_encryptionAlgorithm = http://www.w3.org/2009/xmlenc11#aes256-gcm has to be supported, i.e. AES encryption with 256-bit CEK using the Galois/Counter mode of operation for the encryption of the plain text. An ASPSP can mandate the usage of another algorithm.

**Element EncryptedKey**

This element contains the encrypted CEK (content encryption key) and shall contain the following:

```
<EncryptedKey ID="ID_CEK">
      <EncryptionMethod Algorithm="URI_CEK_encryptionAlg" />
      <KeyInfo>
            <X509Data>
                  <X509Certificate>
                  base64 coded X.509 encryption certificate
                  </X509Certificate>
            </X509Data>
      </KeyInfo>
      <CipherData>
            <CipherValue>
            Base 64 coded cipher value of the encrypted CEK
            </CiperValue>
```


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```
        </CipherData>
    </EncryptedKey>
```

URI_CEK_encryptionAlg identifies the (asymmetric encryption) algorithm which has been used for the calculation of the cipher value of the CEK using the public key of the receiver of the message. X.509 certificate identifying this public key is contained in the sub-element KeyInfo.

URI_CEK_encryptionAlg = http://www.w3.org/2001/04/xmlenc#rsa-oaep-mgf1p has to be supported, i.e. RSA-OAEP encryption using MGF1 with SHA-1 mask generation function. An ASPSP can mandate the usage of another algorithm.

The element `X509Data shall contain the X.509 certificate containing the public key of the receiver of the message used to encrypt the CEK.`

### 7.2.5 Exchange of certificates with public encryption keys

For the encryption of (parts of) the body of an HTTP-message it is necessary that the sender of the message knows the public key of the receiver of the message to be used to encrypt the CEK to be used for the encryption of the content. This public key has to be exchanged as part of a corresponding certificate over this public key. The openFinance API Framework supports two different mechanisms to exchange these encryption certificates.

**Exchange of the certificate within an attribute of a message body:**

A message may contain the following attribute if the sender of this message wishes that the receiver of this message will encrypt (parts of) the body of following messages:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| encryptionCertificate | String | Optional | The certificate to be used by the receiver for encryption of (parts of) the body of a following message |

The attribute encryptionCertificate contains the X.509 public key certificate or certificate chain corresponding to the public key to be used to encrypt the CEK for the encryption of (parts of) the body of following messages. The certificate or certificate chain is represented as a JSON array of certificate value strings. Each string in the array is a base64-encoded (**not** base64url-encoded) DER PKIX certificate value. The certificate containing the public key corresponding to the key used to the encrypt the CEK MUST be the first certificate. This MAY be followed by


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additional certificates, with each subsequent certificate being the one used to certify the previous one.

The ASPSP may define further restrictions such that this attribute may contain only the certificate of the public key itself but not a certificate chain.

**Exchange using a special link to the certificate:**

The "_links" attribute of a message may contain the following special link if the sender of this message wishes that the receiver of this message will encrypt (parts of) the body of following messages:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | String | Optional | May contain the following special link:<br><br>"encryptionCertificates": {"href":…} |

The href-link is an URI that refers to a resource for the X.509 public key certificate or certificate chain corresponding to the public key to be used to encrypt the CEK for the encryption of (parts of) the body of following messages. The identified resource MUST provide a representation of the certificate or certificate chain that conforms to RFC 5280 in PEM-encoded form, with each certificate delimited as specified in Section 6.1 of RFC 4945. The certificate containing the public key to be used for the encryption of the CEK MUST be the first certificate. This MAY be followed by additional certificates, with each subsequent certificate being the one used to certify the previous one.


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# 8 Strong customer authentication of a PSU

Remark: The term PSU is used for the user of a services even in the case of services which are not related to a payment service.

## 8.1 Optional Usage of OAuth2 for PSU Authentication or Authorisation

The XS2A API respectively the openFinance APIs will allow an ASPSP to implement OAuth2 as a support for the authorisation of the PSU towards the API Client for several services. In this case, the API Client will be the client, the PSU the resource owner and the ASPSP will be the resource server in the abstract OAuth2 model.

This specification supports two ways of integrating OAuth2. The first support is an authentication of a PSU in a pre-step, translating this authentication into an access token to be used at the XS2A interface or openFinance API afterwards. This usage of OAuth2 will be referred to in this specification as "if OAuth2 has been used as PSU authentication". Further details shall be defined in the documentation of the ASPSP of this XS2A interface or openFinance API.

**Remark:** When implementing the OAuth pre-step, the requirements on e.g. registration steps or no mandatory two SCA application in specific PIS only scenarios as defined by [EBA-OP2] should be recognised by the ASPSP.

The second option to integrate OAuth2 is an integration as an OAuth2 SCA Approach to be used for authorisation of transactions. In all services, OAuth2 will in this option be used in an integrated way, by using the following steps:

Integrated OAuth for the authorisation of transactions which are reflected as resources in the related services endpoints of the API:

1.) The transaction data is posted to the corresponding service endpoint of the XS2A API resp. the openFinance API. This service endpoint might be extended by a product-type, e.g. sepa-credit-transfers in the case of the /payments endpoint.
2.) The OAuth2 protocol is used with the "Authorization Code Grant" flow to get the authorisation of the PSU for the related transaction, while using the "scope" attribute in OAuth2 to refer to the data from Step 1.).
3.) The corresponding transaction is then automatically initiated by the ASPSP after a successful authorisation by the PSU, if no further interaction between API Client and ASPSP is required.

**NOTE:** For AIS services, the API Client needs to get a consent resource authorised first via the routine described above. The API Client then can use the access token received during the OAuth2 protocol to access the related accounts endpoint for authorised account information for the validity period of the authorised consent resp. the validity period of the technical access token.

For Step 2.), details are described in Section 8.8.

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When using OAuth2, the XS2A API or openFinance API calls will work with an access token instead of using the PSU credentials.

## 8.2 Header Parameter for PSU Context Data

The following data elements are forwarding information about the interface between PSU and API Client to enhance the risk management procedures of the ASPSP integrated into SCA resp. SCA exemption procedures. It is **strongly recommended** to send these data elements within all Transaction Initiation Requests, that involve PSU authentication, e.g. in Payment Initiation Requests.

Header parameters as defined in this section will not be repeated in the implementation guidelines of service specifications to enhance document readability, but the implementation guidelines will refer to this document in the relevant sections. However, the detailed specifications of service calls via the related OpenAPI files will still contain all applicable headers.

The only exception is where conditions other than "optional" apply on specific request messages, e.g. for the PSU IP Address. More details might be provided in the data overview within service definitions.

| Attribute | Format | Condition | Description |
|---|---|---|---|
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. Conditions will be defined within service specifications, If applicable. |
| PSU-IP-Port | String | Optional<br><br>**BOI remarks**:<br><br>**Mandatory**<br><br>all Transaction Initiation Requests, that involve PSU authentication | The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available. |
| PSU-Accept | String | Optional | The forwarded IP Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available. |


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| Attribute | Format | Condition | Description |
|---|---|---|---|
| PSU-Accept-Charset | String | Optional | see above |
| PSU-Accept-Encoding | String | Optional | see above |
| PSU-Accept-Language | String | Optional | see above |
| PSU-User-Agent | String | Optional | The forwarded Agent header field of the HTTP request between PSU and TPP, if available. |
| PSU-Http-Method | String | Optional | HTTP method used at the PSU – TPP interface, if available.<br><br>Valid values are:<br>• GET<br>• POST<br>• PUT<br>• PATCH<br>• DELETE |
| PSU-Device-ID | String | Optional<br><br>**BOI remarks:**<br><br>**Conditional** within all Transaction Initiation Requests, that involve PSU authentication | UUID (Universally Unique Identifier) or IMEI for a device, which is used by the PSU, if available.<br><br>UUID/IMEI identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device. |
| PSU-Geo-Location | Geo Location | Optional<br><br>**BOI remarks:**<br><br>**Conditional**<br><br>within all Transaction Initiation Requests, | The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available. |


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| Attribute | Format | Condition | Description |
|---|---|---|---|
| | | that involve PSU authentication | |

**Note:** Information about the interface between PSU and API Client might be used by the ASPSP as input for his fraud detection and risk management systems. Some ASPSPs use this information also to exclude certain authentication methods (for example some ASPSPs do not allow to receive an OTP by SMS on the same smartphone used also for the transaction itself). In addition, the ASPSP might need to receive specific device related information to be able to support an optimised app-2-app redirection procedure for the API Client. For these reasons it is highly recommended that an API Client includes all of this information in the related Transaction Initiation Request messages. Missing information may result in an assessment of the user device as not useable for the authentication method or in a classification of the current transaction as a "higher risk transaction" e.g. due to session attacks. By this, the probability of a rejection of that transaction due to the result of fraud detection and/or risk management might be increased.

**Remark**: These requirements do not apply in a "direct access" scenario, where no third party provider is involved and where the ASPSP can detect the related information directly from the then PSU/ASPSP interface.

### 8.3 Header Parameters for PSU Identification Data

The openFinance API Framework supports the transmission of PSU identification data within request parameters for all Transaction Initiation Request messages. The ASPSP might mandate these elements, which then needs to be reflected in the related ASPSP documentation.

Header parameters as defined in this section will not be repeated in the implementation guidelines of service specifications to enhance document readability, but the implementation guidelines will refer to this document in the relevant sections. However, the detailed specifications of service calls via the related OpenAPI files will still contain all applicable headers.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| PSU-ID | Max140Text | Conditional<br><br>**BOI remarks:**<br><br>Mandatory | Client ID of the PSU in the ASPSP client interface. Might be mandated in the ASPSP's documentation.<br><br>It might be contained even if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in a preceding |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | AIS service in the same session. In this case the ASPSP might check whether PSU-ID and token match, according to ASPSP documentation.<br><br>**BOI remarks**:<br><br>The PSU id number or passport number.<br><br>This attribute is not the client ID in the ASPSP client interface!<br><br>Possible values are:<br><br>• ID = only digits<br>• PASSPORT =<br>o 2 character ISO 3166 country code<br>o hyphen-minus "-"<br>o Passport number |
| PSU-ID-Type | Max35Text | Conditional | Type of the PSU-ID; needed in scenarios where PSUs have several PSU-IDs as access possibility.<br><br>In this case, the mean and use are then defined in the ASPSP's documentation.<br><br>**BOI remarks**:<br><br>Specific brands or channels of the ASPSP only in case there is more than one. Possible values should be found in ASPSP's documentation. |
| PSU-Corporate-ID | Max140Text | Conditional | Identification of a Corporate in the Online Channels<br><br>Might be mandated in the ASPSP's documentation. Only used in a corporate context. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| PSU-Corporate-ID-Type | Max35Text | Conditional | This is describing the type of the identification needed by the ASPSP to identify the PSU-Corporate-ID content as used in online channels. Typically, this is a proprietary definition.<br><br>Mean and use is defined in the ASPSP's documentation. Only used in a corporate context. |

**Note**: If the ASPSP is mandating PSU identification related attributes, then the ASPSP needs to assure to be compliant with related sections from [EBA-OP2] if PSD2 compliance related services are addressed.

**Note:** The ASPSP might support special characters for PSU identification in their client interfaces. To support this on API level, the recommended character set for PSU identification related header parameters is ISO8859-1 based. In addition to the plain ISO8859-1 encoding following the HTTP specification, the ASPSP might offer a Base64 encoding. In the latter variant, this results in the following expression:

```
=?ISO-8859-1?B?<Base64 coded ISO-8859-1 String>?=
```

An UTF-8 encoding of header parameters used by the API Client thus might lead to rejections with Message Code PSU_CREDENTIALS_INVALID.

Deviations from these recommendations should be documented in detail by the ASPSP.

### 8.4 Header Parameters for strong customer authentication

Header parameters as defined in this section will not be repeated in the implementation guidelines of service specifications to enhance document readability, but the implementation guidelines will refer to this document in the relevant sections. However, the detailed specifications of service calls via the related Open API files will still contain all applicable headers.

#### 8.4.1 Request Header Parameters Steering SCA Approaches

The following request headers might be used by an API Client in a Transaction Initiation Request to communicate SCA preferences to the ASPSP for transaction authorisation.

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-SCA-Approach-Preference | Max35Text | Optional | A comma separated list of attributes, where the first entry will have a higher priority than the next or to every SCA Approach which is not indicated at all, e.g.<br><br>"decoupled, redirect, embedded, signature"<br><br>or<br><br>"decoupled"<br><br>This attribute may be ignored by the ASPSP.<br><br>Values to be used for using signatures as SCA are added in Section 7.1.2<br><br>**BOI Remarks**<br><br>embedded, signature -not supported |
| Client-Redirect-URI | String | Conditional | URI of the TPP, where the transaction flow shall be redirected to after a Redirect. Mandated for the Redirect SCA Approach. See Section 8.7 for further requirements on this header.<br><br>It is recommended to always use this header field. |
| Client-Nok-Redirect-URI | String | Optional | If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the Client-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.<br><br>See Section 8.7 for further requirements on this header. |
| Client-Explicit-Authorisation-Preferred | Boolean | Optional | If it equals "true", the API Client prefers to start the authorisation process separately, e.g. because of the usage of a signing basket or because of asynchronous authorisation. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality or if asynchronous authorisation is not supported. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | If it equals "false" or if the parameter is not used, there is no preference of the API Client. This especially indicates that the API Client assumes a direct authorisation of the transaction in the next step, without using a signing basket. |

### 8.4.2 Related Response Headers

The following header is used by the ASPSP to transmit decisions of the chosen SCA Approach to the third party.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-SCA-Approach | String | Conditional | This data element must be contained, if the SCA Approach is already fixed. Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• ASPSP-CHANNEL<br>• SIGNATURE<br><br>**BOI remarks**:<br>The values "EMBEDDED", “REDIRECT”, “SIGNATURE” is not supported.<br><br>The OAuth SCA approach will be subsumed by REDIRECT. |

## 8.5 Embedded SCA Approach

**BOI remarks: not supported.**

The Embedded SCA Approach is defined as the scenario where all PSU credentials are transmitted via the XS2A API resp. the openFinance API. PSU identification data are transported using the related header parameters as defined in Section 8.3. After a Transaction Initiation Request and Response, an authorisation sub-resource is either


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implicitly generated by the ASPSP or needs to be explicitly created by the API Client in a next step, cp. Section 9.1.

The API calls to create an authorisation sub-resource as well as the API calls to transmit PSU credentials to the related authorisation resource within an Embedded SCA Approach are defined in Section 0 and Section 9.5. The specific functions to be used will always be indicated by related hyperlinks presented by the ASPSP before.

## 8.6 Decoupled SCA Approach

The Decoupled SCA Approach differs from the Embedded SCA Approach by using an ASPSP authentication app for the strong customer authentication and dynamic linking if applicable. The app is used by the PSU also for authentication of transaction in the online channels. Since the XS2A API resp. the openFinance API is not involved in this app authentication, no authentication specific API support is defined in this case.

**NOTE**: A more standardised security profile based on re-direct like the FAPI CIBA profile are not supported yet by the openFinance API Framework.

As a hybrid between Embedded and Decoupled SCA approach, the ASPSP might require the PSU to transmit a first factor (a password) first via the XS2A API resp. the openFinance API and only afterwards authentication with a second factor via the Decoupled Approach. The transmission of the password is handled as in the Embedded SCA Approach via the related authorisation sub resource and the API calls defined in Section 0. Such an implementation would still be called a Decoupled SCA Approach in the openFinance API Framework.

## 8.7 Redirect SCA Approach

In the Redirect SCA Approach, the TPP will at some point receive a "scaRedirect" link in the response from the ASPSP. The link leads to an authorisation page related to the transaction to be authorised and to the TPP must redirect the PSU agent to that link as a next step. When accessing the page, the PSU will authenticate himself with the related PSU credentials, review the presented information of the transaction and can finalise the authorisation from there. When the authorisation has been finalised by the PSU, the PSU agent is redirected again by the ASPSP to the Client-Redirect-URI, which has been submitted within the related Transaction Initiation Request. If the authorisation was not successful, the ASPSP may use the Client-Nok-Redirect-URI submitted in the same call, if supported.

Refer to Section 5.3 for requirements on TPP redirection links.

**NOTE:** The "scaRedirect" link may include query parameters. Due to definitions for a potential later confirmation flow, cp. Section 9.8.2.2, ASPSPs shall not include a query parameter named "state" in their "scaRedirect" links. Such a parameter is reserved for the TPP to be used for session control.

**Remark for Future**: For migration reasons, this specification mandates the TPP to keep the Client-Redirect-URI used within all authorisation processes for a specific transaction during

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the lifecycle of this transaction constant. This might be removed in the next version of the specification.

### 8.8 OAuth SCA Approach

The OAuth2 protocol as used optionally for this API is defined in [RFC6749]. In this section, additional requirements on the protocol are defined. The related protocol shall be used by the TPP, if the ASPSP is transmitting the link of type "scaOAuth".

**NOTE**: A more standardised security profile based on re-direct like the FAPI PAR profile are not supported yet by the openFinance API Framework.

The requirements on the data exchange between the TPP and the OAuth Server of the ASPSP regarding the transport layer are identical to the data exchange requirements between TPP and the XS2A Interface resp. the openFinance API, cp. Section 5 .

**Note**: Specifically, the requirements on using MTLS also apply to the usage of the OAuth2 protocol. However, the general requirements on the application layer such as e.g. signing of Requests (see Section 6) do not apply to the OAuth2 messages.

The response type "code" and the grant types "authorization_code" and "refresh_token" are recommended by this specification. It is further strongly recommended to TPPs and ASPSPs to follow the security best practices defined in [OA-SecTop].

**Note:** In case of the OAuth SCA Approach, the TPP has to generate in addition a nonce for the challenge parameter. This has also to be bound to the session of the user agent.

The ASPSP is required to provide TPPs with configuration data conforming to the "OAuth 2.0 Authorisation Server Metadata" specification.

**BOI remarks**: The response type "code" and the grant types "authorization_code" and "refresh_token" are Mandatory by this specification.

#### 8.8.1 Authorization Request

For the "authorization request" (see [RFC6749], section 4.1.1) to the OAuth2authorization endpoint provided in the Server Metadata, the following parameters are defined:

**Query Parameters**

| Attribute | Condition | Description |
|---|---|---|
| response_type | Mandatory | "code" is recommended as response type.<br><br>**BOI remarks**:<br><br>"code" is mandatory as response type. |


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| Attribute | Condition | Description |
|---|---|---|
| client_id | Mandatory | organizationIdentifier as provided in the eIDAS certificate.<br><br>PSD2 related access clients, the organizationIdentifier attribute shall contain information using the following structure in the presented order:<br><br>- "PSD" as 3 character legal person identity type reference;<br>- 2 character ISO 3166 country code representing the NCA country;<br>- hyphen-minus "-" and<br>- 2-8 character NCA identifier (A-Z uppercase only, no separator)<br>- hyphen-minus "-" and<br>- PSP identifier (authorization number as specified by NCA).<br>For the usage in the context of premium services, a related API Access Scheme might define other requirements.<br><br>**BOI remarks:**<br><br>organizationIdentifier followed by hyphen-minus "-" and organizationalUnitName as provided in the eIDAS certificate.<br><br>The organizationIdentifier and organizationalUnitName attributes shall contain information using the following structure in the presented order:<br><br>**organizationIdentifier**<br><br>- "OB:" as legal person identity type reference;<br><br>- "IL" as 2 character ISO 3166 country code representing the NCA country;<br><br>- hyphen-minus "-" and<br><br>- "CMA" or "BOI" as 2-8 character NCA identifier (A-Z uppercase only, no separator) |


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| Attribute | Condition | Description |
|---|---|---|
| | | - hyphen-minus "-" and<br><br>- PSP identifier (authorization number as specified by NCA).<br><br>**hyphen-minus "-" and**<br><br>**organizationalUnitName**<br><br>PSP application identifier (as specified by NCA) |
| scope | Mandatory | PIS: The scope is the reference to the payment resource in the form "PIS:<paymentId>".<br><br>Cancel-PIS: The scope is the reference to the payment cancellation in the form "Cancel-PIS:<paymentId>".<br><br>**Note:** Cancel-PIS is an optional scope which the ASPSP can decide to use (whether it does must be specified in the ASPSP documentation). If they do so, it must also be used by the TPP for payment cancellation, and the PIS scope then refers only to payment authorisation.<br><br>AIS: The scope is the reference to the consent resource for account access in the form "AIS:<consentId>"<br><br>PIIS: The scope is the reference to the consent resource for granting consent to confirmation of funds in the form "PIIS:<consentId>".<br><br>Signing Basket Services: The scope is the reference to the signing basket resource for authorisation of a bundle of access functions in the form "SB:<basketId>.<br><br>Subscriptions: The scope is the reference to the subscription resource or subscription entry sub-resource in the form "SUB:<subscriptionId>" resp. "SUB-E"<subscriptionId>-<entryId>." |


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| Attribute | Condition | Description |
|---|---|---|
| | | Mandate Services: The scope is the reference to the mandate resource in the form "MAN:<resoruceId>", where the resourceId is the resource identification of the related mandate.<br><br>Document or RTP Services: The scope is the reference to the consent resource for document services in the form "DOC:<consentId>".<br><br>User Services: The scope is the reference to the consent resource for user parameter access in the form "USR:<userResourceId>."<br><br>**Note:** The resource ids chosen by the ASPSP need to be unique to avoid resource conflicts during the SCA process. |
| state | Mandatory | A dynamical value set by the TPP and used to prevent XSRF attacks. |
| redirect_uri | Mandatory | the URI of the TPP where the OAuth2 server is redirecting the PSU's user agent after the authorization. |
| code_challenge | Mandatory | PKCE challenge according to cryptographic RFC 7636 (https://tools.ietf.org/html/rfc7636) used to prevent code injection attacks. |
| code_challenge_method | Optional | Code verifier transformation method, is "S256" or "plain". "S256" is recommended by this specification.<br><br>**BOI remarks:** only "S256" is supported. |

## Example

```
GET /authorize?response_type=code&client_id=PSDES-BDE-3DFD21 &
scope=ais%3A3d9a81b3-a47d-4130-8765-a9c0ff861100+offline_access&
state= S8NJ7uqk5fY4EjNvP_G_FtyJu6pUsvH9jsYni9dMAJw&
redirect_uri=https%3A%2F%2Fclient%2Eexample%2Ecom%2Fcb&
code_challenge_method="S256"
code_challenge=5c305578f8f19b2dcdb6c3c955c0aa709782590b4642eb890b97e43917cd
0f36 HTTP/1.1
```

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```
Host: api.testbank.com
```

### 8.8.2 Authorization Response

The Authorization Response (see [RFC6749], section 4.1.2) of the ASPSP will deliver the following data:

**Remark:** As the request is not sent by the TPP but the PSU user agent, it will not be secured by the TPP's QWAC.

**http Response Code**

302

**Query Parameters**

| Attribute | Condition | Description |
|---|---|---|
| Location: | Mandatory | redirect URI of the API Client |
| code | Mandatory | Authorisation code |
| state | Mandatory | Same value as for the request. |

**Example**

```
HTTP/1.1 302 Found

Location: https://client.example.com/cb
?code=SplxlOBeZQQYbYS6WxSbIA
&state=S8NJ7uqk5fY4EjNvP_G_FtyJu6pUsvH9jsYni9dMAJw
```

### 8.8.3 Access Token Request

As described in [RFC6749], section 4.1.3, the TPP sends a POST request to the token endpoint in order to exchange the authorization code provided in the authorization response for an access token and, optionally, a refresh token. The following parameters are used:

**Request Parameters**

| Attribute | Condition | Description |
|---|---|---|
| grant_type | Mandatory | "authorization_code" is recommended as response type. |

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| Attribute | Condition | Description |
|---|---|---|
| | | **BOI remarks:** only "authorization_code" and "refresh_token" values are supported. |
| client_id | Mandatory | cp. Definition in Section 8.8.1 |
| code | Mandatory | Authorization code from the authorization response |
| redirect_uri | Mandatory | the exact uri of the TPP where the OAuth2 server redirected the user agent to for this particular transaction |
| code_verifier | Mandatory | PKCE verifier according to cryptographic RFC 7636 (https://tools.ietf.org/html/rfc7636) used to prevent code injection attacks. |

### Example

```
POST /token HTTP/1.1
Host: https://api.testbank.com
Content-Type: application/x-www-form-urlencoded
client_id=PSDES-BDE-3DFD21
&grant_type=authorization_code
&code=SplxlOBeZQQYbYS6WxSbIA
&redirect_uri= https%3A%2F%2Fclient%2Eexample%2Ecom%2Fcb
&code_verifier=7814hj4hjai87qqhjz9hahdeu9qu771367647864676787878
```

The TPP is authenticated during this request by utilising "OAuth 2.0 Mutual TLS Client Authentication and Certificate Bound Access Tokens" (see [RFC 8705]) in conjunction with the TPP's eIDAS certificate.

### 8.8.4 Access Token Response

The ASPSPS responds with the following parameters:

### Response Parameters

| Attribute | Condition | Description |
|---|---|---|
| access_token | Mandatory | Access Token bound to the scope as requested in the authorisation request and confirmed by the PSU. |
| token_type | Mandatory | Set to "Bearer" |

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| Attribute | Condition | Description |
|---|---|---|
| expires_in | Optional | The lifetime of the access token in seconds<br><br>**BOI remarks:** This value shall be published by the ASPSP in its documentation. |
| refresh_token | Optional<br><br>**BOI remarks:** Mandatory | Refresh Token, which can be utilised to obtain a fresh access tokens in case the previous access token expired or was revoked. Especially useful in the context of AIS. |
| scope | Mandatory | the scope of the access token |

**Example**

*HTTP/1.1 200 OK*

```
Content-Type: application/json
Cache-Control: no-store
Pragma: no-cache

{
 "access_token": "SlAV32hkKG",
 "token_type": "Bearer",
 "expires_in": 3600,
 "refresh_token": "tGzv3JokF0XG5Qx2TlKWIA",
 "scope": "exampleScope"
}
```

### 8.8.5 Refresh Token Grant Type

The ASPSP may issue refresh tokens at its discretion, e.g. if an AISP uses the standard scope value "offline_access" or if the recurringIndicator is set to true.

**BOI remarks**: The ASPSP must issue refresh tokens, e.g. if an AISP uses the standard scope value "offline_access" or if the recurringIndicator in is set to true.

Refresh tokens should be used as part of the OAuth2 protocol both for AIS and PIS.


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### 8.8.6 API Requests

When using the OAuth SCA approach, subsequent API requests are being authorised using the respective OAuth Access Token. The Access Token is sent to the API using the "Authorization" Header and the "Bearer" authorization scheme as defined in RFC 6750.

This is an example API request

```
  GET /psd2/v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/status HTTP/1.1
  Host: https://api.testbank.com
  Authorization: Bearer SlAV32hkKG
```

## 8.9 ASPSP Channel SCA Approach

The ASPSP might offer to authorise a transaction **not** within the session

- started with the first resource data submission of the ASPSP within a Transaction Initiation procedure, or
- started with the POST /authorisations request

**but instead later** in other authorisation channels of the ASPSP like the online channels.

This SCA approach is addressed by the API Client by using the term "ASPSP-CHANNEL" in the attribute "Client-SCA-Approach-Preference".[2]

**NOTE**: The new ASPSP-SCA-Approach "ASPSP-CHANNEL" might be changed later on dynamically to e.g. "Redirect" by the API Client in case of re-starting the authorisation procedure explicitly via the API. It just sticks to "ASPSP-SCA-Approach", if the related transaction is authorised in a different authorisation channel of the ASPSP (e.g. online channel).

## 8.10 Signature SCA Approach

The Signature SCA Approach is defined to be the SCA approach, where the PSU is providing a digital signature on transaction data submitted to the ASPSP. After a Transaction Initiation Request and Response, an authorisation sub-resource is either implicitly generated by the ASPSP or needs to be explicitly created by the API Client in a next step, cp. Section 9.1.

The API calls to create an authorisation sub-resource as well as the API calls to transmit the digital signature to the related authorisation resource within a Signature SCA Approach are

[2] This SCA approach is added to support extended services, where asynchronous SCA approaches are provided. This is not supposed to be supported for compliance services under PSD2 which cover synchronous authorisation processes only.

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defined in Section 7.1.3.3 and Section 7.1.4. The specific functions to be used will always be indicated by related hyperlinks presented by the ASPSP before.

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# 9 Authorisation Processes used commonly in all Services

Many business transactions need authorisation processes to be initiated via the openFinance API resp. the XS2A API. Authorisation processes include PSU authentication supported in the openFinance API Framework via the different SCA approaches as defined in Section 8. A very specific business transaction is a cancellation process for a transaction resource via the API where in some cases (e.g. payment initiation) also an authorisation process via SCA by the PSU might be mandated.

These authorisations are reflected in the openFinance API Framework in two perspectives:

- The impact of an authorisation process on an existing transaction resource, which will lead to new sub-resources of the addressed transaction resource as defined in Section 9.1 and 9.2.

- The impact on access methods for the related authorisation or cancellation authorisation endpoints as defined in Section 9.3 ff.

The description in this section is generic by defining the access methods in detail but abstractly. The related endpoints will not be documented in the implementation guidelines of service specification to enhance document readability. However, detailed specifications including the authorisation endpoints will be available via the related OpenAPI files.

**Remark**: The API design differs across the various SCA approaches (Embedded, Redirect, OAuth2 or Decoupled, cp. Section 8), but mostly between the Embedded SCA Approach and the others, since the Embedded SCA Approach demands the support of the full SCA complexity within the API itself. For that reason, all data or processes which are only needed for the Embedded SCA Approach are shown in a light blue background, to increase the readability of the specification.

## 9.1 Authorisation Endpoints

The openFinance API Framework is supporting dedicated authorisation endpoints in order to handle transaction authorisation by PSUs. These authorisation endpoints are supporting the following features in a common structured way

- multiple level SCA, where a transaction needs an authorisation by more than one PSU, e.g. in a corporate context,

- signing of a group of transactions with one SCA, as it is offered by ASPSPs today in online banking, cp. the definition of signing baskets in Section 10

- signing of a group of transactions with multi-level SCA, where this group of transactions need an authorisation by more than one PSU, e.g. in a corporate context.

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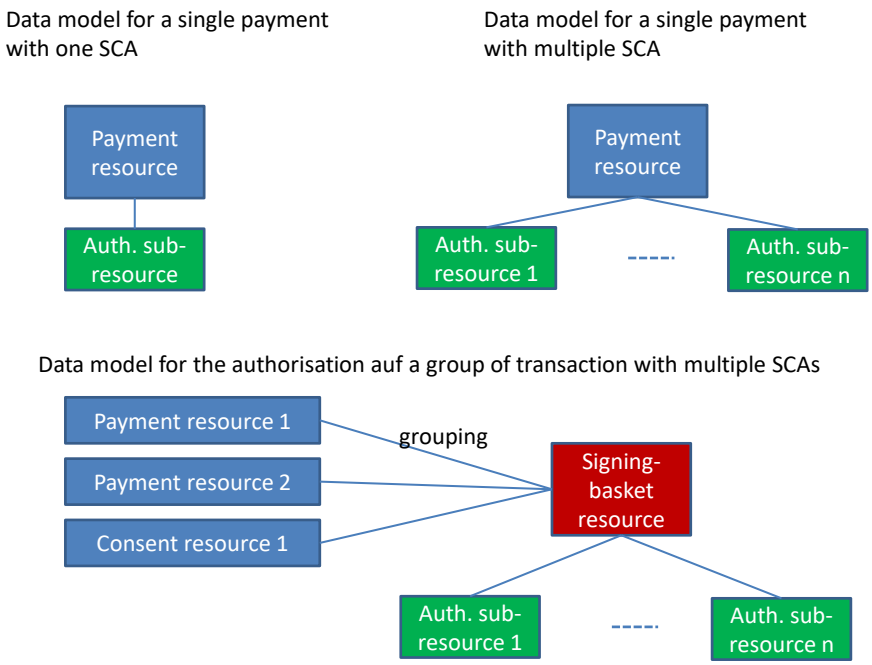
To support this, the resources resulting from the submission of transaction data, like payment data or consent data are separated from authorisation (sub-)resources. For example, payment which needs to be signed *n* times then will end up in a payment resource with *n* SCA (sub-)resources in a normal successful process.

The optional function of grouping several transactions for one common authorisation process is supported by the signing-baskets endpoint, which might be offered by the ASPSP. If this function is offered by an ASPSP, the API Client can first submit transaction data without starting the authorisation. After having grouped the related transaction resources by using a grouping command through the signing-baskets endpoint, the authorisation then can be started by authorising this basket content. This results in a basket resource with the corresponding authorisation sub-resource.

The following picture gives an overview on the abstract data model for the different scenarios in the example of a payment:




**Remark**: When offering the signing basket function, the ASPSP might restrict the grouping e.g.

- to payments as such,
- to individual payments,
- to the same payment product.

This restriction on groupings will then be detailed in the ASPSP's documentation.

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**Note:** The grouping of transaction is only a "signing vehicle", bundling authorisation processes for the grouped transactions. The authorisation rules for transactions can be very complex in a corporate context. The signing basket gets the status of being fully authorised as soon as all grouped transactions have been successfully authorised by the applied SCA mechanism. A transaction with less authorisation requirements might then be authorised earlier than the whole signing basket and also already processed. In addition, single transactions of the signing basket could be authorised with additional SCAs directly on transaction level, depending on the implementations of the ASPSPs – the signing basket is a non-exclusive mechanism to bundle authorisations. Current implementations of this functionality differ in Europe, specifically in a corporate context. For this reason, more complex functionality as DELETE processes on partially authorised signing baskets are not supported yet.

**Remark for Future**: The upcoming versions of the specification might implement more advanced functionality of the signing basket function and cancellation processes around it.

**Optimisation process for the submission of e.g. single payments**

The general model introduced above requires the API Client to start two sub-processes when initiating a transaction. For example, in a payment initiation of a sepa credit transfer this would result in

```
POST /payments/sepa-credit-transfers {payment data}
```

which is generating the payment resource and returns paymentId as a resource identification.

```
POST /payments/sepa-credit-transfers/paymentId/authorisations
```

is then starting the authorisation process with creating an authorisation sub-resource and returning an authorisationId for addressing this sub-resource in the following.

Applying this requirement to all authorisations of transactions e.g. in the Redirect SCA Approach would significantly augment the calls on the resulting API. For this reason, this specification still enables the ASPSP to directly start e.g. a Redirect SCA processing after the submission of transaction data, like e.g. a payment or a consent, if no other data from the API Client has to be submitted anyhow. In this case, the ASPSP will create the related authorisation sub-resources automatically and will give access to these sub-resources to the API Client by returning corresponding hyperlinks, cp. Section 3.6. As a consequence, the authorisation status would still be provided by submitting the command

```
GET /payments/sepa-credit-
transfers/paymentId/authorisations/authorisationId,
```

where the authorisation resource with identification authorisationId has been created by the ASPSP implicitly.

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## 9.2 Transaction Cancellation Endpoints e.g. for Payments

The openFinance API Framework is supporting the cancellation of strongly protected resources, like payment initiations or payment authorisations by PISPs. This process is divided into two steps:

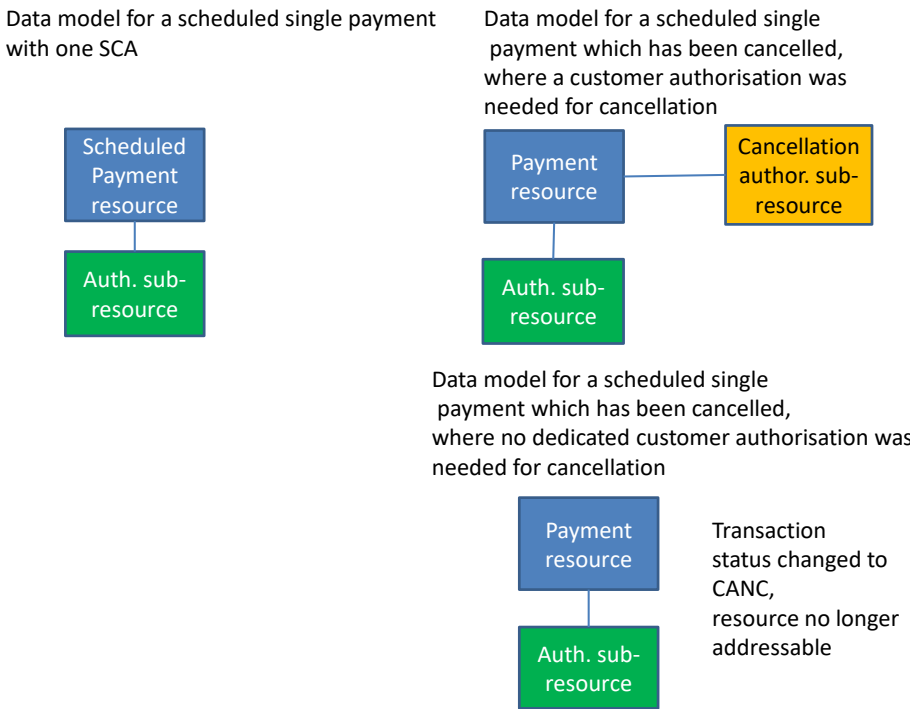
1. DELETE the corresponding resource.
2. Start an authorisation process for the cancellation by the PSU where needed by submitting a

   ```
   POST payments/sepa-credit-transfers/paymentId/cancellation-
                                authorisations
   ```

   command.

The second step might be omitted, where a dedicated authorisation of the cancellation is not foreseen by the ASPSP. The need to authorise the cancellation will be communicated by sending corresponding hyperlinks to the API Client, cp. Section 3.6.

In the two-step approach, this cancellation process will be handled by cancellation-authorisation sub-resources in analogy to the actual authorisations. The authorisation sub resources will stay unchanged. The following picture shows the changes on resource level in case of a scheduled payment:




The corresponding original authorisation sub-resources stay unchanged.

For transactions, where a multilevel SCA is needed for authorisation, also a multilevel SCA might be needed for cancellation, depending on ASPSP role management. In equivalence to authorisation, the model would then be extended by more cancellation sub-resources.

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**NOTE:** The logic of cancellation sub resources will apply also to other transactions, where a cancellation via the API Client requires a cancellation authorisation by the PSU.

### 9.3 Access Methods for Authorisations

Processes on starting authorisations, update PSU identification or PSU authentication data and explicit authorisation of transactions by using SCA are very similar in all services. The API calls supporting these processes are described in the following independently from the service/endpoint. These processes usually are used following a hyperlink of the ASPSP. The usage is defined at the beginning of the following sections. The API access methods are provided only in a schematic way in this document. The related OpenAPI files will provide the actual access methods by instantiating the term {resource-path}/{resourceId} with the addressed service, product types, where applicable, and the correct resource identification.

Thus, the following API access methods are supported for authorisation processes.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| {resource-path}/{resourceId}/authorisations | POST | Mandatory | Create an authorisation sub-resource and start the authorisation process, might in addition transmit authentication and authorisation related data. This method is iterated n times for an n times SCA authorisation in a corporate context, each creating an own authorisation sub-endpoint for the corresponding PSU authorising the transaction.<br><br>The ASPSP might make the usage of this access method unnecessary in case of only one SCA process needed, since the related authorisation resource might be automatically created by the ASPSP after the submission of the resource data with the first `POST {resource-path}` call.<br><br>Section 0. |
| {resource-path}/{resourceId}/authorisations | GET | Mandatory | Read a list of all authorisation sub-resources IDs which have been created.<br><br>Section 9.6. |


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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| {resource-path}/{resourceId}/authorisations/{authorisationId} | PUT<br><br>**BOI remarks**:<br><br>Embedded SCA is not supported.<br><br>Mandatory<br><br>for ASPSP's that implement section 9.8 – Confirmation request. | Mandatory for Embedded SCA Approach and Signature SCA Approach, Conditional for other approaches | Update data on the authorisation resource if needed. It may authorise a payment within the Embedded SCA Approach or Signature SCA Approach where needed.<br><br>Independently from the SCA Approach it supports e.g. the selection of the authentication method and a non-SCA PSU authentication.<br><br>Section 9.4.1, Section 9.5.<br><br>**BOI Remark:**<br><br>In this call, TPP will send the token received from the ASPSP for initiating the payment as described in section 9.8 |
| {resource-path}/{resourceId}/authorisations/{authorisationId} | PUT | Conditional for Redirect or OAuth SCA Approach | Update the authorisation resource with a confirmation code to counter potential session attacks, where supported by ASPSPs.<br><br>Section 9.8. |
| {resource-path}/{resourceId}/authorisations/{authorisationId} | GET | Mandatory | Read the SCA status of the authorisation.<br><br>Section 9.7. |


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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| {resource-path}/{resourceId}/cancellation-authorisations | POST | Optional | Starts the authorisation of the cancellation of the addressed resource with resource identification resourceId if mandated by the ASPSP (i.e. the DELETE access method is not sufficient) and if applicable to the related service, and received in product related timelines (e.g. before end of business day for scheduled payments of the last business day before the scheduled execution day).<br><br>**NOTE:** Such a cancellation authorisation for now only applies to payments. But the openFinance API Framework allows to apply it to any other service.<br><br>Section 0. |
| {resource-path}/{resourceId}/cancellation-authorisations | GET | Optional | Retrieve a list of all created cancellation authorisation sub-resources. If the POST command on this endpoint is supported, then also this GET method needs to be supported.<br><br>Section 9.6. |
| {resource-path}/{resourceId}/cancellation-authorisations/{authorisationId} | PUT | Mandatory for Embedded SCA Approach, Signature SCA Approach, Conditional for other approaches | Update data on the cancellation authorisation resource if needed. It may authorise a cancellation of the payment within the Embedded SCA Approach where needed.<br><br>Independently from the SCA Approach it supports e.g. the selection of the authentication method and a non-SCA PSU authentication.<br><br>Section 9.4.1 and Section 9.5. |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| {resource-path}/{resourceId}/cancelation-authorisations/{authorisationId} | GET | Mandatory | Read the SCA status of the cancellation authorisation.<br><br>Section 9.7. |

**Remark for Future**: The PUT HTTP methods might be adapted to technical PATCH methods in a future version of the specification. A corresponding decision will reflect current market practices and the work in ISO TC68/SC9/WG2 on Financial API services.

### 9.4 Start Authorisation Process

**BOI remarks**:

not supported

**Usage**

If the further processing of a resource reflecting a business transaction (e.g. a payment) requires an authorisation of one or more PSUs, each authorisation is represented by an authorisation sub-resource of that resource, cp. also Section 9.1 for the example of payment initiation. This transaction resource has been created after the submission of Transaction Initiation Request, cp. Section 2.2.5.

In some cases, an authorisation by the PSU is required, when an already existing and authorised resource is to be cancelled. Currently, the only occasion of that situation is the cancellation of a payment. In such a case, a "Transaction Cancellation Request" (with corresponding "Transaction Cancellation Response") has been sent by the API Client for an already existing resource. This leads to a situation, where a "Cancelation-Authorisation" will be created to represent the authorisation of the cancellation of the existing resource by the PSU. Therefore, the Cancellation-Authorisation resources also are sub-resources of the "Transaction" resource itself, cp. Section 9.2.

The "start authorisation process" is the process which creates a new authorisation or cancellation-authorisation sub-resource. The related sub-resource is reflecting the PSU authentication steps as authorisation process or cancellation authorisation process of the PSU. Please note that all the processes and conditions are identical for authorisations and cancellation-authorisations. The only difference appears in their respective names and effects on the underlying resource. The "start authorisation process" appears in the following scenarios:

- The ASPSP has indicated with a "startAuthorisation" hyperlink in the preceding Transaction Initiation Response or Transaction Cancellation Response that an

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explicit start of the authorisation process is needed by the API Client. The "startAuthorisation" hyperlink can transport more information about data which needs to be uploaded by using the extended forms

- "startAuthorisationWithPsuIdentfication",
- "startAuthorisationWithPsuAuthentication",
- "startAuthorisationWithEncryptedPsuAuthentication",
- "startAuthorisationWithAuthentciationMethodSelection"
- "startAuthorisationWithTransactionAuthorisation".

- The related business transaction or business transaction cancellation cannot yet be executed since a multilevel SCA is mandated.

**Call**

```
POST /v2/{resource-path}/{resourceId}/{authorisation-category}
```

Starts an authorisation process or a cancellation authorisation process for the business transaction reflected by the resource identified with resourceId, depending on the authorisation category `authorisations` or `cancellation-authorisations`.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/{product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| authorisation-category | String | The following two categories are supported:<br>• `authorisations`: used in case of an authorisation of the related business transaction.<br>• `cancellation-authorisations`: used in case of the cancellation authorisation of the related business |


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| Attribute | Type | Description |
|---|---|---|
| | | transaction. Used only if applicable to the addressed {service} |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |

### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-ID | String | Conditional | Client ID of the PSU in the ASPSP client interface. Shall be transmitted if this Request is indicated by "startAuthorisationWithPsuIdentification" or "startAuthorisationWithPsuAuthentication" or "startAuthorisationWithEncryptedPsuAuthentication" and this field has not yet been transmitted before. |
| PSU-ID-Type | String | Conditional | Type of the PSU-ID, needed in scenarios where PSUs have several PSU-IDs as access possibility.<br><br>Shall be transmitted in this case, if this Request is indicated by "startAuthorisationWithPsuIdentification" or "startAuthorisationWithPsuAuthentication" or "startAuthorisationWithEncryptedPsuAuthentication" and this field has not yet been transmitted before. |
| PSU-Corporate-ID | String | Conditional | Identification of a Corporate in the Online Channels.<br><br>Shall be transmitted if this Request is indicated by "startAuthorisationWithPsuIdentification" or "startAuthorisationWithPsuAuthentication" or "startAuthorisationWithEncryptedPsuAuthentication" and this field has not yet been transmitted before, |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | and only where generally needed in a corporate context. |
| PSU-Corporate-ID-Type | String | Conditional | This is describing the type of the identification needed by the ASPSP to identify the PSU-Corporate-ID content.<br><br>Shall be transmitted if this Request is indicated by "startAuthorisationWithPsuIdentification". or "startAuthorisationWithPsuAuthentication" or "startAuthorisationWithEncryptedPsuAuthentication" and this field has not yet been transmitted before. Mean and use is defined in the ASPSP's documentation. Only used in a corporate context. |
| Authorization | String | Conditional | Bearer Token. Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in a preceding AIS service in the same session. |
| Client-SCA-Approach-Preference | String | Optional | A comma separated list of attributes, where the first entry will have a higher priority than the next or to every SCA Approach which is not indicated at all, e.g.<br><br>"decoupled, redirect, embedded, signature"<br><br>or<br><br>"decoupled".<br><br>This attribute may be ignored by the ASPSP. |
| Client-Redirect-URI | String | Conditional | URI of the TPP, where the transaction flow shall be redirected to after a Redirect. Mandated for the Redirect SCA Approach, specifically when Client-Redirect-Preferred equals "true". See Section 5.3for further requirements on this header.<br><br>This field may be ignored by the ASPSP for migration reasons.<br><br>For this reason, the same Client-Redirect-URI as used when creating the related resource shall be provided by the TPP. This specifically applies to the authorisation of a payment cancellation, where the |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | same Client-Redirect-URI as for the corresponding payment initiation shall be used. This applies also to multilevel SCA, where the Client-Redirect-URI for all authorisation processes for one transaction shall be equal.<br><br>It is recommended to always use this header field.<br><br>**Remark for Future:** The condition on keeping the Client-Redirect-URI equal during a transaction lifecycle might be removed in the next version of the specification. |
| Client-Nok-Redirect-URI | String | Optional | If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the Client-Redirect-URI in case of a negative result of the redirect SCA method. This may be ignored by the ASPSP. See Section 5.3 for further requirements on this header.<br><br>The same condition as for Client-Redirect-URI on keeping the URI equal during a transaction lifecycle applies also to this header. |

### Request Body

No request body.

**Note:** If the hyperlinks in the following extended forms are used in the Transaction Initiation Response message or Transaction Cancellation Response message before, additional conditions on request body parameters apply as indicated in the following:

- "startAuthorisationWithPsuIdentification": Cp. Section 9.4.2
- "startAuthorisationWithPsuAuthentication": Cp. Section 9.4.3
- "startAuthorisationWithEncryptedPsuAuthentication": Cp. Section 9.4.3.
- "startAuthorisationWithAuthenticationMethodSelection": Cp. Section 9.4.4.
- "startAuthorisationWithTransactionAuthorisation": Cp. Section 9.5.

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The differences in the calls then are only whether to use a POST command to create the authorisation sub-resource and update the specified data at the same time or to use a PUT command to update the specified data to an already created authorisation sub-resource.

### Response Code

HTTP response code equals 201.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• ASPSP-CHANNEL<br>• SIGNATURE<br>OAuth will be subsumed by the value REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fee relevant for the underlying payments in case of a payment resource. This field includes the entry of the currencyConversionFees if applicable. |
| currencyConversion Fees | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer in case of a payment resource id. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| estimatedTotalAmount | Amount | Optional | The amount which is estimated to be debted from the debtor account in case of a payment resource.<br><br>Note: This amount includes fees. |
| estimatedInterbank SettlementAmount | Amount | Optional | The estimated amount to be transferred to the payee in case of a payment resource. |
| scaStatus | SCA Status | Mandatory | |
| authorisationId | String | Mandatory | Unique resource identification of the created authorisation or cancellation authorisation sub-resource. |
| originalTransaction InformationAndVopStatus | Array of Original Transaction Information and VOP Status | Conditional | VOP result information.<br><br>Will be provided, if<br><br>• an account/owner name match was requested and performed,<br>• the result was not yet provided and<br><br>the related code in the interbank VOP service was "CMTC", "NMTC" or "NOAP". |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaMethods | Array of Authentication Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "selectAuthenticationMethod" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the API Client. |
| chosenSca Method | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified e.g. with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element "chosenScaMethod" if challenge data is needed for SCA.<br><br>In rare cases this attribute is also used in the context of the "updatePsuAuthentication" or "updateEncryptedPsuAuthentication" link. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"scaRedirect": In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "scaOAuth": In case of a SCA OAuth2 Approach, the ASPSP is transmitting the URI where the configuration of the Authorisation Server can be retrieved. The configuration follows the OAuth 2.0 Authorisation Server Metadata specification.<br><br>"confirmation": Might be added by the ASPSP if either the "scaRedirect" or "scaOAuth" hyperlink is returned in the same response message. This hyperlink defines the URL to the resource which needs to be updated with<br><br>• a confirmation code as retrieved after the plain redirect authentication process with the ASPSP authentication server or<br>• an access token as retrieved by submitting an authorization code after the integrated OAuth based authentication process with the ASPSP authentication server. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "updatePsuIdentification":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where PSU identification data needs to be uploaded.<br><br>"udpatePsuAuthentication":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where PSU authentication data needs to be uploaded.<br><br>"udpateEncryptedPsuAuthentication":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where encrypted PSU authentication data needs to be uploaded<br><br>"selectAuthenticationMethod":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where the selected authentication method needs to be uploaded. This link is contained under exactly the same conditions as the data element "scaMethods"<br><br>"authoriseTransaction":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where the authorisation data has to be uploaded, e.g. the TOP received by SMS. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |
| psuMessage | Max500Text | Optional | |

**Note:** If the hyperlinks in the following extended forms are used in the Transaction Initiation Response or Transaction Cancellation Response message before, additional response parameters apply as indicated in the following:

- In case of "startAuthorisationWithPsuIdentification": Cp. Section 9.4.2
- In case of: "startAuthorisationWithPsuAuthentication": Cp. Section 9.4.3
- In case of: "startAuthorisationWithEncryptedPsuAuthentication": Cp. Section 9.4.3
- In case of: "startAuthorisationWithAuthenticationMethodSelection": Cp. Section 9.4.4.
- In case of "startAuthorisationWithTransactionAuthorisation": Cp. Section 9.5

### Example

### Request

```
POST https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-ID:                 PSU-1234
```

### Response

```
HTTP/1.x 201 CREATED
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
```


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```
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/authorisations/3d9a81b3-a47d-4130-9999-a9c0ff861100
Content-Type:           application/json
{
 "scaStatus": "received",
 "authorisationId": "3d9a81b3-a47d-4130-9999-a9c0ff861100",
 "psuMessage": "Please use your BankApp for transaction authorisation.",
 "_links": {
   "scaStatus":  {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/
authorisations/3d9a81b3-a47d-4130-9999-a9c0ff861100"}
   }
}
```

### 9.4.1 Update PSU Data

Independent of the SCA approach, the ASPSP might offer to select the SCA method before the SCA approach is defined, because e.g. the SCA Approach to be chosen might depend on the SCA method.

- A specific Update PSU Data Request is applicable for
  - the selection of authentication methods (see section 9.4.4), before choosing the actual SCA approach.

Depending on the SCA approach, different further PSU Data needs to be updated:

- Decoupled SCA Approach: A specific Update PSU Data Request is only applicable for
  - adding the PSU Identification (see section 9.4.2) or a PSU Authentication (see section 9.4.3, if not provided yet in the related Transaction Initiation Request and if no OAuth2 access token is used, or
  - the selection of authentication methods (see section 9.4.4).
- Embedded SCA Approach: The Update PSU Data Request might be used
  - to add credentials as a first factor authentication data of the PSU (see section 9.4.3) and
  - to select the authentication method (see section 9.4.4).

These different Update PSU Data Requests are differentiated in the following sub sections.

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### 9.4.2 Update PSU Data (Identification)

This call is used, when in the preceding call the hyperlink of type "updatePsuIdentification" was contained, e.g. in case of a Decoupled Approach in the response and is now followed by the TPP.

#### Call

```
PUT /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

Updates the addressed authorisation sub-resource data on the server by PSU data, if requested by the ASPSP.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| authorisation-category | String | The following two categories are supported:<br>• authorisations: used in case of an authorisation of the related business transaction.<br>• cancellation-authorisations: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |
| authorisationId | String | Resource identification of the related authorisation sub-resource. |


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### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-ID | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP in the related response |
| PSU-ID-Type | String | Conditional | Type of the PSU-ID, needed in scenarios where PSUs have several PSU-IDs as access possibility. |
| PSU-Corporate-ID | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP in the related response. This field is relevant only in a corporate context. |
| PSU-Corporate-ID-Type | String | Conditional | Might be mandated by the ASPSP in addition if the PSU-Corporate-ID is contained. |

### Request Body

No request body.

### Response Code

HTTP response code is 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • ASPSP-CHANNEL<br>• SIGNATURE<br>OAuth will be subsumed by the value REDIRECT |

## Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fee relevant for the underlying payments. This field includes the entry of the currencyConversionFees if applicable. |
| currencyConversion Fees | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotalAmount | Amount | Optional | The amount which is estimated to be debted from the debtor account.<br><br>Note: This amount includes fees. |
| estimatedInterbank SettlementAmount | Amount | Optional | The estimated amount to be transferred to the payee. |
| scaMethods | Array of Authentication Objects | Conditional | Might be contained, if several authentication methods are available. (name, type) |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |
| | | | "selectAuthenticationMethod": This is a link to a resource, where the TPP can select the applicable second factor authentication methods for the PSU, if there are several available authentication methods and if the PSU is already sufficiently authenticated.. If this link is contained, then there is also the data element "scaMethods" contained in the response body |
| scaStatus | SCA Status | Mandatory | |
| psuMessage | Max500Text | Optional | |


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### Example

### Request

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-ID:                 PSU-1234
```

### Response

```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json
{
 "scaStatus": "psuIdentified",
 "psuMessage": "Please use your BankApp for transaction Authorisation.",
 "_links": {
   "scaStatus":  {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/
authorisations/3d9a81b3-a47d-4130-9999-a9c0ff861100"}
   }
}
```

### 9.4.3 Update PSU Data (Authentication) in the Decoupled or Embedded Approach

This call is used, when in the preceding call the hyperlink of type "updatePsuAuthentication", "updateEncryptedPsuAuthentication", or was contained in the response and is followed by the API Client.

### Call

```
PUT /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

Updates the addressed authorisation sub-resource data on the server by PSU data, if requested by the ASPSP.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where |


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| Attribute | Type | Description |
|---|---|---|
| | | • {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| authorisation-category | String | The following two categories are supported:<br>• authorisations: used in case of an authorisation of the related business transaction.<br>• cancellation-authorisations: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |
| authorisationId | String | Resource identification of the related authorisation sub-resource. |

**Note**: The openFinance API Framework allows ASPSPs to mandate a payload encryption to protect the password contained in the payload.

### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-ID | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP in the related response |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| PSU-ID-Type | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP in the related response |
| PSU-Corporate-ID | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP in the related response. This field is relevant only in a corporate context. |
| PSU-Corporate-ID-Type | String | Conditional | Contained if not yet contained in a preceding request, and mandated by the ASPSP documentation. Might be mandated by the ASPSP in addition if the PSU-Corporate-ID is contained. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuData | PSU Credentials | Mandatory | The password, or encryptedPassword, subfield is used, depending on encryption requirements of the ASPSP as indicated in the corresponding hyperlink contained in the preceding response message of the ASPSP. The related encryption requirements are defined in Section 7.2. |

### Response Code

HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• ASPSP-CHANNEL<br>• SIGNATURE<br>OAuth will be subsumed by the value REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalTransactionInformationAndVopStatus | Array of Original Transaction Information and VOP Status | Conditional | VOP result information.<br><br>Will be provided, if<br>• an account/owner name match was requested and performed,<br>• the result was not yet provided and<br>• the related code in the interbank VOP service was "CMTC", "NMTC" or "NOAP". |
| chosenScaMethod | Authentication Object | Conditional | A definition of the provided SCA method is contained, if only one authentication method is available, and if the Embedded SCA approach is chosen by the ASPSP. |
| challengeData | Challenge | Conditional | Challenge data might be contained, if only one authentication method is available, and if the Embedded SCA approach is chosen by the ASPSP. |
| scaMethods | Array of Authentication Objects | Conditional | Might be contained, if several authentication methods are available. (name, type) |
| accounts | Array of Account Details | Conditional | Provided, if the PSU account reference has not been provided in the related resource |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | data submission and if more than one account is available. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the TPP. Might be contained, if several authentication methods are available for the PSU.<br><br>Type of links admitted in this response:<br><br>"updateAdditionalPsuAuthentication"<br>The link to the payment initiation or account information resource, which needs to be updated by an additional PSU password. This link is only contained in rare cases, where such additional passwords are needed for PSU authentications.<br><br>"updateAdditionalEncryptedPsuAuthentication"<br>The link to the payment initiation or account information resource, which needs to be updated by an additional encrypted PSU password. This link is only contained in rare cases, where such additional passwords are needed for PSU authentications.<br><br>"updateResourceByDebtorAccountResource"<br><br>The link to the business resource which needs an update by any potential debtor account delivered in the "accounts" attribute above.<br><br>"selectAuthenticationMethod": This is a link to a resource, where the TPP can select the applicable second factor authentication methods for the PSU, if there were several available authentication methods. This link is only contained, if the PSU is already identified or authenticated with the first relevant factor or alternatively an access token, if SCA is required and if the PSU has |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | a choice between different authentication methods. If this link is contained, then there is also the data element "scaMethods" contained in the response body<br><br>"authoriseTransaction": The link to the resource, where the "Transaction Authorisation Request" is sent to. This is the link to the resource which will authorise the transaction by checking the SCA authentication data within the Embedded SCA approach.<br><br>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |
| scaStatus | SCA Status | Mandatory | |
| psuMessage | Max500Text | Optional | |

**NOTE**: In case of an incorrect password, the ASPSP informs the TPP via the message code PSU_CREDENTIALS_INVALID. The TPP then needs to ask the PSU for re-entering the password. The newly entered password needs to be updated to the same path. It is recommended that the ASPSP is informing the TPP about this by adding a _links section in the additional error information and presenting a corresponding updatePsuAuthentication or updateEncryptedPsuAuthentication hyperlink. In case an incorrect password is entered too often, the ASPSP will at least put the related resource to a "Rejected" status. The ASPSP might inform the PSU via psuMessages about further impact.

**NOTE:** If an account list is provided for the selection of an account via the access method defined in Section 9.9, then the status of the related payment resource will be moved from "RCVD" to "PNDG", to indicate that further data needs to provided on resource level, before the authorisation can be completed. In addition, the ASPSP should provide a status reason code, providing more information on the pending reason.

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### Example

#### *Request in case of Embedded Approach*

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-ID:                 PSU-1234
{
"psuData": {
  "password": "start12"
  }
}
```

#### *Response in case of the embedded approach*

```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     EMBEDDED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "scaStatus": "psuAuthenticated",
  "_links": {
   "authoriseTransaction": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3A3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
  }
}
```

### 9.4.4 Update PSU Data (Select Authentication Method)

This call is used, when in the preceding call the hyperlink of type "selectAuthenticationMethod" was contained in the response and was followed by the TPP.

### Call

```
PUT /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

Updates the addressed authorisation sub-resource data on the server by PSU data, if requested by the ASPSP.

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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| authorisation-category | String | The following two categories are supported:<br>• authorisations: used in case of an authorisation of the related business transaction.<br>• cancellation-authorisations: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |
| authorisationId | String | Resource identification of the related authorisation sub-resource. |

### Query Parameters

No specific query parameters.

### Response Code

The HTTP response code equals 200.


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### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| authentication MethodId | String | Mandatory | The authentication method ID as provided by the ASPSP. |

### Response Code

HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Optional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• ASPSP-CHANNEL<br>• SIGNATURE<br>OAuth will be subsumed by the constant REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalTransaction InformationAndVopStatus | Array of Original Transaction Information | Conditional | VOP result information.<br><br>Will be provided, if |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | and VOP Status | | • an account/owner name match was requested and performed,<br>• the result was not yet provided and<br><br>the related code in the interbank VOP service was "CMTC", "NMTC" or "NOAP". |
| chosenSca Method | Authentication object | Conditional | A definition of the provided SCA method is contained, if the Embedded SCA approach is chosen by the ASPSP. |
| challengeData | Challenge | Conditional | Challenge data might be contained, if the Embedded SCA approach is chosen by the ASPSP. |

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| | | | |
|---|---|---|---|
| _links | Links | Conditional | A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP.<br><br>Remark: This method can be applied before or after PSU identification. This leads to many possible hyperlink responses.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"scaRedirect": In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.<br><br>"scaOAuth": In case of a SCA OAuth2 Approach, the ASPSP is transmitting the URI where the configuration of the Authorisation Server can be retrieved. The configuration follows the OAuth 2.0 Authorisation Server Metadata specification.<br><br>"confirmation": Might be added by the ASPSP if either the "scaRedirect" or "scaOAuth" hyperlink is returned in the same response message. This hyperlink defines the URL to the resource which needs to be updated with<br><br>• a confirmation code as retrieved after the plain redirect authentication process with the ASPSP authentication server or |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • an access token as retrieved by submitting an authorization code after the integrated OAuth based authentication process with the ASPSP authentication server. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "updatePsuIdentification":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where PSU identification data needs to be uploaded.<br><br>"updatePsuAuthentication":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where PSU authentication data needs to be uploaded.<br><br>"updateEncryptedPsuAuthentication":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where encrypted PSU authentication data needs to be uploaded.<br><br>"authoriseTransaction":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where the authorisation data has to be uploaded, e.g. the TOP received by SMS.<br><br>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |
| scaStatus | Sca Status | Mandatory | |
| psuMessage | Max500Text | Optional | |

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### Example

### Request in case of Embedded Approach

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
X-Request-ID:           asdfoeljkasdfoelkjasdf-123479093

{
authenticationMethodId: "myAuthenticationID"
}
```

### Response in case of the embedded approach

```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     EMBEDDED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "scaStatus": "scaMethodSelected",
  "chosenScaMethod": {
      "authenticationType": "SMS_OTP",
      "authenticationMethodId": "myAuthenticationID"},
  "challengeData": {
      "otpMaxLength": "6",
      "otpFormat": "integer"},
  "_links": {
     "authoriseTransaction": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
  }
}
```

## 9.5 Transaction Authorisation

**BOI remarks**:

not supported.

This call is only used in case of an Embedded SCA Approach.

**Call**


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```
PUT /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

Transmit response data to the challenge for SCA checks by the ASPSP.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| authorisation-category | String | The following two categories are supported:<br>• `authorisations`: used in case of an authorisation of the related business transaction.<br>• `cancellation-authorisations`: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |
| authorisationId | String | Resource identification of the related authorisation sub-resource. |

**Query Parameter**

No specific query parameters.

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### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if the optional Oauth Pre-Step was performed. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaAuthenticationData | String | Mandatory | SCA authentication data, depending on the chosen authentication method. If the data is binary, then it is base64 encoded. |

### Response Code

HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaStatus | SCA Status | Mandatory | |
| _links | Links | Conditional | . A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. |

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| | | | |
|---|---|---|---|
| | | | **Remark**: All links can be relative or full links, to be decided by the ASPSP.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |

**NOTE**: In case of incorrect scaAuthenticationData, the ASPSP informs the TPP via the message code PSU_CREDENTIALS_INVALID. The TPP then needs to ask the PSU for re-entering the authentication data by repeating the SCA method first. Depending on the implementation of the corresponding SCA method, the TPP needs

- either to re-start the full authorisation process by generating a new authorisation sub-resource, e.g. in case of an SMS OTP,
- or to submit newly generated authentication data generated on a customer device to the same path as the first time, and where no new challenge data from the ASPSP is needed, e.g. in case of a CHIP OTP.

The ASPSP is informing the TPP about this by adding a _links section in the additional error information and presenting a corresponding startAuthorisation, or transactionAuthorisation hyperlink. In case an incorrect OTP is entered too often, the ASPSP will at least put the related resource to a "Rejected" status. The ASPSP might inform the PSU via psuMessages about further impact.

**Example**

*Request*

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-transfers/
3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-a47d-4130-
9999-a9c0ff861100
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
{
 "scaAuthenticationData": "123456"
}
```

*Response in case of the embedded approach*

Response Code 200

Response Body

```
{
  "scaStatus": "finalised",
```


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```
  "_links": {
   "scaStatus":  {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
   }
}
```

## 9.6 GET Authorisation Sub-Resources Request

**BOI remarks**: not supported

Call

```
GET /v2/{resource-path}/{resourceId}/{authorisation-category}
```

Will deliver an array of resource identifications of all generated authorisation or cancellation authorisation sub-resources.

Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| Authorisation-category | String | The following two categories are supported:<br>• `authorisations`: used in case of an authorisation of the related business transaction.<br>• `cancellation-authorisations`: used in case of the cancellation authorisation of the related business |

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| | | |
|---|---|---|
| | | transaction. Used only if applicable to the addressed {service} |

Query Parameters

No specific query parameters defined.

Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an Oauth2 based authentication was performed in a pre-step or an Oauth2 based SCA was performed in the current business transaction or in a preceding AIS service in the same session, if no such Oauth2 SCA approach was chosen in the current PIS transaction. |

Request Body

No request body.

Response Code

The HTTP response code equals 200.

Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| authorisationIds | Array of String | Mandatory | An array of all authorisationIds connected to the related business transaction. |

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*Example*

*Request*

```
GET https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations
Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7723
Date:                   Sun, 06 Aug 2017 15:04:07 GMT
```

*Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7723
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
Content-Type:           application/json

{
  "authorisationIds": ["3d9a81b3-a47d-4130-9999-a9c0ff861100"]
}
```

## 9.7 GET Authorisation Status Request

### Call

```
GET /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

Checks the SCA status of an authorisation or cancellation authorisation sub-resource.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |


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| Attribute | Type | Description |
|---|---|---|
| authorisation-category | String | The following two categories are supported:<br>• `authorisations`: used in case of an authorisation of the related business transaction.<br>• `cancellation-authorisations`: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |
| authorisationId | String | Resource identification of the related authorisation sub-resource. |

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current PIS transaction. |

### Query Parameters

No specific query parameters defined.

### Request Body

No request body.

### Response Code

The HTTP response code equals 200.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaStatus | SCA Status | Mandatory | This data element is containing information about the status of the SCA method applied. |
| psuName | Max140Text | Optional | Name of the PSU[3]<br><br>In case of a corporate account, this might be the person acting on behalf of the corporate. |
| _links | Links | Optional | Should refer to next steps if the problem can be resolved via the interface e.g. for re-submission of credentials. |
| apiClientMessages | Array of Client Message Information | Optional | Messages to the TPP on operational issues. |

### *Example*

### *Request*

```
GET https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:07 GMT
```

[3] Usage is following the mandate resulting from EBA Q&A 2020_5165.

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***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
Content-Type:           application/json

{
  "scaStatus": "finalised"
}
```

## 9.8 Confirmation Request Procedure

The Confirmation Request Procedure is technically an optional extension of the authorisation process in case of the Redirect or OAuth SCA Approach. Its purpose is to prevent Cross-Site-Request-Forgery attacks (XSRF attacks) following the approach presented in [XS2A-SecB], chapter 3. Further details motivating the extension are also presented there.

**BOI Remarks:** This section is optional for ASPSP's and mandatory for TPP's.

The Confirmation Request is used, when in the preceding response the hyperlink of type "confirmation" was contained. This may (only) happen, if a redirection or OAuthSCA approach has been applied.

The processes connected to the Confirmation Request differ in details depending on whether the authorization has taken place using a Redirect approach that **does not involve the OAuth** protocol (described as "**Redirect SCA Approach**" in the following) or a Redirect Approach that **makes use of the OAuth protocol** ("**OAuth SCA Approach**"). Before the call can be submitted by the TPP, an authorization code (in case of the OAuth SCA Approach), respectively a confirmation code (in case of the Redirect SCA Approach) needs to be retrieved by the TPP after the SCA processing in a redirect to the ASPSP authentication server.

- In case of the OAuth SCA Approach, the overall procedure to receive the related authorization code and the access token succedingly is described in Section
- In case of the Redirect SCA Approach, the procedure to retrieve the confirmation code is described in Section 9.8.2. The actual Confirmation Request Message is described in Section 9.8.4 for both the OAuth2 SCA Approach and the Redirect SCA Approach after having defined the pre-conditions in both approaches in Section 9.8.3

Due to the complexity of the process, flows are added below for payment initiation as an example before specifying the related requests in detail.

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### 9.8.1 Confirmation Request Flow Examples for Payment Initiation

#### 9.8.1.1 Redirect SCA Approach: Explicit Start of the Authorisation Process with Confirmation

#### 9.8.1.2 OAuth2 SCA Approach: Implicit Start of the Authorisation Process with Confirmation

If the ASPSP supports the OAuth2 SCA Approach, the flow is very similar to the Redirect SCA Approach with implicit start of the Authorisation Process. Instead of redirecting the PSU directly to an authentication server, the OAuth2 protocol is used for the transaction authorisation process. An authorisation confirmation request is required for the TPP in this scenario after the session is re-redirected to the TPP's system and after the TPP's control on session fixation. In

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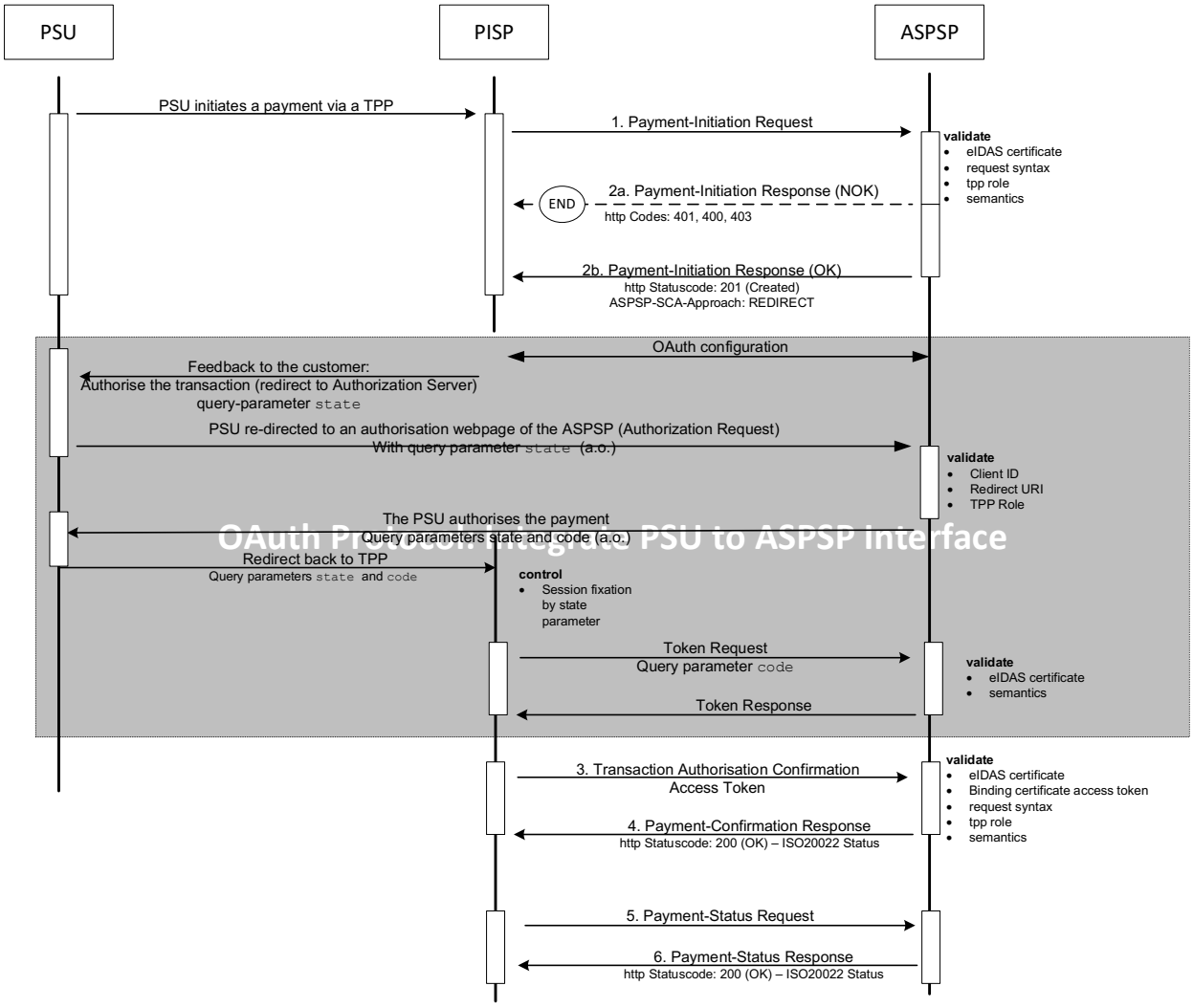
the end, a payment status request might be needed by the TPP to control the exact status of the payment initiation.

**Remark:** The OAuth2 SCA Approach with explicit start of the Authorisation Process is treated analogously.




It is further recommended for ASPSPs and TPPs in this case to follow the Security Best Practice definitions as defined in [OA-SecTop]

### 9.8.2 Retrieving the Confirmation Code in Redirect SCA approach

In the Confirmation Request Flow, the TPP will receive the confirmationCode as a query parameter in the HTTP request from the PSU agent that redirects the PSU back to the TPP after successful authorisation.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#### 9.8.2.1 Preparation of the Confirmation Request Flow

**BOI Remarks:** This section is optional for ASPSP's and mandatory for TPP's.

Any authorisation process always involves the PSU directly and therefore requires a session between the PSU and the TPP. To support the Confirmation Request flow that might occur during the session between PSU and TPP, the TPP needs to fix the session of the PSU agent (browser or mobile app) on its server with a nonce, where part of it is a unique state parameter.

Before redirecting the PSU agent to send the authorization request (see section 9.8.2.2) to the ASPSP authorisation website, the TPP shall

- create a one-time use token to prevent XSRF attacks to be conveyed to the ASPSP in the query parameter state and,
- bind this value to the current session in the user (PSU) agent.

The confirmationCode is then retrieved from the response of the HTTP request of the PSU agent as described in following sub-section.

.

#### 9.8.2.2 Redirecting the PSU agent (Authorisation Request)

To prepare the Confirmation Request flow, the TPP shall add the generated token to prevent XSRF attacks (see section 9.8.2.1) as an additional query parameter to that URI.

**Additional Query Parameter in the PSU Authorisation Request (GET command)**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| state | string | mandated | state parameter as defined by the TPP as a unique parameter to counter XSRF attacks and bound to the PSU/TPP session. |

As a consequence of this requirement, it follows that ASPSPs shall not include a query parameter named "state" in their "scaRedirect" links.

**Example**

If the TPP received "`scaRedirect`" link containing the URI "`https://authserver.testbank.com`" only, the TPP shall forward the PSU agent to send a request

```
GET https://authserver.testbank.com?state=1234567er
```


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If the TPP received "scaRedirect" link containing the URI "https://authserver.testbank.com?bankProvidedQueryParameter=A" the TPP shall forward the PSU agent to send a request

```
GET
https://authserver.testbank.com?bankProvidedQueryParameter=A&state=1
234567er
```

**Response from the ASPSP Redirecting the PSU Agent back to the TPP**

If the customer authentication via a Redirect SCA Approach ultimately fails, the customer is redirected to the URI assigned by the TPP in header field "Client-Nok-Redirect-URI". In this case, the business transaction / cancellation will anyhow not be authorised based in the current flow. Therefore no additional steps are required from the TPP. The last part of this paragraph as well as the whole sections 9.8.3 to 9.8.4 only apply, if SCA has been successful.

After the customer authentication via SCA has taken place on the ASPSP server, the ASPSP responds to the PSU agent redirecting it to the URI provided by the TPP in the header "Client-Redirect-URI". To support the Confirmation Request flow, the ASPSP shall add the received query parameter "state" and a unique confirmationCode bound to the authorisation resource . The confirmationCode will only be contained if SCA has been successfully performed. Redirection is done by sending an HTTP response code 302 and a location header containing the URI to which the PSU is redirected. This would result in a response from the ASPSP to the PSU agent as described in the follows:

**Response Code**

The HTTP response code equals 302.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | The ASPSP's Authorization server must create the content of the Location Header in the following Form:<br><br>[Client-Redirect-URI]?confirmationCode=[confirmation code]&state=[state]<br><br>Where<br><br>[Client-Redirect-URI] is the value of the "Client-Redirect-URI" header of the underlying request from the TPP |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | [confirmationCode] is the ASPSP's confirmation code as described above<br><br>[state] is the value of query parameter "state" from the PSU authorisation request |

**Remark:** In case of the OAuth SCA approach, the PSU agent is forwarded similarly to the redirect_uri as defined in OAuth2 protocol. This redirection will also include a parameter state and – instead of the "confirmationCode" a parameter "code".

**Example in case of Redirect SCA Approach**

```
http 302

Location: www.example-TPP.com/xs2a-client/v2/ASPSPidentifcation/mytransaction-id?state=1234567er&confirmationCode=2256ffgh
```

### 9.8.3 Confirmation Request Message Pre-Condition

When the PSU is again redirected to the TPP as described above, the TPP will receive the additional query parameters "`state`" and "`confirmationCode`". The TPP must check whether the state parameter is linked to the current session as described in Section 9.8.2. If the check is positive then the TPP further processes

- within context of the OAuth SCA Approach with retrieving the access Bearer token as described in Section 8.8.3 of this document and then proceed as described in Section 9.8.4.
- within context of the Redirect SCA Approach directly as described in Section 9.8.4.

If the check fails, the transaction must be stopped by the TPP and the above defined request messages shall not be used.

### 9.8.4 Authorisation Confirmation Request Message

**BOI Remarks:**

In this call, TPP will send the token received from the ASPSP for initiating the payment. The request body should be empty.

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### Call

```
PUT /v2/{resource-path}/{resourceId}/{authorisation-
category}/{auhtorisationId}
```

In case of the Redirect SCA approach, this call updates the addressed authorisation or cancellation authorisation data on the ASPSP server by a confirmation code.

In case of the OAuth2 SCA approach, this call updates the addressed authorisation or cancellation authorisation data on the ASPSP server with the OAuth2 access token, after having sent the related attribute "code" to the token server, cp. Section 8.8.3.

Both calls shall only be performed if requested by the ASPSP via the related hyperlink "confirmation" and if the related checks by the TPP as defined in Section 9.8.3 have been successful.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /consents<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments or account-access in case of consents. |
| resourceId | String | Resource identification of the related payment initiation, signing basket, consent, subscription or other related business transaction resource. |
| authorisation-category | String | The following two categories are supported:<br>• `authorisations`: used in case of an authorisation of the related business transaction.<br>• `cancellation-authorisations`: used in case of the cancellation authorisation of the related business transaction. Used only if applicable to the addressed {service} |


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| Attribute | Type | Description |
|---|---|---|
| authorisationId | String | Resource identification of the related authorisation sub-resource. |

### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Authorization Bearer Token as retrieved by the TPP in case the OAuth SCA Approach as described in Section 8.8.4 |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| confirmationCode | String | Conditional | Confirmation code as retrieved by the TPP within the Redirect SCA Approach as described in Section 9.8.2 |

### Response Code

HTTP response code is 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaStatus | SCA Status | Mandatory | Value "finalised" if the transaction authorisation/cancellation authorisation and confirmation was successful.<br><br>Value "failed" if the transaction authorisation/cancellation authorisation or confirmation was not successful. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"status": The link to retrieve the status of the corresponding transaction resource. |
| psuMessage | Max512Text | Optional | |

### Example for OAuth SCA solution

### Request

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Authorization:          Bearer 1234567
```

### Response

```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json
```


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```
{
 "scaStatus": "finalised",
 "_links": {
   "status": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100/status"}
   }
```

### Example for redirect solution

### Request

```
PUT https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100
X-Request-ID:          99391c7e-ad88-49ec-a2ad-99ddcb1f7721
{"confirmationCode": "2256ffgh"}
```

### Response

```
HTTP/1.x 200 OK
X-Request-ID:          99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                  Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:          application/json
{
 "scaStatus": "finalised",
 "_links": {
   "status":  {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100/status"}
   }
}
```

## 9.9 Update Resource with Debtor Account

The following method is used to update a payment related resource by an account which is associated to a PSU, and which needs to be received from the ASPSP first in the response of the "Update PSU Data with Authentication Request", cp. Section 9.4.3.

**Remark:** This procedure might be offered by the ASPSP in decoupled or embedded SCA channels to support "noManualIbanEntry" requirements from regulators for payment initiation.

### Call

```
PUT /v2/{resource-path}/{resourceId}
```

Updates the addressed resource by an account related to the PSU.


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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| resource-path | String | This resource path can be a one-level parameter {service} or a two-level parameter {service}/{product-type}, where<br>• {service} stands for the service type of the related business transaction, e.g. /payments or /mandates<br>• {product-type} stands for the product-type of the related business transaction where applicable, e.g. sepa-credit-transfers in the case of payments |
| resourceId | String | Resource identification of the related payment initiation or mandate submission. |

### Query Parameters

No specific query parameters.

### Response Code

The HTTP response code equals 200.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| debtorAccount | Account Resource Reference | Mandatory | The resourceId of the account as provided in the response defined in Section 9.4.3 shall be used as the technical account reference. |

**NOTE:** The support of this feature mandates the ASPSP to support UUIDs in the attributes resourceId of the data type "account details".

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### Response Code

HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Optional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• ASPSP-CHANNEL<br>• SIGNATURE<br><br>**BOI remarks**:<br><br>The value "EMBEDDED" is not supported.<br><br>OAuth will be subsumed by the constant REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| chosenSca Method | Authentication Object | Conditional | A definition of the provided SCA method is contained, if only one authentication method is available, and if the Embedded SCA approach is chosen by the ASPSP. |
| challengeData | Challenge | Conditional | Challenge data might be contained, if only one authentication method is available, and if the Embedded SCA approach is chosen by the ASPSP. |
| scaMethods | Array of Authentication Objects | Conditional | Might be contained, if several authentication methods are available. (name, type) |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Conditional | A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP.<br><br>**Remark**: This method can be applied before or after PSU identification. This leads to many possible hyperlink responses.<br><br>Type of links admitted in this response, (further links might be added for ASPSP defined extensions):<br><br>"selectAuthenticationMethod": This is a link to a resource, where the TPP can select the applicable second factor authentication methods for the PSU, if there were several available authentication methods. This link is only contained, if the PSU is already identified or authenticated with the first relevant factor or alternatively an access token, if SCA is required and if the PSU has a choice between different authentication methods. If this link is contained, then there is also the data element "scaMethods" contained in the response body<br><br>"authoriseTransaction":<br><br>The link to the authorisation or cancellation authorisation sub-resource, where the authorisation data has to be uploaded, e.g. the TOP received by SMS.<br><br>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource.<br><br>"transactionFees": The link is to the status resource. This link is only added in case fee information is available via the status resource. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuMessage | Max500Text | Optional | |

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## 10 Payment Formats

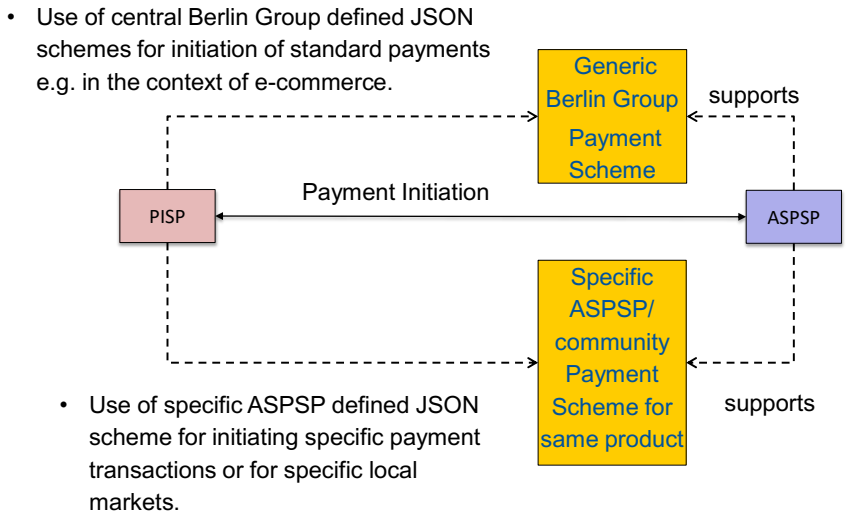
For core payment products in the European market, this document is defining JSON structures, which will be supported by all ASPSPs

- offering the corresponding payment products to their customers in Version 2.x of the openFinance API Framework and
- providing JSON based payment endpoints.

At the same time, the ASPSP may offer in addition more extensive JSON structures for the same payment products since they might offer these extensions also in their online banking system.

**BOI Remarks:**

Only JSON structure is supported.




In addition, the specifications for Extended Payment Initiation Services as well as for Request-to-Pay Services given in the respective Implementation Guidelines will mandate the support of more data elements within the openFinance API context, which is already reflected in the subsequent chapters.

For domestic AIS/PIS definitions concerning (payment) formats for domestic elements, please refer to [oFA DomDef].

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## 10.1 Single Credit Transfers for Core PIS, RTP and EPIS

The following describes the data model to be used under /v2/payments/{credit-transfer-product}, /v2/{extended-payment-services}/{credit-transfer-product} and /v2/requests-for-payments/{credit-transfer-product} for certain standard products.

**BOI Remarks:**

The following describes the data model for /v2/requests-for-payments/{payment-product} and /v2/bulk-requests-for-payments/{payment-product}.
But payment in V2 are not supported yet in Israel.

- The general data type of attributes need sometimes to be restricted further, since the related product is not supporting the full data structure. This leads to an [n] in the Type definition requires a further instantiation of the data type by the payment product, which is then indicated in the related column, e.g. by using "Optional[1]" for stating: Optional Usage of this attribute of Type Payment Identification1, where Payment Identification is the full data structure. If there is no instantiation number provided in the product column, then the full data structure applies.

- The notation [a..b] in an entry only applies to arrays and says how many array entries are supported (minimum and maximum). The notation "Optional [1..1]" is following OpenAPI definition for JSON formats and translates into [0..1] for XML format definitions.

- The notation "n.a." ("not applicable") allows ASPSPs or communities of ASPSPs to make this data element optional in their implementations of the related product in further refinements.

- The notation, e.g. "Optional[1]" for an data element with type definition "Type[1]" allows ASPSP or communities of ASPSPs to extend the data model by using all related data type definitions type[n] with a broader scope, e.g. change the entry to "Optional[2]" for the paymentIdentification.

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- On all levels, where an element xxxCode and xxxProprietary is offered, only one of the attribute is usable. This will be reflected in OpenAPI files by using the "{Or" and "Or}" in cases where exactly one of the Elements is to be included in the message and "{Or – Optional" and "Or – Optional}" in case where at most one of the elements is to be included in the message.

- For all SEPA payment schemes, it is noted that party name fields have a maximum length of 70 characters, even if the below data dictionary allows 140 characters technically, due to ISO20022 definitions, which might be used for non-SEPA payment schemes. Due to this inconsistence, ASPSP might either reject messages, where the related party name fields use more than 70 characters, or automatically shorten the related party name fields to 70 characters respectively.

**NOTE**: Please note, that this specification might provide an overview on payment functions and might offer some guidance to which functions are definitely premium payment services. Nevertheless, the openFinance API Framework cannot define the exact scope of what is mandated by the legislation. It is up to the ASPSP to define the exact scope of a PSD2 compliant API.

| Data Element | Type | SCT Core | SCT inst Core | Target2 Core | Cross-border CT Core | RTP SCT | EPIS SCT |
|---|---|---|---|---|---|---|---|
| **paymentIdentification** | Payment Identification[n] | Optional[1] | Optional[1] | Optional[1] | n.a. | Optional | Optional |
| **instructionPriority** | Priority Code | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **serviceLevelCode** | Service Level Code | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **localInstrumentCode** | External Local Instrument Code | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **localInstrumentProprietary** | Max35Text | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **categoryPurposeCode** | Category Purpose Code | n.a. | n.a. | n.a. | n.a. | optional | optional |
| **categoryPurposeProprietary** | Max35Text | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **chargeBearer** | Charge Bearer | n.a. | n.a. | optional | Conditional[4] | n.a. | n.a. |

[4] This field might be mandated by ASPSPs generally or depending of default usage definitions of the ASPSP.


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| Data Element | Type | SCT Core | SCT inst Core | Target2 Core | Cross-border CT Core | RTP SCT | EPIS SCT |
|---|---|---|---|---|---|---|---|
| **debtorAccount** | Account Reference[n] | Mand [1][5] | Mand[1][5] | Mand[1][5] | Mand[1][5] | Optional[6] | Mand[5] |
| **chargesAccount** | Account Reference[n] | n.a. | n.a. | n.a. | Optional[3] | n.a. | n.a. |
| **debtor** | Party Description[n] | n.a. | n.a. | n.a. | n.a. | Optional | Optional |
| **ultimateDebtor** | Party Description[n] | n.a. | n.a. | n.a. | n.a. | Optional[1] | Optional[1] |
| **instructedAmount** | Amount | Mandatory | Mandatory | Mandatory | Mandatory | Mandatory | Mandatory |
| **currencyOfTransfer** | Currency Code | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **exchangeRateInformation** | Payment Exchange Rate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **intermediaryAgent1** | Agent Description[n] | n.a. | n.a. | n.a. | Optional[1] | n.a. | n.a. |
| **intermediaryAgent2** | Agent Description[n] | n.a. | n.a. | n.a. | Conditional[1] | n.a. | n.a. |
| **creditorAccount** | Account Reference[n] | Mandatory[1] | Mandatory[1] | Mandatory[1] | Mandatory[1] | Mandatory[1] | Mandatory[1] |
| **creditorAgent** | Agent Description[n] | Optional[1] | Optional[1] | Optional[1] | Conditional[1][7] | Optional[1] | Optional[1] |
| **creditor** | Party Description[n] | Mandatory[1] | Mandatory[1] | Mandatory[1] | Mandatory[1] | Mandatory | Mandatory |
| **ultimateCreditor** | Party Description[n] | Optional[1] | Optional[3] | Optional[1] | Optional[2] | Optional | Optional |
| **purposeCode** | Purpose Code | n.a. | n.a. | n.a. | n.a. | Optional | Optional |
| **purposeProprietary** | Max35 Text | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

[5] ASPSPs might change the condition on the debtor account for SEPA payments to optional as one way to fulfil the requirement according to item 36 of the EBA Opinion of June 2020

[6] Either debtor account or debtor entry shall be provided.

[7] This field might be mandated by ASPSPs generally or depending of the creditor's address' country.

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| Data Element | Type | SCT Core | SCT inst Core | Target2 Core | Cross-border CT Core | RTP SCT | EPIS SCT |
|---|---|---|---|---|---|---|---|
| **remittanceInformation Unstructured** | Array of Max140Text | Optional [1..1] | Optional [1..1] | Optional [1..1] | Optional [1..1] | Optional [1..1] | Optional [1..1] |
| **remittanceInformation Structured** | Array of Remittance | n.a. | n.a. | n.a. | n.a. | Optional [1..1] | Optional [1..1] |
| **enclosedFile** | Array of Enclosed File | n.a. | n.a. | n.a. | n.a. | Optional [1..1] | n.a. |
| **requestedExecution Date** | ISODate | n.a. | n.a. | n.a. | n.a. | Optional | Optional |
| **requestedExecution DateTime** | ISODateTime | n.a. | n.a. | n.a. | n.a. | (only if SCT INST) | (only if SCT inst) |
| **regulatory Reporting** | Array of Regulatory Reporting | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **additionalRequestInformation**[8] | Additional Request Information | n.a. | n.a. | n.a. | n.a. | Optional | Optional |

[8] Only applicable for request to pay services and extended payment services.


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**BOI Remarks:**

The TPP is mandate to send exactly one of the attributes that defined as Optional for the debtor.

All the optional/conditional data elements: for the POST call API the ASPSP can ignore if it not supported by it and it is documented.

If the data element is supported by the ASPSP and it sent by the TPP, the ASPSP have to return it in the GET call.

| Data Element | Type | masav | zahav | fp | swift |
|---|---|---|---|---|---|
| **paymentIdentification** | Payment Identification[n] | Conditional | Conditional | Conditional | Conditional |
| **instructionPriority** | Priority Code | n.a. | n.a. | n.a. | n.a. |
| **serviceLevelCode** | Service Level Code | n.a. | n.a. | n.a. | n.a. |
| **localInstrumentCode** | External Local Instrument Code | n.a. | n.a. | n.a. | n.a. |
| **localInstrumentProprietary** | Max35Text | n.a. | n.a. | n.a. | n.a. |
| **categoryPurposeCode** | Category Purpose Code | n.a. | n.a. | n.a. | n.a. |
| **categoryPurposeProprietary** | Max35Text | n.a. | n.a. | n.a. | n.a. |
| **chargeBearer** | Charge Bearer | n.a. | n.a. | n.a. | n.a. |
| **debtorAccount** | Account Reference | Optional for post payment9 | Optional for post payment8 | Optional for post payment 8 | Optional for post payment 8 |
| **chargesAccount** | Account Reference[n] | n.a. | n.a. | n.a. | n.a. |
| **Debtor** | Party Description[n] | Optional | Optional | Optional | Optional |
| **ultimateDebtor** | Party Description[n] | Optional | Optional | Optional | Optional |
| **instructedAmount** | Amount | Mandatory | Mandatory | Mandatory | Mandatory |
| **currencyOfTransfer** | Currency Code | n.a | n.a | n.a | n.a |
| **exchangeRateInformation** | Payment Exchange Rate | n.a | n.a | n.a | n.a |
| **intermediaryAgent1** | Agent Description[n] | n.a. | n.a. | n.a. | n.a. |
| **intermediaryAgent2** | Agent Description[n] | n.a. | n.a. | n.a. | n.a. |
| **creditorAccount** | Account Reference[n] | Mandatory | Mandatory | Mandatory | Mandatory |
| **creditorAgent** | Agent Description[n] | Optional | Optional | Optional | Optional |
| **creditor** | Party Description[n] | Mandatory for post payment | Mandatory for post payment | Mandatory for post payment | Mandatory for post payment |
| **ultimateCreditor** | Party Description[n] | Optional | Optional | Optional | Optional |
| **purposeCode** | Purpose Code | Conditional | Conditional | Conditional | Conditional |

[9] ASPSPs might change the condition on the debtor account for all payments to optional in order to enable the Bank Offered Payment.

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| Data Element | Type | masav | zahav | fp | swift |
|---|---|---|---|---|---|
| **purposeProprietary** | Max35 Text | Conditional **BOI Remarks:** Meantime not in use. | Conditional **BOI Remarks:** Meantime not in use. | Conditional **BOI Remarks:** Meantime not in use. | Conditional **BOI Remarks:** Meantime not in use. |
| **remittanceInformation Unstructured** | Array of Max140Text | Mandatory | Mandatory | Mandatory | Mandatory |
| **remittanceInformation Structured** | Array of Remittance | Not supported | Not supported | Not supported | Not supported |
| **enclosedFile** | Array of Enclosed File | n.a. | n.a. | n.a. | n.a. |
| **requestedExecution Date** | ISODate | {or- Mandatory for future dated payment | {or- Optional | {or- Mandatory for future dated payment | {or- Optional |
| **requestedExecution DateTime** | ISODateTime | or- Mandatory for future dated payment} | Or-Optional} | or- Mandatory for future dated payment} | Or-Optional} |
| **regulatory Reporting** | Array of Regulatory Reporting | n.a. | n.a. | n.a. | n.a. |
| **additionalRequestInformation**[10] | Additional Request Information | Mandatory | Mandatory | Mandatory | Mandatory |

## 10.2 Repository for Single Credit Transfer and RTP

The following table describes the full payment data model as a repository for product definitions.

| Data Element | Type | Condition | Description |
|---|---|---|---|
| **paymentIdentification** | Payment Identification | Optional<br>**BOI Remarks:**<br>Mandatory | Set of elements used to reference a payment instruction. |
| **paymentMethod** | Credit Transfer Payment Method Code | Optional<br>**BOI Remarks:**<br>Conditional | Specifies the means of payment that will be used to move the amount of money.<br>Usage: Only used for cross-border transactions. |

[10] Only applicable for request to pay services and extended payment services.


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | If no paymentMethod is explicitly stated, paymentMethod will be interpreted as "TRF" (Credit Transfer). |
| **instructionPriority** | Priority Code | Optional | Indicator of the urgency or order of importance that the instructing party would like the instructed party to<br><br>apply to the processing of the instruction. |
| **serviceLevelCode** | Service Level Code | Optional | Agreement under which or rules under which the transaction should be processed, provided as a code. |
| **localInstrumentCode** | External Local Instrument Code | {Or - Optional | Agreement under which or rules under which the transaction should be processed, provided in proprietary encoding. |
| **localInstrumentProprietary** | Max35Text | Or – Optional} | User community specific instrument, provided in proprietary encoding. |
| **categoryPurposeCode** | Category Purpose Code | {Or – Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| **categoryPurpose Proprietary** | Max35Text | Or – Optional} | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided in proprietary encoding. |
| **chargeBearer** | Charge Bearer | Optional | Specifies which party/parties will bear the charges associated with the processing of the payment transaction. |
| **debtorAccount** | Account Reference | Optional<br><br>**BOI Remarks:** Optional for post payment[11] | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| **chargesAccount** | Account Reference3 | Optional | Account used to process charges associated with a transaction. |

[11] ASPSPs might change the condition on the debtor account for all payments to optional in order to enable the Bank Offered Payment.


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| **debtor** | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| **ultimateDebtor** | Party Description | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product, see 10.1. |
| **instructedAmount** | Amount | Mandatory | Amount of money to be moved between the debtor and creditor, before deduction of charges, expressed in the currency as ordered by the initiating party. |
| **currencyOfTransfer**[12] | Currency Code | Optional | Specifies the currency of the to be transferred amount, which is different from the currency of the debtor's account. |
| **exchangeRateInformation** | Payment Exchange Rate | Optional | Set of elements used to provide details on the currency exchange rate and contract. |
| **creditorAccount** | Account Reference1<br><br>**BOI Remarks:** Account Reference | Optional<br><br>**BOI Remarks:** Mandatory | Unambiguous identification of the account of the creditor to which a credit entry will be posted as a result of the payment transaction. |
| **creditorAgent** | Agent Description | Optional | Financial institution servicing an account for the creditor. |
| **creditor** | Party Description | Optional<br><br>**BOI Remarks:** Mandatory for post payment | Party to which an amount of money is due. |
| **ultimateCreditor** | Party Description | Optional | Ultimate party to which an amount of money is due. |

[12] This is a data element to indicate a diverging interbank transaction currency.


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| **purposeCode** | Purpose Code | Optional<br><br>**BOI Remarks:** Conditional | Underlying reason for the payment transaction, provided as a code. |
| **purposeProprietary** | Max35Text | Optional<br><br>**BOI Remarks:** Conditional | Underlying reason for the payment transaction, provided as proprietary encoding. |
| **remittanceInformation Unstructured** | Array of Max140Text | Optional<br><br>**BOI Remarks:** Mandatory | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| **remittanceInformation Structured** | Array of Remittance | Optional<br><br>**BOI Remarks:** Not supported | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| **requestedExecution Date** | ISODate | {Or -Optional<br><br>**BOI Remarks:** {or –Mandatory for future dated payment | Date at which the initiating party requests the clearing agent to process the payment. |
| **requestedExecution Date Time** | ISODateTime | Or – Optional}<br><br>**BOI Remarks:** {or –Mandatory for future dated payment | Date and time at which the initiating party requests the clearing agent to process the payment. |
| **regulatoryReporting** | Array of Regulatory Reporting | Optional | Information needed due to regulatory and statutory requirements. |


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| **additionalRequest Information**[13] | Additional Request Information | Optional<br><br>**BOI Remarks:** Mandatory | Request related information which is not directly linked to the payment transaction. |

### 10.3 Bulk Credit Transfers

**BOI Remarks:**
Not relevant for this version.

The following table displays the data model to be used under /v2/bulk-payments/{credit-transfer-product}. Further restrictions on data attribute types, inherited from Section 10.1 might apply.

| Data Element | Type | Condition | Description |
|---|---|---|---|
| **paymentInformationId** | Max35Text | mandatory | Unique identification as assigned by the sending party to unambiguously identify this bulk payment.<br>This attribute may be used by ASPSPs or communities as an optional field. |
| **paymentMethod** | Credit Transfer Payment Method Code | Optional | Specifies the means of payment that will be used to move the amount of money.<br>Usage: Only used for cross-border transactions.<br>If no paymentMethod is explicitly indicated, paymentMethod will be interpreted as "TRF" (Credit Transfer). |
| **batchBooking** | Boolean | optional | If this element equals true, the PSU prefers only one booking entry. If this element equals false, the PSU prefers individual booking of all contained individual transactions. The ASPSP will follow this preference according to contracts agreed on with the PSU. |
| **numberOfTransactions** | Integer | Mandatory | Number of individual transactions contained in the related bulk. |
| **controlSum** | Max35Text | Mandatory | Total of all individual amounts included in the group, irrespective of currencies. |
| **serviceLevelCode** | Service Level Code | Optional | |
| **chargeBearer** | Charge Bearer | Optional | |

[13] Only applicable for request to pay services and extended payment services.


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| **categoryPurposeCode** | Category Purpose Code | {Or – Optional | |
| **categoryPurposeProprietary** | Max35Text | Or – Optional} | |
| **localInstrumentCode** | Local Instrument Code | {Or – Optional | |
| **localInstrumentProprietary** | Max35Text | Or – Optional} | |
| **debtor** | Party Description | Optional | |
| **ultimateDebtor** | Party Description | Optional | |
| **debtorAccount (incl. type)** | Account Reference | mandatory | |
| **debtorAgent** | Agent Description 2 | n.a. | |
| **chargesAccount** | Account Reference 3 | Optional | Account used to process charges associated with a transaction. |
| **requestedExecutionDate** | ISODate | {Or – optional | If contained, the payments contained in this bulk will be executed at the addressed date. This field may not be used together with the field requestedExecutionTime. |
| **requestedExecution DateTime** | ISODateTime | Or – optional} | If contained, the payments contained in this bulk will be executed at the addressed Date/Time. This field may not be used together with the field requestedExecutionDate. |
| **creditTransfers** | Array of Credit Transfer Bulk Entry | mandatory | The Credit Transfer Bulk Entry is a type which follows the JSON formats for the supported products for single payments, see Section 10.1, excluding the data elements<br>• debtorAccount,<br>• debtor<br>• debtorAgent<br>• requestedExecutionDate,<br>• requestedExecutionDateTime.<br>These data elements may not be contained in any bulk entry.<br>In addition, the following entries will be allowed for every single entry, if not used already on bulk level:<br>chargeBearer<br>chargesAccount<br>categoryPurposeCode<br>categoryPurposeProprietary<br>serviceLevelCode<br>localInstrumentCode<br>localInstrumentProprietary<br>ultimateDebtor<br><br>In addition, the attributes purposeCode |


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | remittanceInformationStructured are always available on entry level if supported by the related payment product. |

### Example

```
{"paymentInformationId": "bulk-payment 123",
 "batchBooking": true,
 "numberOfTransactions": 2,
 "controlSum": "12345.01",
 "debtorAccount": {"iban": "DE40100100103307118608"},
 "requestedExecutionDate": "2018-08-01",
 "creditTransfers": [{JSON based payment initiation 1}, {JSON based payment initiation 2}]}
```

## 10.4 Multi Bulk Credit Transfers

**BOI Remarks:**
Not relevant for this version

Data model to be used under /v2/multi-bulk-payments/{credit-transfer-product}.

| Data Element | Type | Condition | Description |
|---|---|---|---|
| messageId | Max35Text | mandatory | Unique identification as assigned by the sending party to unambiguously identify this bulk payment.<br>This attribute may be used by ASPSPs or communities as an optional field. |
| creationDateTime | ISODateTime | Mandatory | |
| numberOfTransactions | Integer | Mandatory | Number of individual transactions contained in the related bulk. |
| controlSum | Max35Text | Mandatory | Total of all individual amounts included in the group, irrespective of currencies. |
| initiatingParty | Party Description1 | Mandatory | Party that initiates the payment. |
| payments | Array of Credit Transfer Bulks | Mandatory | This is an array of credit transfer bulks, as defined in Section 10.3. |

## 10.5 RTP Bulk

**BOI Remarks:**
Not relevant for this version.

The following table displays the data model to be used under /v2/bulk-requests-for-payments/{credit-transfer-product}.

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| Data Element | Type | Condition | Description |
|---|---|---|---|
| paymentInformationId | Max35Text | Mandatory | Unique identification as assigned by the sending party to unambiguously identify this bulk.<br>This attribute may be used by ASPSPs or communities as an optional field. |
| numberOfTransactions | Integer | Mandatory | Number of individual transactions contained in the related bulk. |
| controlSum | Max35Text | Mandatory | Total of all individual amounts included in the group, irrespective of currencies. |
| chargeBearer | Charge Bearer | Optional | |
| serviceLevelCode | Service Level Code | Optional | For SCT not used, only defined to support non SEPA RTP schemes |
| categoryPurposeCode | Category Purpose Code | {Or – Optional | |
| categoryPurposeProprietary | Max35Text | Or – Optional} | For SCT not used, only defined to support non SEPA RTP schemes |
| localInstrumentCode | Local Instrument Code | {Or – Optional | For SCT not used, only defined to support non SEPA RTP schemes |
| localInstrumentProprietary | Max35Text | Or – Optional} | For SCT not used, only defined to support non-SEPA RTP schemes |
| requestedExecutionDate | ISODate | Optional | |
| creditor | Party Description | Mandatory | |
| creditorAccount | Account Reference1 | mandatory | |
| creditorAgent | Agent Description1 | optional | |
| ultimateCreditor | Party Description | optional | |
| rtps | Array of RTP Bulk Entry | mandatory | The RTP Bulk Entry is a type which follows the JSON formats for the supported products for single RTP, see Section 10.1, excluding the data elements<br>• creditorAccount,<br>• creditor<br>• creditorAgent<br>These data elements may not be contained in any bulk entry.<br>In addition, the following entries will be forbidden for every single entry, if they are used already on bulk level:<br>chargeBearer<br>requestedExecutionDate<br>ultimateCreditor<br>categoryPurposeCode<br>categoryPurposeProprietary<br>serviceLevelCode<br>localInstrumentCode<br>localInstrumentProprietary<br><br>In addition, the attributes<br>purposeCode<br>remittanceInformationStructured |


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | are always available on entry level if supported by the related payment product. |

### Example

```
{"paymentInformationId": "bulk-request-to-pay 123",
 "numberOfTransactions": 2,
 "controlSum": "12345.01",
 "creditor": {"name": "RTP beneficiary's name"}
 "creditorAccount": {"iban": "DE40100100103307118608"},
 "rtps":
  [{JSON based RTP 1}, {JSON based RTP 2}]}
```

## 10.6 Single SEPA Direct Debits

**BOI Remarks:**
Not relevant for the Israeli market

The following table describes the full direct debit data model as a repository for product definitions. Currently, the model is intended to be only used for SEPA Direct Debits. However, some extension

The following table describes the full direct debit data model as a repository for product definitions. Currently, the model is intended to be only used for SEPA Direct Debits. However, some extension of the data model are made to enable adaptions for other schemas in a structured way.

| Data Element | Type | Condition | Description |
|---|---|---|---|
| **paymentIdentification** | Payment Identification1 | Optional | Set of elements used to reference a payment instruction. |
| **requestedCollectionDate** | ISO Date | | |
| **creditor** | Party Description2 | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| **creditorAccount** | Account Reference2 | Optional | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| **creditorAgent** | AgentDescription2 | Optional | Only BIC allowed |
| **creditorSchemeId** | Party Description3 | Optional | Id: Creditor-Identifier (CI) |

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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | only allowed if not present on transaction level<br><br>"schemeNamePropietary" : "SEPA" |
| **serviceLevelCode** | Service Level Code | Optional | Agreement under which or rules under which the transaction should be processed, provided as a code.<br><br>**Remark:** SEPA Direct Debit (SDD) scheme requires "SEPA" |
| **localInstrumentCode** | Local Instrument Code | {Or - Optional | Agreement under which or rules under which the transaction should be processed, provided in proprietary encoding.<br><br>**Remark:** Within the SDD scheme, only "CORE" or "B2B" are used |
| **localInstrumentProprietary** | Max35Text | Or – Optional} | **Remark:** Within the SDD scheme, usage of this element is not supported. |
| **sequenceType** | Sequence Type Code | Optional | **Remark:** For SDD, only "FNAL", "FRST", "OOFF" or "RCUR" is used |
| **categoryPurposeCode** | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| **instructedAmount** | Amount | Optional | Amount of money to be moved between the debtor and creditor, before deduction of charges, expressed in the currency as ordered by the initiating party. |
| **chargeBearer** | Charge Bearer | Optional | Specifies which party/parties will bear the charges associated with the processing of the payment transaction. |
| **directDebitTransaction** | Direct Debit Transaction | Optional | Provides information specific to the direct debit mandate. |
| **ultimateCreditor** | Party Description1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. |
| **debtorAgent** | Agent Description1 | Optional | Financial institution servicing an account for the creditor. |


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | **Remark:** Within the SDD scheme only subelement "bicfi" of "financialInstitutionId" is used. |
| **debtor** | Party Description | Optional | Party to which an amount of money is due.<br><br>**Remark:** Within the SDD scheme only subelements "name" and "postalAddress" are used. Usage of "postalAddress" is further restricted to "country" and at most two entries in "adressLines". |
| **debtorAccount** | Account Reference2 | Optional | Unambiguous identification of the account of the creditor to which a credit entry will be posted as a result of the payment transaction. |
| **ultimateDebtor** | Party Description1 | Optional | Ultimate party to which an amount of money is due.<br><br>**Remark:** Within the SDD scheme only subelement "name" is restricted to 70 characters. |
| **purposeCode** | Purpose Code | Optional | Underlying reason for the payment transaction, provided as a code. |
| **remittanceInformation Unstructured** | Array of Max140Text | Optional | **Remark:** Within the SDD scheme not more than one item is included in the array. |
| **remittanceInformation Structured** | Array of Remittance | Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |

## 10.7 SEPA Direct Debit Bulk

The following table displays the data model to be used under /v2/bulk-payments/sepa-direct-debits.

| Data Element | Type | Condition | Description |
|---|---|---|---|
| **paymentInformationId** | Max35Text | mandatory | Unique identification as assigned by the sending party to unambiguously identify this bulk payment.<br>This attribute may be used by ASPSPs or communities as an optional field. |

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| Data Element | Type | Condition | Description |
|---|---|---|---|
| **batchBooking** | Boolean | optional | If this element equals true, the PSU prefers only one booking entry. If this element equals false, the PSU prefers individual booking of all contained individual transactions. The ASPSP will follow this preference according to contracts agreed on with the PSU. |
| **numberOfTransactions** | Integer | Mandatory | Number of individual transactions contained in the related bulk. |
| **controlSum** | Max35Text | Mandatory | Total of all individual amounts included in the group, irrespective of currencies. |
| **serviceLevelCode** | Service Level Code | Optional | Remark: SDD scheme requires "SEPA" |
| **localInstrumentCode** | Local Instrument Code | {Or – Optional | Agreement under which or rules under which the transaction should be processed, provided in proprietary encoding.<br>Remark: Within the SDD scheme, only "CORE" or "B2B" is used |
| **localInstrumentProprietary** | Max35Text | Or – Optional} | **Remark:** Within the SDD scheme, usage of this element is not supported. |
| **sequenceType** | Sequence Type Code | Optional | **Remark:** For SDD, only "FNAL", "FRST", "OOFF" or "RCUR" is used |
| **categoryPurposeCode** | Category Purpose Code | Optional | |
| **requestedCollectionDate** | ISODate | Mandatory | |
| **creditor** | Party Description2 | Optional | **Remark:** Within the SDD scheme, only subelements "name" and "postalAddress" are supported. |
| **creditorAccount (incl. type)** | Account Reference2 | mandatory | **Remark:** Within the SDD scheme, subelement "iban" is mandatory and apart from "iban" only "currency" supported. |
| **creditorAgent** | Agent Description2 | optional | **Remark:** Within the SDD scheme, only subelement "bicfi" is supported. |
| **ultimateCreditor** | Party Description1 | optional | |
| **chargeBearer** | Charge Bearer | optional | **Remark:** Within the SDD scheme, only value "SLEV" is supported. |
| **creditorSchemeId** | Party Description3 | Optional | **Remark:** Within the SDD the following requirements apply:<br>PrivateID Other Id: Creditor-Identifier (CI)<br>"schemeNamePropietary" : "SEPA" |
| **directDebits** | Array of Direct Debit Bulk Entry | mandatory | Direct Debit Bulk Entry is a type which follows the JSON formats for the supported products for single payments, see Section 10.1, excluding the data elements<br>• creditorAccount,<br>• creditor<br>• icreditorAgent<br>• requestedCollectionDate,<br>These data elements may not be contained in any bulk entry. |


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| Data Element | Type | Condition | Description |
|---|---|---|---|
| | | | In addition, the following entries will only be allowed for every single entry, if not used already on bulk level:<br>chargeBearer<br>categoryPurposeCode<br>categoryPurposeProprietary<br>serviceLevelCode<br>localInstrumentCode<br>localInstrumentProprietary<br>sequenceType<br>ultimateCreditor<br><br>In addition, the attributes<br>purposeCode<br>remittanceInformationStructured<br>are always available on entry level if supported by the related payment product. |

### Example

```
{"paymentInformationId": "bulk-direct-debit 123",
 "batchBooking": true,
 "numberOfTransactions": 2,
 "controlSum": "12345.01",
 "creditorAccount": {"iban": "DE40100100103307118608"},
 "requestedCollectionDate": "2018-08-01",
 "directDebits":
  [{JSON based direct debit 1}, {JSON based direct debit 2}]}
```

## 10.8 SEPA Direct Debit Multi Bulk

Data model to be used under /v2/multi-bulk-payments/sepa-direct-debits .

| Data Element | Type | Condition | Description |
|---|---|---|---|
| **messageId** | Max35Text | mandatory | Unique identification as assigned by the sending party to unambiguously identify this bulk payment.<br>This attribute may be used by ASPSPs or communities as an optional field. |
| **creationDateTime** | ISODateTime | mandatory | |
| **numberOfTransactions** | Integer | Mandatory | Number of individual transactions contained in the related bulk. |
| **controlSum** | Max35Text | Mandatory | Total of all individual amounts included in the group, irrespective of currencies. |
| **initiatingParty** | Party Description1 | Mandatory | Party that initiates the payment. |
| **directDebitBulks** | Array of Direct Debit Bulks | Mandatory | This is an array of direct Debit bulks, as defined in Section 2.6. |

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# 11 Signing Baskets

**BOI remarks:** not supported

Signing Baskets are not supported in the current version.

The signing basket is a function of the openFinance API Framework to bundle several transactions for authorisation. The SCA is then covering all transactions within the signing basket simultaneously. The ASPSP offering this service can restrict the bundling of transactions to certain transaction types, e.g. payments only.

## 11.1 Access Methods for Signing Baskets

Please note that the Establish Signing Basket Request is one instantiation of the Transaction Initiation Request as introduced in Section 2.2.5, i.e. the notion of authorisation sub resources and related access methods do also apply here but are specified generically in Section 9.

The following access methods are provided for signing baskets:

| Endpoints | Method | Condition | Description |
|---|---|---|---|
| signing-baskets | POST | Optional | Creates a signing basket resource, where all transactions to be signed will be addressed within the body.<br><br>Section 11.2 |
| signing-baskets/{basketId} | GET | Mandatory | Retrieve the content of a signing basket resize.<br><br>Section 11.3 |
| signing-baskets/{basketId}/status | GET | Mandatory | Retrieve the singing basket status<br><br>Section 11.4 |
| signing-baskets/{basketId} | DELETE | Optional | Remove an existing signing basket. The transactions contained in the basket are not impacted by this call.<br><br>Section 11.5 |

## 11.2 Establish Signing Basket Request

`POST /v2/signing-baskets/`

Generates a signing basket

**NOTE:** Please note that the Establish Signing Basket Request is one instantiation of the Transaction Initiation Request as introduced in Section 2.2.5, i.e. all related header


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parameters regarding PSU context, PSU Identification etc. will apply but will not be described in detail here. The related Open API files will offer all header parameters in detail.

**Path Parameters**

None.

**Query Parameters**

No Query Parameter

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | application/json |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Bearer Token. Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in an preceding AIS service in the same session. |
| Consent-ID | String | Optional | This data element may be contained, if the signing basket transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS one off consent, which was performed prior to this bulk signing. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.<br><br>If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |

**Request Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentIds | Array of Max70Text | Optional | A non-empty array of paymentIds. |
| consentIds | Array of Max70Text | Optional | A non-empty array of consentIds. |
| subscriptionIds | Array of Max70Text | Optional | A non-empty array of subcriptionIds. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| subscriptionEntryIds | Array of Max70Text | Optional | A non-empty array of subscriptionEntryIds. |
| mandateResourceIds | Array of Max70Text | Opitonal | A non-empty array of mandateResourceIds |

The body shall contain at least one entry.

### Response Code

The HTTP response code equals 201.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource (if created) |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | The non-payment related values might be used like RCVD or ACTC. For a list of all transactionStatus codes permitted for signing baskets, cp. Section 11.4. |
| basketId | Max70Text | Mandatory | resource identification of the generated signing basket resource. |
| scaMethods | Array of Authentication Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWith |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | AuthenticationMethodSelection" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenScaMethod | AuthenticationObject | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified e.g. with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element "chosenScaMethod" if challenge data is needed for SCA. |
| | | | In rare cases this attribute is also used in the context of the "startAuthorisationWithPsuAuthentication" link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in Section 3.7.1 for all Transaction Initiation Response messages which applies also to the Establish Signing Basket Response. These links will also be contained in the related Open API files.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU<br><br>**BOI Remarks:**<br><br>This field should contain any message that the ASPSP reflects to the PSU on the online channels. e.g payment reference. |
| apiClientMessages | Array of Client Message Information | Optional | Messages to the API Client on operational issues. |


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### Example

#### *Request*

```
POST https://api.testbank.com/psd2/v2/signing-baskets
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address:         192.168.8.78
PSU-GEO-Location:       GEO:52.506931;13.144558
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:02:37 GMT

{
   "paymentIds": ["3d9a81b3-a47d-4130-8765-a9c0ff861100", "3d9a81b3-a47d-
4130-8765-a9c0ff861110"]
}
```

#### *Response (always with explicit authorisation start)*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:02:42 GMT
Location:               https://www.testbank.com/psd2/v2/signing-
baskets/3d9a81b3-a47d-4130-8766-a9c0ff861100
Content-Type:           application/json

{
  "transactionStatus": "RCVD",
  "basketId": "3d9a81b3-a47d-4130-8766-a9c0ff861100",
  "_links": {
        "self": {"href": "/psd2/v2/signing-baskets/3d9a81b3-a47d-4130-8766-
a9c0ff861100"},
        "status": {"href": "/psd2/v2/signing-baskets/3d9a81b3-a47d-4130-
8766-a9c0ff861100/status"},
        "startAuthorisation": {"href": "/psd2/v2/signing-baskets/3d9a81b3-
a47d-4130-8766-a9c0ff861100/authorisations"}
  }
}
```

## 11.3 Get Signing Basket Request

### Call

```
GET /v2/signing-baskets/{basketId}
```

Returns the content of a signing basket object.


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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| basketId | String | ID of the corresponding signing basket object. |

### Query Parameters

No specific query parameter.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an Oauth2 based authentication was performed in a pre-step or an Oauth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such Oauth2 SCA approach was chosen in the current signing basket transaction. |

### Request Body

No request body.

### Response Code

The HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentIds | Array of Max70Text | Optional | A non-empty array of paymentIds. |
| consentIds | Array of Max70Text | Optional | A non-empty array of consentIds. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| subscriptionIds | Array of Max70Text | Optional | A non-empty array of subcriptionIds. |
| subscriptionEntryIds | Array of Max70Text | Optional | A non-empty array of subscriptionEntryIds. |
| mandateResourceIds | Array of Max70Text | Optional | A non-empty array of mandateResourceIds. |
| transactionStatus | Transaction Status | Mandatory | Only the not explicitly payment related codes like RCVD, PATC, ACTC, RJCT are used. For a list of all transactionStatus codes permitted for signing baskets, cp. Section 11.4. |
| _links | Links | Optional | The ASPSP might integrate hyperlinks to indicate next (authorisation) steps to be taken. |

### Example

#### *Request*

```
GET https://api.testbank.com/psd2/v2/signing-baskets/3d9a81b3-a47d-4130-8766-a9c0ff861100
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:46 GMT
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
"paymentIds": ["3d9a81b3-a47d-4130-8765-a9c0ff861100", "3d9a81b3-a47d-4130-8765-a9c0ff861110"],
"transactionStatus": "ACTC"
}
```

## 11.4 Get Signing Basket Status Request

### Call

```
GET /v2/signing-baskets/{basketId}/status
```


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Returns the status of a signing basket object.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| basketId | String | ID of the corresponding signing basket object. |

### Query Parameters

No specific query parameter.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current signing basket transaction. |

### Request Body

No request body.

### Response Code

The HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | Only the codes RCVD, PATC, ACTC, CANC and RJCT are supported for signing baskets. |

### Example

#### *Request*

```
GET https://api.testbank.com/psd2/v2/signing-baskets/3d9a81b3-a47d-4130-8766-a9c0ff861100/status
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:49 GMT
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:51 GMT
Content-Type:           application/json

{
"transactionStatus": "ACTC"
}
```

## 11.5 Cancellation of Signing Baskets

A cancellation of a Signing Basket is only permitted where no (partial) authorisation has been applied for the Signing Basket.

### Call

```
DELETE /v2/signing-baskets/{basketId}
```

Deletes a created signing basket if it is not yet (partially) authorised.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| basketId | String | Contains the resource-ID of the signing basket to be deleted. |


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### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA has been used in a pre-step. |

### Request Body

No Request Body.

### Response Code

The HTTP response code is 204 in case of successful deletion.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

No Response Body

### Example

#### *Request*

```
DELETE https://api.testbank.com/psd2/v2/signing-baskets/3d9a81b3-a47d-4130-
8766-a9c0ff861100
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date                    Sun, 13 Aug 2017 17:05:37 GMT
```

#### *Response*

```
HTTP/1.x 204 No Content
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 13 Aug 2017 17:05:38 GMT
```

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# 12 Resource Status Notification

The openFinance API Framework is supporting a resource status notification function, formally specified in an alone standing document as Resource Status Notification Service before. This is now covered within this section as a basic building block for the openFinance API Framework V2.

This resource status notification function allows ASPSP to push status changes of a resource created by the API Client within the openFinance API Framework. The API Client needs to register for receiving such notification messages for every resource where such a function is envisaged. This registration is steered by the API Client by adding certain headers within the related Transaction Initiation Request message, which creates the addressed resource.

The related header parameters as defined in Section 12.4 will not be repeated on service implementation guideline level, but will still be contained in OpenAPI files as an instantiation to service specifications.

The resource status notification function is an optional feature within the openFinance API Framework, i.e. a related registration by the API Client might be ignored by the ASPSP. Requirements on TLS support for the actual push function (turning the ASPSP into a technical http client towards the API Client) are defined in Section 5.2.

## 12.1 API Access Methods

The following table gives an overview on the HTTP access methods supported by the notification API endpoints of the API Client for receiving notification messages on resource status changes by the ASPSP.

| Endpoint | Method | Condition | Description |
|---|---|---|---|
| <Client-Notification-URI> | POST | Conditional | Notification initiated by ASPSP, endpoint provided by the API Client. This command posts notification content to the provided endpoint.<br><br>This access method shall be supported by the API Client if a Client-Notification-URI is provided by the API Client in a previous call to the XS2A Interface or openFinance API of the ASPSP. |

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## 12.2 HTTP Response Codes for Notifications

The HTTP response code is communicating the success or failure of an API Client request message. The 4XX HTTP response codes should only be given if the current request cannot be fulfilled, e.g. the syntax of the body content is not correct.

This specification supports the following HTTP response codes for the Client Notification API:

| Status Code | Description |
|---|---|
| 200 OK | POST for a notification |
| 400 Bad Request | Validation error occurred. This code will cover malformed syntax in request or incorrect data in payload. |
| 401 Unauthorized | The API Client or the PSU is not correctly authorized to perform the request. Retry the request with correct authentication information. |
| 403 Forbidden | Returned if the resource that was referenced in the path exists but cannot be accessed by the ASPSP. This code should only be used for non-sensitive id references as it will reveal that the resource exists even though it cannot be accessed. |
| 404 Not found | Returned if the endpoint that was referenced in the path does not exist or cannot be referenced by the ASPSP.<br><br>When in doubt if a specific id in the path is sensitive or not, use the HTTP response code 404 instead of the HTTP response code 403. |
| 405 Method Not Allowed | This code is only sent when the HTTP method (PUT, POST, DELETE, GET etc.) is not supported on a specific endpoint. |
| 408 Request Timeout | The server is still working correctly, but an individual request has timed out. |
| 415 Unsupported Media Type | The ASPSP has supplied a media type which the API Client does not support. |
| 500 Internal Server Error | Internal server error occurred. |
| 503 Service Unavailable | The API Client server is currently unavailable. Generally, this is a temporary state. |

## 12.3 Implicit Subscription for Resource Status Notification

This section describes how an API Client is registering for the resource status notification function within the Transaction Initiation Request message, e.g. a Payment Initiation Message or an Establish Consent Request message.

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**NOTE:** The notification services will also be available for cancellation processes which require SCA based authentication of PSUs. These services will then be supported by the ASPSP if requested before by the API Client for the related resource initiation process. So, the "notification service" support function is stored within the created resource.

### 12.4 Communicate Notification URI of API Clients to the ASPSP

#### Call

```
Any POST command
```

- `creating a resource to be authorised within the openFinance API Framework.`

Creates a corresponding resource in the ASPSP server.

#### Path Parameters

No specific requirements for the subscription of the resource status notification function.

#### Query Parameters

No specific requirements for the subscription of the resource status notification function.

#### Request Header

The following table contains only the request headers which have to be supported by the TPP or the API Client more generally in addition to headers defined for the corresponding resource creation request.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-Notification-URI | String | Optional | URI for the Endpoint of the Client API to which the status of the resource should be sent.<br><br>This header field may by ignored by the ASPSP if the resource status push function is not supported for the related API client. |
| Client-Notification-Content-Preferred | String | Optional | The string has the form<br><br>status=X1, …, Xn<br><br>where Xi is one of the constants SCA, PROCESS, LAST and where constants are not repeated.<br><br>The usage of the constants supports the following semantics:<br><br>SCA: A notification on every change of the scaStatus attribute for all related authorisation processes is preferred by the API Client. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | PROCESS: A notification on all changes of resource status attributes is preferred by the API Client.<br><br>LAST: Only a notification on the last resource status as available in the XS2A interface or openFinance API is preferred by the API Client.<br><br>This header field may be ignored, if the ASPSP does not support the resource notification push function for the related API Client. |

**NOTE**: If only one of the two notification headers is presented, the ASPSP will ignore the related header, since no clear preference is provided by the API Client or no notification URI is provided.

**Request Body**

No specific requirements.

**Response Code**

No specific requirements

**Response Header**

The following table contains only the response headers which have to be supported by the ASPSP in addition to headers defined for the corresponding resource creation response if the resource status push function is supported.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-Notification-Support | Boolean | Conditional | true if the ASPSP supports the resource status push function for the created resource.<br><br>false if the ASPSP supports resource status push function in general, but not for the current request. One of the reasons of no support is that the API Client had not explicitly asked for the function in the request.<br><br>Not used, if the resource status notification function is generally not supported by the ASPSP.<br><br>Shall be supported if the ASPSP generally supports the resource status notification function. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-Notification-Content | String | Conditional | The string has the form<br><br>status=X1, …, Xn<br><br>where Xi is one of the constants SCA, PROCESS, LAST and where constants are not repeated.<br><br>The usage of the constants supports the following semantics:<br><br>SCA: Notification on every change of the scaStatus attribute for all related authorisation processes is provided by the ASPSP for the related resource.<br><br>PROCESS: Notification on all changes of the resource status attributes is provided by the ASPSP for the related resource.<br><br>LAST: Notification on the last resource status after authorisation or cancellation as available in the related serviceI is provided by the ASPSP for the related resource.<br><br>This field shall be provided if the ASPSP-Notification-Support =true. The ASPSP might consider the notification content as preferred by the TPP, but can also respond independently of the preferred request. |

### Response Body

No specific requirements.


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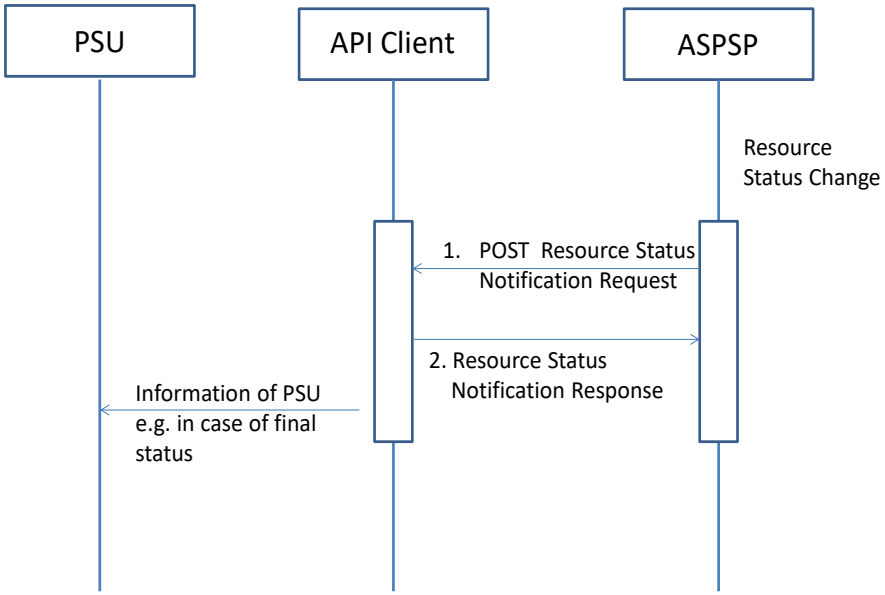
## 12.5 Resource Status Notification Message Flow

The following flow shows the simple request and response flow for a resource status notification function:




**Remark:** In case, where the ASPSP is only pushing a status hyperlink to the API Client, the API Client needs to check the resource status after step 2.) before informing e.g. the PSU.

## 12.6 Push Resource Status with JSON encoding

### Call

```
POST <Client-Notification-URL>
```

Creates a Resource Notification on the API Client server.

### Path Parameters

No Path Parameter

### Query Parameters

No Query Parameter

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |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### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentId | Max70Text | {Or | This shall be contained, if the push notification is about a payment or RTP initiation. |
| consentId | Max70Text | Or | This shall be contained if the push notification is about establishing a consent. |
| subscriptionId | Max70Text | Or | This shall be contained if the push notification is about establishing a subscription. |
| basketId | Max70Text | Or | This shall be contained if the push notification is about signing a basket. |
| mandateResourceId | UUID | Or | This shall be contained if the push notification is about establishing a mandate. |
| documentResourceId | UUID | Or} | This shall be contained, if the push notification is about a document submission. |
| entryId | Max70Text | {Or – Optional | This may be used if the status relates to an entry of an RTP bulk. |
| subscriptionEntryId | Max70Text | Or – Optional} | This may be used if the status relates to an entry of a subscription. |
| authorisationId | Max70Text | {Or - Optional | This attribute should be contained if the push notification is about a specific SCA status. |
| cancellationId | Max70Text | Or - Optional} | This attribute should be contained if the push notification is about a specific SCA status of a cancellation authorisation sub-resource. |
| transactionStatus | Transaction Status | {Or Optional | This attribute might be contained if the related resource contains a transaction status which has changed. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentStatus | Consent Status | Or Optional | This attribute might be contained if the consent status of the addressed resource has changed. |
| subscriptionStatus | Subscripton Status | Or Optional | This attribute might be contained if the subscription status of the addressed resource has changed. |
| subscriptionEntryStatus | Subscription Entry Status | Or Optional | This attribute might be contained if the subscription entry status of the addressed resource has changed. |
| mandateStatus | Mandate Status | Or optional | This attribute might be contained if the mandate status of the addressed resource has changed. |
| documentStatus | Document Status | Or optional} | This attribute might be contained if the document status of the addressed resource has changed. |
| scaStatus | SCA Status | Optional | This attribute might be contained if the authorisation status of the addressed authorisation resource has changed. |
| requestStatus | Request Status | Optional | The status of the related request to pay transaction. To be delivered by the API Server if not agreed otherwise. |
| reasonCode | Status Reason Code | {Or Optional | Additional information on the reason for e.g. rejecting the request |
| reasonProprietary | Max35Text | Or Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| debtorDecision DateTime | ISO Date Time | Optional | The date and time when the PSU has decided on accepting/rejecting the related request. |
| acceptedAmount | Amount | Optional | Contained only if the accepted amount deviates from the instructed amount. |
| acceptanceDateTime | ISODateTime | Optional | Contained only if the agreed requested execution date deviates |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | from the requested execution date in the request. |
| acceptedPaymentInstrument | Max105Text | Optional | “SCT” or “SCT inst” as default values. |
| statusIdentification | Max35Text | Optional | Reference added by the debtor. |
| _links | Links | Optional | The following link types are supported. |
| | | | scaStatus<br><br>This shall be contained if the related SCA status is not reported at the same time by the scaStatus attribute. The API Client then needs to get the scaStatus by a GET command using this hyperlink. |
| | | | status<br><br>This shall be contained if the related consent or transaction status is not reported at the same time. The API Client then needs to get the resource status by a GET command using this hyperlink. |

### HTTP Response Code

200

**Remark**: All response codes which do not equal 200 are ignored by the ASPSP. The notification will not be repeated.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the corresponding request, unique to the call, as determined by the initiating party. |

### Response Body

No Response Body

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### Example

***Request***

```
POST https://notifications.testclient.com/v2/transaction-12345
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:02:37 GMT

{
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "transactionStatus": "ACFC"
}
```

***Response***

```
HTTP/1.x 200
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
```


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# 13 Annex

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## 13.3 Detailed Change Log

### 13.3.1 Changes from Version 2.0 to 2.1

The following changes have been applied in version 2.1 relative to version 2.0:

| Section | Change | Reason |
|---|---|---|
| 3.5 | Idempotency requirements have been weakened. | Following general web idempotency recommendations, the requirements on idempotency have been weakened, since strict idempotency is difficult to be handled. (CR116) |
| 4.2.2 | The attribute "path" has been re-named to "instance" for error messaging following [RFC7807] and explicitly extended for "status" to repeat the http response code on application level. | Erratum |
| 4.2.2 | A note was added, that the new standard [RFC9457] for http problem reports might be used instead of the older [RFC7807]. This is a new issue and might still be changed during the consultation of the document. | New standard for error reporting. |
| 5.3 | Rename TPP-Redirect-URI to Client-Redirect-URI<br><br>Rename TPP-Nok-Redirect-URI to Client-Nok-URI | Make these parameters also usable for direct access models for corporates. Prepare the API Framework better for corporate direct access. |
| 6.2 | Clarifications and extensions to message signing:<br><br>Adding the attributes typ and aud for the JWS protected header, | Secure parts of the path, which contains important references related to the transaction to be secured. (CR 112) |


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| Section | Change | Reason |
|---|---|---|
| | clarifications on the alg attribute, adding api-contract-id to the sigD attribute.<br><br>Extending existing examples | |
| 6.2.2.2 | Reference to certificate in TPP-Signature-Certificate deleted, since this header is not any more supported. | Erratum |
| 8.3 | Restricting the length of PSU related attributes in the http headers | Clarifications of string length supported for some http headers. |
| 8.4.1, 0 | Rename TPP-SCA-Preference to Client-SCA-Preference.<br><br>Rename TPP-Explicit-Authorisation-Preferred to Client-Explicit-Authorisation-Preferred | Make these parameters also usable for direct access models for corporates. Prepare the API Framework better for corporate direct access. |
| 8.4.2, 0, | Add the value ASPSP-CHANNEL to the ASPSP-SCA-APPROACH header. | Adding asynchronous SCA via ASPSP channels explicitly to the Framework resulting from new services, see below. |
| 8.8.1 | Adding "MAN:<resourceId>" as a scope standard for the OAuth2 based authorisation. | Preparation of the API Framework to support mandate authorisation. |
| New Section 8.9 | Adding a section for introducing the ASPSP-Channel SCA approach (for premium services) | Resulting from new services (Mandate Services) where also an asynchronous authorisation by the PSU via ASPSP online channels is explicitly supported. |
| 9.4.2 | Add fee structures to the response as optional attributes. | Erratum. |
| 9.4.3 | Extend the response by the option to add directly an account list to select an IBAN from and a related hyperlink. This is an optimised solution to provide "No manual IBAN entry" for the embedded SCA approach as well potentially for the decoupled SCA approach.<br><br>A remark was added that the status of the related payment resource | CR113 |


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| Section | Change | Reason |
|---|---|---|
| | will be transposed to "PNDG" to make clear on the resource level, that resource data needs to be pushed before further authorisation steps can be applied. | |
| 9.7, 11.2 | Rename tppMessages to apClientMessages. | Erratum |
| New Section 9.9 | Add an access method, to post a debtor account to a payment related resource after the selection of an IBAN after having submitted a password e.g. in the embedded SCA approach, see above. | CR113 |
| 11.2 | Add mandateResourceIds to the body of the signing basket as an additional attribute class, which can be referred to. | New Mandate API Service needs an extension to the signing basket definition. |
| 10.3 | Add mandateResourceIds to the response body of the retrieval of a signing basket resource.<br><br>Correct all data types string to Max70Text | New Mandate API Service needs an extension to the signing basket definition. |
| 12.6 | Add mandateStatus as attribute for pushing status changes | New Mandate API Service needs an extension to the resource status notification function. |
| 12.6 | Change all data types of resource identification from String to Max70Text | Erratum |

### 13.3.2 Changes from Version 2.1 to 2.2

| Section | Change | Reason |
|---|---|---|
| 2.2.6 | Notion of a Service Resource is added as a new section. | For purpose of clarity and better structured guidelines. |
| 3.4.1 | Some clarifying text on other headers has been added | Clarifications |

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| Section | Change | Reason |
|---|---|---|
| 3.4.2 | Section Service Resource Creation Request Headers is added | For purpose of clarity and better structured guidelines. |
| 3.4.3 | Client-Brand-Logging-Information header has been restricted to Max140Text | Clarification. |
| 3.7.2 | Section Links in Service Resource Creation Response is added | For purpose of clarity and better structured guidelines. |
| 5.3 | It has been clarified that the use of redirect URI may not be restricted to TPP domains protected by QWACs in compliance solutions. | Clarification |
| 8.8.1 | Scope keywords for mandates and users have been added to the OAuth2 scopes supported in this framework. | New services to be authorised and to be covered by OAuth2 based SCA. |
| 0, 9.4.3, 9.4.4 | attribute orginalTransactionInformationAndVopStatus added | Support Version 1.1 of VOP Implementation Guidelines. |
| 12.4 | A comment has been added how to deal with the situation when the API Client does not send consistent Push Notification Data. | Clarification. |
| 12.6 | The mandateResourceId was corrected to UUID in format.<br><br>documentId was added as a resource identification, where a documentStatus (new attribute) can be pushed. | Erratum.<br><br>New service support. |

### 13.3.3 Changes from Version 2.2 to 2.3

| Section | Change | Reason |
|---|---|---|
| 3.4.4 | Differentiating in the section on "signature related headers" between message signing and digital signature as SCA approach. | Current work for signed requests within scope of Direct Access for Corporates items. |


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| Section | Change | Reason |
|---|---|---|
| 0 | The signing process of the body was revised and for now only supports signing the body using JAdES_JS as signature profile. Due to the updated approach XAdES is no longer supported as a signature profile at the moment.<br><br>A detailed example where the body is signed using JAdES_JS is added in Subsection 7.1.4. | Current work for signed requests within scope of Direct Access for Corporates items. |
| 7.1.7 | Added a new section for introducing EUDI wallet based signatures. To be discussed in future. | Placeholder for future work. |
| 8.4.1 | Added a comment for the Client-SCA-Approach-Preference Header that other values come with the usage of "signature" as SCA | Current work for signed requests within scope of Direct Access for Corporates items. |
| Several Sections | Added the value "signature" to ASPSP-SCA-Approach | Current work for signed requests within scope of Direct Access for Corporates items. |
| 8.10 | Adding a new short section on signature as SCA Approach, referencing then mainly to Section 0 | Current work for signed requests within scope of Direct Access for Corporates items. |
| 10 | Added new Section on payment formats that were previously in the Payment Formats and Domestic AIS/PIS Definitions, which was not fully under release control due to the domestic adjustments needed. | For purpose of clarity and better structured guidelines, version control of payment formats to be used by e.g. payment initiation formats. |

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THE Berlin GROUP

A EUROPEAN STANDARDS INITIATIVE

# openFinance API Framework

# Data Dictionary

Version 2.4.1

31 July 2026

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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by so called Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an "access to account interface" (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework is now broadened to extended services and developed into a Version 2 API family. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client's bank for KYC processes.

**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to "asset broker" and "asset holder" resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as "API provider".

The following account access methods are covered by this framework:

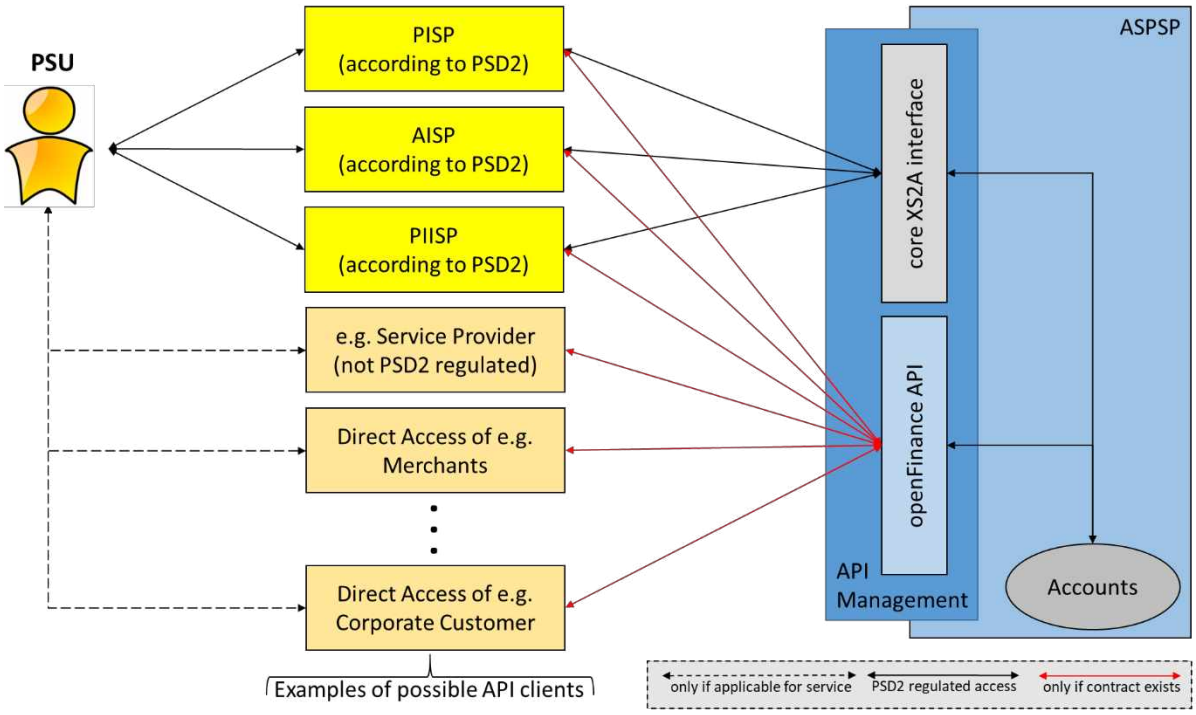


Figure 1: Core XS2A API and openFinance API

## 1.2 Data Dictionary for the openFinance API Framework

This document specifies the complex data structure to support the core XS2A API Services as well as the consent API specified for the openFinance API Framework. Also first V2 Premium Services are already covered.

Future V2 Premium Services will rely on this data dictrionary as well, but might also define their own set of complex data structures which are not supported yet in the current version of the data dictrionary.

## 1.3 Document Structure

This document covers complex data types in Section 2 and code lists in Section 3.

## 1.4 Document History

| Version | Change/Note | Approved |
|---|---|---|
| 2.0 | Initial version of data dictionary for the openFinance API Framework Version 2 | 05 October 2023 openFinance TF |
| 2.1 | Updating the dictionary for attributes from Extended Payment Services, Extended Account Information Services, RTP Services, Push AIS Services, Admin Services as well as Discovery Services. | 08 February 2024 openFinance TF |
| 2.2 | Updates related to openFinance API Framework Release 2.1<br><br>Details of the changes are covered in section 5.1 | 31 July 2024 openFinance TF |
| 2.2.1 | Introducing new data attributes and codes for the Mandate API.<br><br>Updated Message Codes and some minor Errata<br><br>Details of the changes are covered in Section 5.2 | 21 October 2024 oFA TF |
| 2.2.2 | Introducing new attributes for extensions of the Discovery Services for new services<br><br>Introducing new data attributes for the new VOP Services and the Document Services.<br><br>Updated several code sets, some minor errata.<br><br>Addes some attributes in several Data Types used in Discovery Services to support new features from the openFinance API Release 2.1.<br><br>Details on the changes are covered in Section 5.3 | 16 December 2024 oFA TF |

| Version | Change/Note | Approved |
|---|---|---|
| 2.2.3 | Added new data types and code lists for the new VOP Service and VOP integration into payment services.<br><br>Added related attributes in the data types needed for the Discovery API<br><br>Changed methodology of dash based attributes to lowerCamelCase for header parameters which are transported in the payload of the Discovery API.<br><br>Errata<br><br>Details of the changes are contained in Section 5.4 | 24 January 2025 oFA TF |
| 2.2.4 | Several new complex data types and code lists are added, which are needed for Extended Account Information Service – Account Statement (XAIS-STAT)<br><br>Capital letters have been corrected in serval attributes.<br><br>Details of the changes are included in Section 5.5 | 17 April 2025 oFA TF |
| 2.2.5 | Several new complex data types are added for the purpose of providing solutions to the change requests 120 and 127, ie. supporting more account owner information in AIS and introducing "hybrid" address types in combinging address lines with structured address attributes.<br><br>Structured status data model has been adapted to support better reference on original transaction information.<br><br>Several errata. | |
| 2.2.6 | Adusted some Mandate API related code lists to external ISO20022 code lists. | |

| Version | Change/Note | Approved |
|---|---|---|
| | Added originalEnd2EndId to the extended payment status data model.<br><br>Added some clarifications | |
| 2.3 | Adjusted the Standing Order Details<br><br>A detailed change log is contained in Section 5.8 | 31 October 2025 |
| 2.3.1 | Added a new data type “Subscription Entry and Status”, to enable the bank to show a subscription with all entries including the related entry status.<br><br>A detailed change log is contained in Section 5.9. | 11 Dec 2025 |
| 2.4 | Several changes were included and attributes added to adapt the document to new framework service functions, in particular included the functionality of Change Transacaction Resource processes.<br><br>A detailed change log is contained in Section 5.10. | 19 March 2026 |
| 2.4.1 | Introduced the data type “Account Reference Statements”. This data type is the previous “Account Reference” data type from Version 2.4. This data type is used by the ASPSP in response bodies to identify accounts.<br><br>The revised “Account Reference” data type is now a restriction of the “Account Reference Statements” to be used by the API Client to address accounts.<br><br>Inclusion of the data model for the price lists, and fixed some errata.<br><br>A detailed change log is contained in Section 5.11. | openFinance TF, 2026-07-07 |

**RFU**: Please note that the Berlin Group openFinance API Framework is still under constant development. Technical issues, which are already in discussion within the Berlin Group openFinance working structure are mentioned in this document by "RFU" indicating "Remark for Future" to make the reader aware of upcoming potential changes.

# 2 Complex Data Types

In the following constructed data types are defined as used within the openFinance API Framework.

**NOTE**: It is indicated below each data type, in which openFinance API Framework Implementation Guidelines the related data type is used in attributes of API requests and API responses on **first** level.

**NOTE**: The NISP project is a project platform to support NextGenPSD2 APIs and in future also openFinance APIs. This project platform had a.o. worked on an ASPSP testcase catalogue. This testcase catalogue is generic due to the potential variants of NextGenPSD2 APIs and so-called "Implementer Options" were defined for an ASPSP configuration spreadsheet to support derivation of test cases from the generic test case catalogue. During this derivation, the implementer options supported filtering the relevant test cases applicable to an implementation following the defined configuration. Since these Implementer Options are also used by ASPSP to partially document the PSD2 API implementations and since the NISP project has submitted some of the test case related work related to discovery services to the Berlin Group, the data types definded within the context of discovery services [oFA-IG-Disc] below use "(IOx1, … ,xn)" in the attribute description column to indicate that the addressed attribute is related to NISP Implementer Option 1 to NISP Implementer Option n, where n>=1. In future versions, these references will be deleted.

## 2.1 Account Access

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payments | Array of Account Access Rights | Optional | Addressing required access rights to current accounts.<br><br>The array may not be empty. |
| cards | Array of Account Access Rights | Optional | Addressing required access rights to single cards accounts. The array may not be empty. |
| cardAccounts | Array of Account Access Rights | Optional | Addressing required access rights to card reconciliation accounts.<br><br>The array may not be empty. |
| savings | Array of Account Access Rights | Optional | Addressing required access rights to saving accounts.<br><br>The array may not be empty. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| loans | Array of Account Access Rights | Optional | Addressing required access rights to loan accounts.<br><br>The array may not be empty. |
| securities | Array of Account Access Rights | Optional | Addressing required access rights to security accounts.<br><br>The array may not be empty. |

This data type is used in [oFA-IG-Co].

### 2.2 Account Access Rights

The account access rights as posted by the API Client.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Conditional | Is mandated if the consentType equals "detailed", not supported otherwise |
| rights | List of Access Rights Codes | Mandatory | |

This data type is used in [oFA-IG-Co] and by this document.

### 2.3 Account Access Rights Extended

The account access rights as provided by the ASPSP.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference Statements | Conditional | Provided after customer authentication if not already submitted by the API Client itself. |
| rights | List of Access Rights Codes | Mandatory | |
| _links | Links | Optional | A hyperlink to the endpoint of the related account category. |

This data type is used in [oFA-IG-Co] and by this document.

## 2.4 Account Access and Authorisation Rights

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | |
| rights | Array of Access Rights Codes | Mandatory | Defines the reading rights on the related account identified above. |
| limits | Array of Limit | Optional | Defines the limits applicable only to this account. |
| paymentAuthorisations | Array of Product Rights | Optional | Defines authorisation related rights on level of dedicated payment products including specific limits.<br><br>Empty array, if no payment right is provided. |
| paymentCancellations | Array of Product Rights | Optional | Defines payment cancellation rights on level of dedicated payment products.<br><br>Empty array, if no payment cancellation right is provided. |

This data type is used in [oFA-IG-Disc].

## 2.5 Account Access and Authorisation Rights1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | |
| rights | Array of Access Rights Codes | Mandatory | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentAuthorisations | Array of Product Rights | Mandatory | Defines authorisation related rights on level of dedicated payment products including specific limits. |

This data type is used in [oFA-IG-Disc].

## 2.6 Account Access Extended

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payments | Array of Account Access Rights Extended | {Or Optional | Addressing required access rights to current accounts.<br><br>The array may not be empty. |
| cards | Array of Account Access Rights Extended | Or Optional | Addressing required access rights to card accounts. The accounts can be card reconciliation accounts as well as single credit cards, dependent of the AIS offer of the ASPSP.<br><br>The array may not be empty. |
| savings | Array of Account Access Rights Extended | Or Optional | Addressing required access rights to saving accounts.<br><br>The array may not be empty. |
| loans | Array of Account Access Rights Extended | Or Optional | Addressing required access rights to loan accounts.<br><br>The array may not be empty. |
| securities | Array of Account Access Rights Extended | Or Optional} | Addressing required access rights to security accounts.<br><br>The array may not be empty. |

This data type is used in [oFA-IG-Co].

## 2.7 Account Details

**Remark:** The ASPSP shall give at least one of the account reference identifiers listed as optional below.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| resourceId | Max70Text | Mandatory | This is the data element to be used in the path when retrieving data from a dedicated account. |
| iban | IBAN | Optional | IBAN of the account. |
| bban | BBAN | Optional | BBAN of the account. This data element is used for payment accounts which have no IBAN. |
| msisdn | MSISDN | optional | An alias to access a payment account via a registered mobile phone number. This alias might be needed e.g. in the payment initiation services. The support of this alias must be explicitly documented by the ASPSP for the corresponding API Calls. |
| other | Generic Account Identification | Conditional | An alias with a proprietary coding |
| currency | Currency Code | Mandatory | Account currency |
| ownerName | Max140Text | Optional | Name of the legal account owner. If there is more than one owner, then e.g. two names might be noted here.<br><br>For a corporate account, the corporate name is used for this attribute.<br><br>Even if supported by the ASPSP, the provision of this field might depend on the fact whether an explicit consent to this specific additional account information has been given by the PSU. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | **NOTE**: This attibutes deprecated for a later version. |
| ownerNames | Array of Account Owner | Optional | List of owner names together with a role, where applicable.<br><br>**NOTE**: This attribute s deprecated for a later version. |
| owner | Account Owner | Optional | The party that legally owns the account. |
| owners | Array of Account Owner | Optional | List of account owners |
| name | Max70Text | Optional | Name of the account, as assigned by the ASPSP, in agreement with the account owner in order to provide an additional means of identification of the account. |
| displayName | Max70Text | Optional | Name of the account as defined by the PSU within online channels. |
| product | Max35Text | Optional | Product Name of the Bank for this account, proprietary definition |
| cashAccountType | Cash Account Type | Optional | ExternalCashAccountType1Code from ISO 20022 |
| status | Account Status Code | Optional | Account status. If this field is not used, then the account is available in the sense of this specification. |
| bic | BICFI | Optional | The BIC associated to the account. |
| linkedAccounts | Max70 Text | Optional | This data attribute is a field, where an ASPSP can name a cash account associated to the described account, e.g. in case of a securities account or a card account. |
| usage | Max4 Text | Optional | Specifies the usage of the account |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | - PRIV: private personal account<br><br>- ORGA: professional account |
| details | Max500 Text | Optional | Specifications that might be provided by the ASPSP<br><br>- characteristics of the account<br><br>- characteristics of the relevant card |
| balances | Array of Balances | Conditional | |
| tariffs | Max1000Text | Optional | Currently only supported for securities accounts:<br><br>Text information on tariffs related to this securities account. |
| applicableFees | Array of Securities Account Fee | Optional | Currently only supported for securities accounts:<br><br>Array of elements, each representing one fee (rule) that is individually applicable for this Securities account. If, for example, an ASPSP applies a standard "managementFee" X, but the consumer negotiated a discount D, an element should represent (X-D), but neither X nor D. |
| interest | Array of Interest | Optional | Currently only supported for savings accounts and loan accounts:<br><br>A set of interest rates associated to this account, e.g. interests for savings or credits. |
| relatedDates | Account related Dates | Optional | Currently only supported for savings accounts and loan accounts:<br><br>Dates related to this account, e.g. start Date of a loan in case of a loan account. |
| collateralsInvolved | Boolean | Optional | Currently only supported for loan accounts:<br><br>Is set to true if a collateral is involved securing the loan (e.g. security deposit, |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | physical collaterals like houses, cars). More information might be provided under the "details" attribute. |
| guaranteeInvolved | Boolean | Optional | Currently only supported for loan accounts:<br><br>Is set to true in case of specific collaterals where a guarantee of payment of the loan is given by a different person. |
| _links | Links | Optional | Links to the account, which can be directly used for retrieving account information from this dedicated account.<br><br>Links to "balances" and/or "transactions"<br><br>These links are only supported, when the corresponding consent has been already granted. |

This data type is used in [oFA-IG-Com], [oFA-IG-XAIS].

### 2.8 Account Information Indicator

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageNameId | Max35Text | Optional | Specifies the message name identifier of the message that will be used to provide additional details. |
| messageId | Max35Text | Optional | Specifies the identification of the message that will be used to provide additional details. |

### 2.9 Account Interest

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Interest Type Code | {Or Optional | INDY for Intraday interest<br><br>OVRN Overnight for overnight interest |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | as the only permitted codes. |
| typeProprietary | Max35Text | Or Optional} | |
| rate | Array of Rate | Optional | |
| fromDateTime | ISODate Time | Optional | |
| toDateTime | ISODate Time | Optional | |
| reason | Max35Text | Optional | specifies the reason for the interest |
| tax | Tax | Optional | |

**Example**

```
"interest": [
       {"type": "OVRN",
        "rate": [
              {"typePercentage": 5.2,
               "validityRange":
                     "toAmount": {
                           "boundaryAmount": {"currency": "EUR", "amount": "-10.000"}
                           "included": false}
              },
              {"typePercentage": 4.2,
               "validityRange": "fromToAmount":{
                     "fromAmount": {
                           "boundaryAmount":   {"currency":   "EUR",   "amount":   "-
10.000"},
                           "included": true}
                     "toAmount": {
                           "boundaryAmounts": {"currency": "EUR", "amount": "0"},
                           "included":false}
              }

         ]
```

## 2.10 Account Owner

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max70Text | Mandatory | Account owner name |
| role | Max35Text | Optional | The following proprietary codes are used:<br><br>"owner", "legalRepresentative", "authorisedUser" |
| postalAddress | Postal Address | Optional | Information that locates and identifies a specific address, as defined by postal services. |
| identification | Party Identification | Optional | Unique and unambiguous identification of a party |
| countryOfResidence | Country Code | Optional | Country in which a person resides. In case of a company, it is the country from which the affairs of that company are directed.<br><br>**Constraints:**<br><br>The code is checked against the list of country names obtained from the United Nations (ISO 3166 Alpha-2 code). |
| contactDetails | Contact Details | Optional | Set of elements used to indicated how to contact the party. |

This data type is used in [oFA-IG-Com].

## 2.11 Account Reference Statements

This type is containing any account identification as provided by the ASPSP. Exactly one of the attributes defined as "conditional" shall be used.

> **Remark:** The currency of the account is needed, where the currency is an account characteristic identifying certain sub-accounts under one external identifier like an IBAN. These sub-accounts are separated accounts from a legal point of view and have separated balances, transactions etc.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Conditional | |
| bban | BBAN | Conditional | This data elements is used for payment accounts which have no IBAN. |
| pan | Max35Text | Conditional | Primary Account Number (PAN) of a card, can be tokenised by the ASPSP due to PCI DSS requirements. |
| maskedPan | Max35Text | Conditional | Primary Account Number (PAN) of a card in a masked form. |
| msisdn | MSISDN | Conditional | An alias to access a payment account via a registered mobile phone number. |
| other | Generic Account Identification | Conditional | An alias with a proprietary coding |
| typeCode | Cash Account Type | {Or - Optional | Remark: Shall not be used in the consent model, since account category provides enough information for the ASPSP. |
| typeProprietary | Max35Text | Or – Optional} | Remark: Shall not be used in the consent model, since account category provides enough information for the ASPSP. |
| currency | Currency Code | Optional | ISO 4217 Alpha 3 currency code |
| proxy | Proxy Account Identification | Conditional | |
| name | Max70Text | Optional | Name of the account |
| owner | Party Description2 | Optional | |
| servicer | Financial Institution Identification | Optional | |

### Example

```
"account":{
      "iban": "DE62210500001234567890",
      "typeCode": "CACC",
      "currency": "EUR",
      "owner": {
        "name": "Name Kontoinhaber",
        "postalAddress": {
          "streetName": "Schlossallee",
          "postCode": "53113",
          "townName": "Bonn"
        }
      }
```

This data type is used in [oFA-IG-XAIS], and [oFA-IG-Com],.

## 2.12 Account Reference

This type is containing any account identification which can be used on payload-level to address specific accounts. The ASPSP will document which account reference type it will support. Exactly one of the attributes defined as "conditional" shall be used.

**Remark:** The currency of the account is needed, where the currency is an account characteristic identifying certain sub-accounts under one external identifier like an IBAN. These sub-accounts are separated accounts from a legal point of view and have separated balances, transactions etc.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Conditional | |
| bban | BBAN | Conditional | This data element is used for payment accounts which have no IBAN. |
| pan | Max35Text | Conditional | Primary Account Number (PAN) of a card, can be tokenised by the ASPSP due to PCI DSS requirements. |
| maskedPan | Max35Text | Conditional | Primary Account Number (PAN) of a card in a masked form. |
| currency | Currency Code | Optional | ISO 4217 Alpha 3 currency code |
| msisdn | MSISDN | Conditional | An alias to access a payment account via a registered mobile phone number. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| proxy | Proxy Account Identification | Conditional | |
| other | Generic Account Identification | Conditional | An alias with a proprietary coding |

This data type is used in [oFA-PFSM], [oFA-IG-XAIS], [oFA-IG-Com] and [oFA-IG-Co].

### 2.13 Account Reference1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Conditional | |
| bban | BBAN | Conditional | This data element is used for payment accounts which have no IBAN. |
| pan | Max35Text | Conditional | Primary Account Number (PAN) of a card, can be tokenised by the ASPSP due to PCI DSS requirements. |
| maskedPan | Max35Text | Conditional | Primary Account Number (PAN) of a card in a masked form. |
| currency | Currency Code | Optional | ISO 4217 Alpha 3 currency code |

This data type is used in [oFA-PFSM].

### 2.14 Account Reference2

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Mandatory | |
| currency | Currency Code | Optional | ISO 4217 Alpha 3 currency code |

## 2.15 Account Reference3

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Conditional | |
| bban | BBAN | Conditional | This data element is used for payment accounts which have no IBAN. |
| other | Generic Account Identification | Conditional | An alias with a proprietary coding |
| currency | Currency Code | optional | ISO 4217 Alpha 3 currency code |

This data type is used in [oFA-PFSM].

## 2.16 Account Reference4

| Attribute | Type | Condition | Description |
|---|---|---|---|
| iban | IBAN | Optional | |
| other | Generic Account Identification | Optional | |

## 2.17 Account related Dates

| Attribute | Type | Condition | Description |
|---|---|---|---|
| contractStartDate | ISODate | Optional | Start of the account contract. |
| contractEndDate | ISODate | Optional | End of the account contract. |
| contractAvailabilityDate | ISODate | Optional | Next Date where money can be taken off a saving account without loss of interest, if initiated now (in case of a saving account).<br><br>Next Date where a loan can be fully repaid without any extra fee. |

## 2.18 Account Report

| Attribute | Type | Condition | Description |
|---|---|---|---|
| booked | Array of transactions | Conditional | Shall be contained if bookingStatus parameter is set to "booked", "both" or "all". |
| pending | Array of transactions | Optional | Not contained if the bookingStatus parameter is set to "booked" or "information". |
| information | Array of transactions | Optional | Only contained if the bookingStatus is set to "information" or "all" and if supported by ASPSP. |
| _links | Links | Mandatory | The following links might be used within this context:<br>• account (mandatory)<br>• first (optional)<br>• next (optional)<br>• previous (optional)<br>• last (optional) |

This data type is used in [oFA-IG-Com].

## 2.19 Account Resource Reference

| Attribute | Type | Condition | Description |
|---|---|---|---|
| resourceId | UUID | Conditional | To be used in authorisation processes, when updating a resource by an account. |

This data type is used in [oFA-PFSM]

## 2.20 Accrued Interest

Represents the accrued interest by a securities position:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| daysAccrued | Number | Optional | Specifies the number of days used for calculating the accrued interest amount. |
| amounts | Array of Amount | Optional | Amount of the accrued interest. Each item represents the same monetary value in different currencies, e.g. account currency, currency of the security's denomination. |

## 2.21 Additional Information Indicator

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageNameIdentification | Max35Text | Optional | Specifies the message name identifier of the message that will be used to provide additional details. |
| messageIdentification | Max35Text | Optional | Specifies the identification of the message that will be used to provide additional details. |

## 2.22 Additional Party Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| tradeName | Max70Text | Optional | Trade name of the related party. For display to the PSU only. |
| merchantCategoryCode | Merchant Category Code | Optional | Merchant Category Code as assigned by ISO: |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| logoUrl | Max2048 Text | Optional | A hyperlink to the logo of the party. |
| geoLocation | GEO Location | Optional | |
| merchant Logo | String | n.a. | Base 64 coded graphic. Reserved for future extensions. |

## 2.23 Additional Request Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentConditions | Payment Conditions | optional | Conditions for the execution of the payment. |
| creationDateTime | ISODateTime | optional | creationDateTime of the originator |
| requestedExpiry DateTime | ISODateTime | mandatory | Date and Time at which this request expires. |
| originatorPspId | Financial Institution Identification | Optional | Originator payment service provider in case of indirect participation regarding a related API Access Scheme or bilateral contract |
| receiverPspId | Financial Institution Identification | Conditional | Receiving payment service provider as defined by an API Access Scheme or bilateral contracts in case of not addressing the receiving institution directly. It is mandatory in case where the technical API Provider is not the receiver as such. |

This data type is used in [oFA-IG-VOP].

## 2.24 Additional Request Information1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originatorPspId | Financial Institution Identification | Optional | Originator payment service provider in case of indirect participation regarding a related API Access Scheme or bilateral contract |

This data type is used in [oFA-IG-Co], [oFA-PFSM].

## 2.25 Address

| Attribute | Type | Condition | Description |
|---|---|---|---|
| streetName | Max70Text | Optional | |
| buildingNumber | String | Optional | |
| townName | String | Optional | |
| postCode | String | Optional | |
| country | Country Code | Mandatory | |

## 2.26 Agent Description

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstitutionId | Financial Institution Identification | mandatory | |
| branchIdentificationId | Max35Text | Optional | Unique and unambiguous identification of a branch of a financial institution. |
| branchIdentificationName | Max140Text | Optional | Name by which an agent is known and which is usually used to identify that agent. |

## 2.27 Agent Description1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstitutionId | Financial Institution Identification | mandatory | |

This data type is used in [oFA-PFSM].

## 2.28 Agent Description2

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstitution Id | Financial Institution Identification1 | mandatory | |

This data type is used in [oFA-PFSM].

## 2.29 Amendment Information Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalMandateId | Max35Text | Optional | Mandatory of change occur in "Mandate Identification" otherwise not to be used. |
| originalCreditorSchemeId | Party Description4 | Optional | Mandatory of change occur in "Creditor Scheme Identification" otherwise not to be used. |
| originalDebtorAccount | Account Reference4 | Optional | Mandatory of change occur in "Debtor Account" otherwise not to be used. |
| originalDebtorAgent | Agent Description2 | Optional | If changes occur in debtor agent and SMNDA is not used in “originalDebtorAccount" |

## 2.30 Amount

| Attribute | Type | Condition | Description |
|---|---|---|---|
| currency | Currency Code | Mandatory | ISO 4217 Alpha 3 currency code |
| amount | String | Mandatory | The amount given with fractional digits, where fractions must be compliant to the currency definition. Up to 14 significant figures. Negative amounts are signed by minus.<br><br>The decimal separator is a dot.<br><br>**Example:** Valid representations for EUR with up to two decimals are:<br><br>• 1056<br>• 5768.2<br>• -1.50<br>• 5877.78 |

This data type is used in [oFA-IG-Com], [oFA-PFSM], [oFA-IG-XPIS]., [oFA-IG-RTP].

## 2.31 Amount dependent Rate

| Attribute | Type | Condition | Description |
|---|---|---|---|
| percentage | String | Mandatory | The (signed) rate of the interest.<br><br>Up to 20 significant figures. The decimal separator is a dot.<br><br>Trailing zeroes must be truncated. |
| fromAmount | Amount | Optional | Amount from which the interest rate applies. |
| toAmount | Amount | Optional | Amount up to which the interest rate applies. |

**Remark:** ISO 20022 is defining Percentage as a decimal type, where 5.0 expresses 5% interest rate. This specification is using a signed percentage to be able to express also negative percentage codes, i.e. -1.2 will express -1,2% of interest.

## 2.32 Amount Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| instructedAmount | Amount and Exchange Details | Optional | |
| transactionAmount | Amount and Exchange Details | Optional | |
| counterValueAmount | Amount and Exchange Details | Optional | |
| announcedPosting Amount | Amount and Exchange Details | Optional | |

**Remark:** Proprietary Amount is not supported.

**Example:**

```
"amountDetails":
   {
   "instructedAmount":
       {
       "currency": "DKK",
       "amount": "123.50",
       "sourceCurrency": "DKK",
       "targetCurrency": "EUR",
       "exchangeRate": "7.47",
       },
   "transactionAmount":
       {
       "currency": "EUR",
       "amount": "16.53",
       "sourceCurrency": "DKK",
       "targetCurrency": "EUR",
       "exchangeRate": "7.60",
       }
    }
```

## 2.33 Amount and Exchange Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| currency | Currency Code | Mandatory | ISO 4217 Alpha 3 currency code |
| amount | String | Mandatory | The amount given with fractional digits, where fractions must be compliant to the currency definition. Up to 14 significant figures. Negative amounts are signed by minus.<br><br>The decimal separator is a dot.<br><br>**Example:** Valid representations for EUR with up to two decimals are:<br><br>• 1056<br>• 5768.2<br>• -1.50<br>• 5877.78 |
| sourceCurrency | Currency Code | Optional | Currency from which an amount is to be converted in a currency conversion. |
| exchangeRate | String | Optional | Factor used to convert an amount from one currency into another. This reflects the price at which one currency was bought with another currency.<br><br>**Note:** If this field is present, then also the field sourceCurrency must be provided. |
| unitCurrency | Currency Code | Optional | Currency in which the rate of exchange is expressed in a currency exchange. In the example 1EUR = xxxCUR, the unit currency is EUR. |
| targetCurrency | Currency Code | Optional | Currency into which an amount is to be converted in a currency conversion. |
| quotationDate | ISODate | Optional | Date at which an exchange rate is quoted. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| contractId | String | Optional | Unique identification to unambiguously identify the foreign exchange contract. |

## 2.34 Amount Range

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fromAmount | Boundary Amount | {Or | |
| toAmount | Boundary Amount | Or | |
| fromToAmount | FromTo Amount Range | Or | |
| equalAmount | Amount | Or | |
| notEqualAmount | Amount | Or} | |

## 2.35 Amount Reference

| Parameter | Type | Condition | Description |
|---|---|---|---|
| feeAmount | Amount | Mandatory | This attribute yields the respective price of the addressed fee. |
| description | Max140Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the given price point. |
| invoiceItem Number | Max35Text | optional | Identifier of the item related to the described price point within this object |

## 2.36 API Instance Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| apiName | Max35Text | Mandatory | "Berlin Group openFinance", "giroAPI", "EPC SPAA", "Berlin Group XS2A", "Berlin Group Direct Access".<br><br>More entries might be added by the API Provider. |
| releaseVersion | Max35Text | Mandatory | Release version, not necessary connected to the standard version. |
| validFrom | ISODate | Optional | |
| validTo | ISODate | Optional | |
| releaseNote | Max2000Text | Optional | Offers a summary on the new release. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the TPP. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP.<br><br>The following valid values for links are supported:<br><br>- aspspParameters<br>- aspspContacts<br>- aspspDowntimes |

This data type is used in [oFA-IG-Disc].

## 2.37 ASPSP API Access

| Attribute | Type | Condition | Description |
|---|---|---|---|
| lastUpdate | ISODateTime | Mandatory | Last Update in one of the attributes of entities referenced by links provided in apiInstances |
| aspspName | Max70Text | Mandatory | Name ASPSP: |
| aspspBranch | Max70Text | Optional | Branch or Division in case of multiple APIs per ASPSP which relate to different branches/divisions |
| aspspChannel | Max70Text | Optional | Online Channel in case of multiple APIs per ASPSP Online Channel, e.g. "small corporates" or "retail". |
| aspspIdentifications | Array of BICFI | Mandatory | All bank identifications which are covered by the addressed API. |
| clearingSystemMemberId | Clearing System Member Identification | Optional | |
| accessScheme | Max35Text | Optional | Scheme-identification |
| aspspDescription | Max140Text | Mandatory | Description of API provider party. |
| validFrom | ISODate | Optional | |
| validTo | ISODate | Optional | |
| contacts | Array of Contact | Optional | |
| _links | Links | Optional | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | The following valid values for links are supported:<br><br>- aspspContacts<br>- apiInstances |

This data type is used in [oFA-IG-Disc].

### 2.38 Authentication Object

| Attribute | Type | Condition | Description |
|---|---|---|---|
| authenticationType | Authentication Type | Mandatory | Type of the authentication method. |
| authenticationVersion | String | Conditional | Depending on the "authenticationType". This version can be used by differentiating authentication tools used within performing OTP generation in the same authentication type. This version can be referred to in the ASPSP's documentation. |
| authenticationMethodId | Max35Text | Mandatory | An identification provided by the ASPSP for the later identification of the authentication method selection. |
| name | String | Mandatory | This is the name of the authentication method defined by the PSU in the Online Banking frontend of the ASPSP. Alternatively this could be a description provided by the ASPSP like "SMS OTP on phone +49160 xxxxx 28".<br><br>This name shall be used by the TPP when presenting a |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | list of authentication methods to the PSU, if available. |
| explanation | String | Optional | detailed information about the SCA method for the PSU |

This data type is used in [oFA-IG-Co], [oFA-IG-Com], [oFA-PFSM] [oFA-IG-XPIS] .

### 2.39 Authentication Type

More authentication types might be added during implementation projects and documented in the ASPSP documentation.

| Name | Description |
|---|---|
| SMS_OTP | An SCA method, where an OTP linked to the transaction to be authorised is sent to the PSU through a SMS channel. |
| CHIP_OTP | An SCA method, where an OTP is generated by a chip card, e.g. an TOP derived from an EMV cryptogram. To contact the card, the PSU normally needs a (handheld) device. With this device, the PSU either reads the challenging data through a visual interface like flickering or the PSU types in the challenge through the device key pad. The device then derives an OTP from the challenge data and displays the OTP to the PSU. |
| PHOTO_OTP | An SCA method, where the challenge is a QR code or similar encoded visual data which can be read in by a consumer device or specific mobile app.<br><br>The device resp. the specific app than derives an OTP from the visual challenge data and displays the OTP to the PSU. |
| PUSH_OTP | An OTP is pushed to a dedicated authentication APP and displayed to the PSU. |
| SMTP_OTP | An OTP is sent via email to the PSU. |

## 2.40 Availability

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfDays | Integer | {Or | |
| actualDate | ISODate | Or} | |
| amount | Amount | Mandatory | |

## 2.41 Balance

| Attribute | Type | Condition | Description |
|---|---|---|---|
| balanceAmount | Amount | Mandatory | |
| balanceType | Balance Type | Mandatory | |
| creditLimitIncluded | Boolean | Optional | A flag indicating if the credit limit of the corresponding account is included in the calculation of the balance, where applicable. |
| lastChangeDateTime | ISODateTime | Optional | This data element might be used to indicate e.g. with the expected or booked balance that no action is known on the account, which is not yet booked. |
| referenceDate | ISODate | Optional | indicates the date of the balance |
| lastCommitted Transaction | Max35Text | Optional | entryReference of the last commited transaction to support the TPP in identifying whether all PSU transactions are already known. |

This data type is used in [oFA-IG-Com].

## 2.42 Balance Statement

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Balance Code | Mandatory | short ISO Code |
| subTypeCode | Balance Sub Code | Optional | ExternalBalanceSubtype1Code |
| creditLine | Array of Credit Line | Optional | |
| amount | Amount | Mandatory | |
| date | ISODate | {Or Optional | Indicates the date of the balance. |
| dateTime | ISO DateTime | Or Optional} | |
| availability | Array of Availability | Optional | |

**Example**

```
"balance": [ {
      "typeCode": "PRCD",
      "amount": {
        "currency": "EUR",
        "amount": "1120.72"
      },
      "date": "2020-08-31"
    }, {
      "typeCode": "CLBD",
      "amount": {
        "currency": "EUR",
        "amount": "7994.04"
      },
      "date": "2020-08-31"
    } ]
```

## 2.43 Base Fee Amount Details

| Parameter | Type | Condition | Description |
|---|---|---|---|
| invoiceItem Number | Max35Text | Optional | Identifier of the item related to the described price point within this object |
| description | Max140Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the given price point. |
| price | Amount | Mandatory | This attribute yields the base amount |

## 2.44 Batch Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageId | Max35Text | Optional | Point to point reference, as assigned by the sending party, to unambiguously identify the<br><br>batch of transactions. |
| paymentInformationId | Max35Text | Optional | Unique identification, as assigned by a sending party, to unambiguously identify the payment information group within the message. |
| numberOfTransactions | Integer | Optional | Number of individual transactions included in the batch. |
| totalAmount | Amount | Optional | Total amount of money reported in the batch entry. |

## 2.45 Binary Document

Base64 encoding of the binary file representing the enclosed document or template, such as a PDF file, image file,XML file, MT message. The maximum size of the binary document is 10MB.

## 2.46 Boundary Amount

| Attribute | Type | Condition | Description |
|---|---|---|---|
| boundaryAmount | Amount | Mandatory | |
| included | Boolean | Mandatory | |

## 2.47 Cash Deposit

| Attribute | Type | Condition | Description |
|---|---|---|---|
| noteDenomination | Amount | Mandatory | |
| numberNotes | Max15Text | Mandatory | Only numeric text. |
| amount | Amount | Mandatory | |

## 2.48 Card Account Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| resourceId | Max70Text | Mandatory | This is the data element to be used in the path when retrieving data from a dedicated account. |
| maskedPan | Max35Text | Mandatory | Primary Account Number (PAN) of the main card in masked form. |
| currency | Currency Code | Mandatory | Account currency |
| ownerName | Max140Text | Optional | Name of the legal account owner. If there is more than one owner, then e.g. two names might be noted here.<br><br>For a corporate account, the corporate name is used for this attribute.<br><br>Even if supported by the ASPSP, the provision of this field might depend on the fact whether an explicit consent to this specific additional account |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | information has been given by the PSU. |
| name | Max70Text | Optional | Name of the account, as assigned by the ASPSP, in agreement with the account owner in order to provide an additional means of identification of the account. |
| displayName | Max70Text | Optional | Name of the account as defined by the PSU within online channels. |
| product | Max35Text | Optional | Product Name of the Bank for this account, proprietary definition |
| debitAccounting | Boolean | Optional | If true, the amounts of debits on the reports are quoted positive with the related consequence for balances.<br><br>If false, the amount of debits on the reports are quoted negative. |
| status | Account Status Code | Optional | Account status.<br><br>If this field is not used, then the account is available in the sense of this specification. |
| usage | Max4Text | Optional | Specifies the usage of the account<br><br>- PRIV: private personal account<br><br>- ORGA: professional account |
| details | Max1000 Text | Optional | Specifications that might be provided by the ASPSP<br><br>- characteristics of the account<br><br>- characteristics of the relevant card |
| creditLimit | Amount | Optional | Defines the credit limit of the PSU aggregated for all cards related to this card account in total. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| balances | Array of Balances | Optional | The specific card account balances associated to this card accounts. |
| _links | Links | Optional | Links to the cardAccount, which can be directly used for retrieving account information from this dedicated account.<br><br>Links to "balances" and/or "cardTransactions"<br><br>These links are only supported, when the corresponding consent has been already granted. |

This data type is used in [oFA-IG-Com].

### 2.49 Card Account Report

| Attribute | Type | Condition | Description |
|---|---|---|---|
| booked | Array of Card Transactions | Conditional | Shall be contained if bookingStatus parameter is set to "booked" or "both". |
| pending | Array of Card Transactions | Optional | Not contained if the bookingStatus parameter is set to "booked". |
| _links | Links | Mandatory | The following links might be used within this context:<br><br>• cardAccount (mandatory when providing transaction reports on card reconciliation accounts under /card-accounts)<br>• card (mandatory when providing transaction reports on single card entry level under /cards)first (optional) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • next (optional)<br>• previous (optional)<br>• last (optional) |

This data type is used in [oFA-IG-Com].

### 2.50 Card Transactions

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardTransactionId | Max35Text | Optional | Unique end to end identity. |
| terminalId | Max35Text | Optional | Identification of the Terminal, where the card has been used. |
| transactionDate | ISODate | Optional | date of the actual card transaction |
| acceptorTransaction DateTime | ISODate Time | Optional | Timestamp of the actual card transaction within the acceptance system |
| bookingDate | ISODate | Optional | booking date of the related booking on the card account |
| valueDate | ISODate | Optional | Date at which assets become available to the account owner in case of a credit entry, or cease to be available to the account owner in case of a debit entry.<br><br>For card transactions this is the payment due date of related booked transactions of a card. |
| transactionAmount | Amount | Mandatory | The amount of the transaction as billed to the card account. |
| grandTotalAmount | Amount | Optional | Total amount of the instalment including charges, insurance and taxes in addition to the funded amount. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| currencyExchange | Array of Report Exchange Rate | Optional | For card accounts, this often is restricted by the ASPSP to use only one exchange rate. |
| originalAmount | Amount | Optional | Original amount of the transaction at the Point of Interaction in orginal currency |
| markupFee | Amount | Optional | Any fee related to the transaction in billing currency. |
| markupFeePercentage | String | Optional | Percentage of the involved transaction fee in relation to the billing amount, e.g. "0.3" for 0,3% |
| cardAcceptorId | Max35Text | Optional | Identification of the Card Acceptor (e.g. merchant) as given in the related card transaction. |
| cardAcceptorName | Max70Text | Optional | Name of the Card Acceptor (e.g. merchant) as provided in the related card transaction |
| cardAcceptor Address | Address | Optional | Address of the Card Acceptor as given in the related card transaction. |
| cardAcceptorPhone | Phone Number | Optional | Merchant phone number |
| merchantCategory Code | Merchant Category Code | Optional | Merchant Category Code of the Card Acceptor as given in the related card transaction. |
| maskedPAN | Max35Text | Optional | The masked PAN of the card used in the transaction. |
| transactionDetails | Max1000Text | Optional | Additional details given for the related card transactions. |
| invoiced | Boolean | Optional | Flag indicating whether the underlying card transaction is already invoiced. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| proprietaryBank TransactionCode | Max35Text | Optional | proprietary bank transaction code as used within a community or within an ASPSP e.g. for MT94x based transaction reports |

## 2.51 Card Transaction

| Attribute | Type | Condition | Description |
|---|---|---|---|
| card | Card Type | Optional | |
| transaction | Card Transaction Details | Optional | |

## 2.52 Card Transaction Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentContext | Payment Context Type | Optional | Context of the card payment transaction. |
| sequenceNumber | Max35Text | Optional | |
| transactionDateTime | ISODateTime | Optional | Local date and time of the transaction assigned by the POI (Point Of Interaction). |
| poiId | Max35Text | Optional | Identification of the POI (Point Of Interaction) performing the transaction. |
| authorisationCode | Max8Text | Optional | Value assigned by the authorising party. |
| saleReference Id | Max35Text | Optional | Global reference of the sale transaction for the sale system. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionType | Card Transaction Type | Optional | Type of transaction being undertaken for the main service. |

## 2.53 Card Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardBrand | Max35Text | Optional | |
| maskedPAN | Max30Text | Optional | |
| cardHolderName | Max45Text | Optional | |

## 2.54 Challenge

| Attribute | Type | Condition | Description |
|---|---|---|---|
| image | String | Optional | PNG data (max. 512 kilobyte) to be displayed to the PSU, Base64 encoding, cp. [RFC4648].<br><br>This attribute is used only, when PHOTO_OTP or CHIP_OTP is the selected SCA method. |
| data | Array of Strings | Optional | A collection of challenge data |
| imageLink | String | Optional | A link where the ASPSP will provides the challenge image for the TPP. |
| otpMaxLength | Integer | Optional | The maximal length for the OTP to be typed in by the PSU. |
| otpFormat | String | Optional | The format type of the OTP to be typed in. The admitted values are "characters" or "integer". |
| additional Information | String | Optional | Additional explanation for the PSU to explain e.g. fallback mechanism for the chosen SCA method. The TPP is obliged to show this to the PSU. |

This data type is used in [oFA-IG-Co] ,[oFA-IG-Com], [oFA-PFSM] [oFA-IG-XPIS].

## 2.55 Charges

| Attribute | Type | Condition | Description |
|---|---|---|---|
| totalChargesAndTaxAmount | Amount | Mandatory | |
| record | Array of Charges Record | Optional | |

## 2.56 Charges Record

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | Mandatory | |
| chargesIncludedIndicator | Boolean | Optional | Indicates whether the charge should be included in the amount or is added as pre-advice. |
| typeCode | Charge Type | Optional | ExternalChargeType1code |
| rate | Percentage Rate | Optional | |
| bearer | Bearer Code | Optional | ChargeBearerType1Code |
| agent | Agent Description | Optional | |
| tax | Tax | Optional | |

## 2.57 Clearing System Member Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| memberId | Max35Text | Optional | Identification of a member of a clearing system. |
| clearingSystemIdentificationCode | Clearing System Identification Code | {Or - Optional | Identification of a clearing system, in a coded form as published in an external list. |
| clearingSystemIdentificationProprietary | Max35Text | Or – Optional} | Identification code for a clearing system, that has not yet been identified in the list of clearing systems. |

This data type is used in [oFA-IG-Disc].

## 2.58 Client Message Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| category | String | Mandatory | Only "ERROR" or "WARNING" permitted |
| code | Message Code | Mandatory | |
| path | String | Conditional | Path of the element of the request message which provoked the error message, if applicable |
| text | Max500Text | Optional | Additional explaining text. |

This data type is used in [oFA-IG-Com], [oFA-PFSM], [oFA-IG-XPIS], [oFA-IG-RTP]

## 2.59 Contact

| Attribute | Type | Condition | Description |
|---|---|---|---|
| contactType | Contact Type | Mandatory | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max70Text | Optional | |
| postalAddress | Postal Address | Optional | |
| contactDetails | Contact Details | Optional | |

This data type is used in [oFA-IG-Disc].

## 2.60 Contact Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| namePrefix | Name Prefix Code | Optional | Specifies the terms used to formally address a person. |
| name | Max70Text | Optional | Name by which a party is known and which is usually used to identify that party. |
| phoneNumber | Max35Text | Optional | pattern \+[0-9]{1,3}-[0-9()+\-]{1,30} |
| mobileNumber | Max35Text | Optional | pattern \+[0-9]{1,3}-[0-9()+\-]{1,30} |
| faxNumber | Max35Text | Optional | pattern \+[0-9]{1,3}-[0-9()+\-]{1,30} |
| emailAddress | Max70Text | Optional | Address for electronic mail (e-mail). |
| emailPurpose | Max35Text | Optional | Purpose for which an email address may be used. |
| jobTitle | Max35Text | Optional | Title of the function. |
| responsibility | Max35Text | Optional | Role of a person in an organisation. |
| department | Max35Text | Optional | Identification of a division of a large organisation or building. |
| preferredMethod | Preferred Method | Optional | Preferred method used to reach the contact. |

## 2.61 Corporate Action

| Attribute | Type | Condition | Description |
|---|---|---|---|
| eventType | Max35Text | Mandatory | |
| eventid | Max35Text | Mandatory | |

## 2.62 Credit Entries

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of credit entries. |

## 2.63 Credit Line

| Attribute | Type | Condition | Description |
|---|---|---|---|
| included | Boolean | Mandatory | |
| typeCode | Credit Line Type | {Or Optional | short ISO Code |
| typeProprietary | Max35Text | Or Optional} | |
| amount | Amount | Optional | amount of the credit line. |
| date | ISODate | {Or Optional | Date of the credit line provided, when multiple credit lines may be provided. |
| dateTime | ISO DateTime | Or Optional} | Date/Time of the credit line provided, when multiple credit lines may be provided. |

## 2.64 Creditor Details and Account

| Attribute | Type | Condition | Description |
|---|---|---|---|

| | | | |
|---|---|---|---|
| creditor | Party Description | Mandatory | |
| creditorAccount | Account Reference | Mandatory | |

This data type is used in [oFA-IG-Co].

### 2.65 Creditor Reference Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| reference | Max35Text | Mandatory | The actual reference. |
| referenceTypeCode | Creditor Reference Type Code | {Or - Optional | Type of the reference, provided as code. |
| referenceTypeProprietary | Max35Text | Or – Optional} | Type of the reference, provided in proprietary encoding. |
| referenceIssuer | Max35Text | Optional | Issuer of the reference. |

### 2.66 Debit Entries

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of debit entries. |

### 2.67 Details Tax

| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditor | Tax Creditor | Optional | Party on the credit side of the transaction to which the tax applies. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| debtor | Tax Debtor | Optional | Party on the debit side of the transaction to which the tax applies. |
| administrationZone | Max35Text | Optional | The territorial part of the country to which the tax is related. |
| referenceNumber | Max140Text | Optional | Tax reference information that is specific to a tax agency. |
| method | Max35Text | Optional | Method underlying how the tax payment is performed. |
| totalTaxableBaseAmount | Amount | Optional | Total amount of money on which the tax is based. |
| totalTaxAmount | Amount | Optional | Total amount of money as a result of the calculation of the tax. |
| date | ISODate | Optional | Date by which the tax is due. |
| sequenceNumber | Integer | Optional | Sequential number of the tax report. |
| record | Array of Tax Record | Optional | Record of the tax details. |

## 2.68 Direct Debit Transaction (Mandate Information)

| Attribute | Type | Condition | Description |
|---|---|---|---|
| mandateRelatedInformation | Mandate Related Information | Mandatory | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditorSchemeId | Party Description3 | Optional | SDD:<br>Identification = Creditor-Identifier (CI)<br>"schemeNamePropietary" : "SEPA" |

This data type is used in [oFA-PFSM].

### 2.69 Duration

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fromDate | ISODate | Mandatory | |
| toDate | ISODate | Optional | |

### 2.70 Enclosed File

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Document Type Code | {Or Optional | Type of document or template. |
| typeProprietary | Max35Text | Optional Or} | Proprietary document type definition. |
| identification | Max35Text | Mandatory | Identification of the document or template. |
| issueDate | ISODate | {Or | Issue date of the document. |
| issueDateTime | ISODateTime | Or} | Issue date and time of the document. |
| name | Max140Text | Optional | Name of document or transaction, for example, tax invoice. |
| languageCode | Language Code | Optional | Unique identifier for a language used in the document. |
| formatCode | Document Format Code | {Or | Format of the document or template, such as PDF, XML, XSLT. |
| formatProprietary | Max35Text | Or} | Proprietary format encoding. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| formatProprietary SchemeName | Max35Text | Optional | May be used only if also formatProprietary is used. |
| formatProprietary Issuer | Max35Text | Optional | May be used only if also formatProprietary is used. |
| fileName | Max140Text | Optional | Technical name of the file. |
| digitalSignature | Party And Signature | Optional | Digital signature of the enclosed binary file.<br>**Note:** Not supported for now. Might be added later in case of market needs. |
| enclosure | Binary Document | Mandatory | Base64 encoding of the binary file representing the enclosed document or template, such as a PDF file, image file,XML file, MT message. |

This data type is used in [oFA-PFSM].

### 2.71 Entry

The following shows differences with first level transaction data attributes, green colour shows attributes which are also used in the same way in transactions.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| entryReference | Max35Text | Optional | Unique reference for the entry. |
| amount | Amount | Mandatory | transactionAmount for transactions |
| reversalIndicator | Boolean | Optional | Indicates whether or not the entry is the result of a reversal. |
| statusCode | Entry Status Code | Mandatory | Status of an entry on the books of the account servicer. |
| bookingDate | ISODate | {Or Optional | Date when an entry is posted to an account on the account servicer's books. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| bookingDateTime | ISODateTime | Or Optional} | Date and time when an entry is posted to an account on the account servicer's books. |
| valueDate | ISODate | {Or Optional | Date at which assets become available to the account owner in case of a credit entry, or cease to be available to the account owner in case of a debit entry. |
| valueDateTime | ISODateTime | Or Optional} | Date and time at which assets become available to the account owner in case of a credit entry, or cease to be available to the account owner in case of a debit entry. |
| accountServicer Reference | Max35Text | Optional | Unique reference as assigned by the account servicing institution to unambiguously identify the entry. |
| availability | Array of Availability | Optional | |
| bankTransactionCode | Bank Transaction Code | Optional | Set of elements used to fully identify the type of underlying transaction resulting in an entry. |
| bankTransactionCode Proprietary | Max35Text | Optional | Set of proprietarily defined elements used to fully identify the type of underlying transaction resulting in an entry. |
| bankTransactionCodeIssuer | Max35Text | Optional | Issuer of the proprietary bank transaction code. |
| commisionWaver Indicator | Boolean | Optional | Indicates whether the transaction is exempt from commission. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| additionalInformation Indicator | Additional Information Indicator | Optional | Indicates whether the underlying transaction details are provided through a separate message, as in the case of aggregate bookings. |
| amountDetails | Amount Details | Optional | Provides information on the original amount. |
| charges | Charges | Optional | Provides information on the charges, pre-advised or included in the entry amount. |
| technicalInputChannelCode | Input Channel Code | Optional | Channel used to technically input the instruction related to the entry. |
| interest | Transaction Interest | Optional | Provides details of the interest amount included in the entry amount. |
| cardTransaction | Card Transaction | Optional | Provides details of the card transaction included in the entry amount, when globalised by the account servicer. |
| additionalEntryInformation | Max500Text | Optional | gibt es nicht bei Transactions |
| entryDetails | Entry Details1 | Optional | **NOTE:** Deviation from ISO20022, since Array is never used. |

This data Type is used in [oFA-IG-XAIS].

```
"entry" : [ {
      "entryReference" : "aaaaaa",
      "amount" : {
        "currency" : "EUR",
        "amount" : "100.00"
      },
      "statusCode" : "BOOK",
      "bookingDate" : "2020-08-31T00:00:00Z",
      "valueDate" : "2020-08-31T00:00:00Z",
```

```
"accountServicerReference" : "Bankreferenz",
"bankTransactionCode" : "PMNT-RCDT-ESCT",
"bankTransactionCodeProprietary" : "166",
"bankTransactionCodeProprietaryIssuer" : "DK",
"additionalEntryInformation" : "SEPA GUTSCHRIFT",
"entryDetails" : [ {
  "transactionDetails" : [ {
    "references" : {
      "endToEndId" : "Ende-zu-Ende-Id des Ueberweisenden"
    },
    "amount" : {
      "currency" : "EUR",
      "amount" : "100.00"
    },
    "bankTransactionCode" : "PMNT-RCDT-ESCT",
    "bankTransactionCodeProprietary" : "NTRF+166",
    "bankTransactionCodeProprietaryIssuer" : "DK",
    "relatedParties" : {
      "debtor" : {
        "party" : {
          "name" : "Herr Überweisender"
        }
      },
      "debtorAccount" : {
        "iban" : "DE21500500001234567897"
      },
      "creditor" : {
        "party" : {
          "name" : "Herr Kontoinhaber"
        }
      }
    },
    "relatedAgents" : {
      "debtorAgent" : {
        "financialInstitutionId" : {
          "bicfi" : "SKUEDEFFXXX"
        }
      },
      "creditorAgent" : {
        "financialInstitutionId" : {
          "bicfi" : "BANKDEFFXXX"
        }
      }
    },
    "purposeCode" : "GDDS",
```

```
          "remittanceInformationUnstructured" : [ "Rechnungsnr. 4711 vom
20.08.2020" ]
        } ]
      } ]
    }
```

## 2.72 Entry Details

This data type describe entry details of a batch booking entry. The details are restricted to data attributes relevant in this case.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| references | References | Optional | might contain the endToEndId as well as the new UETR field |
| creditor | Party Description | Optional | Name and potentially an identification of the creditor if a "Debited" transaction |
| transactionAmount | Amount | Mandatory | The amount of the transaction as billed to the account. |
| currencyExchange | Array of Report Exchange Rate | Optional | |
| creditor Account | Account Reference | Conditional | |
| creditorAgent | Agent Description1 | Optional | Proprietary identifications might be provided under financialInstitutionId/other |
| ultimate Creditor | Party Description4 | Optional | |
| debtor | Party Description | Optional | Name and potentially identification of the debtor if a "Credited" transaction |
| debtorAccount | Account Reference | Conditional | |
| debtorAgent | Agent Description1 | Optional | Proprietary identifications might be provided under financialInstitutionId/other |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ultimateDebtor | Party Description4 | Optional | |
| remittance Information Unstructured | Array of Max140Text | {Or-Optional | |
| remittance Information Structured | Array of Re-mittance | Or Optional} | |
| purposeCode | Purpose Code | Optional | |

## 2.73 Entry Details1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| batch | Batch Information | Optional | Provides details on batched transactions. |
| transactionDetails | Array of Transaction Detail | Optional | Provides information on the underlying transaction(s). |

## 2.74 Equivalent Amount

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | Mandatory | Amount of money to be transferred between the debtor and creditor, before the deduction of charges, expressed in the currency of the debtor's account, and to be transferred in a different currency.<br><br>**Usage**: The first agent will convert the equivalent amount into the amount to be transferred. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | |
| currencyOfTransfer | Currency Code | Mandatory | Specifies the currency of the to be transferred amount, which differes from the currency of the debtor's account. |

## 2.75 Error Information

This is a data element to support the declaration of additional errors in the context of [RFC7807].

| Attribute | Type | Condition | Description |
|---|---|---|---|
| title | Max70Text | Optional | Short human readable description of error type. Could be in local language. To be provided by ASPSPs. |
| detail | Max500Text | Optional | Detailed human readable text specific to this instance of the error. Xpath might be used to point to the issue generating the error in addition.<br><br>**RFU**: In future, a dedicated field might be introduced for the Xpath. |
| code | Message Code | Mandatory | Message code to explain the nature of the underlying error. |

This data type is used in [oFA-PFSM].

## 2.76 Evaluated Amount

This data structure represents an evaluated amount (without indicating the method of evaluation) when an unambiguous balance cannot be provided, but an evaluation, e.g. the total value of a securities deposit:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | Mandatory | Amount which is the result of the corresponding evaluation. |
| evaluationDateTime | ISODateTime | {Or | Date / date and time of the evaluation. |
| evaluationDate | ISODate | Or} | |

## 2.77 Evaluated Price

This data structure represents an evaluated price (e.g. of a security) when an unambiguous balance cannot be provided, but an evaluation, e.g. the total value of a securities deposit

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | {Or | If the price is evaluated as an amount, amount of the price in its respective currency. |
| percentage | String | Or} | Percentage of the price with (optional) fractional digits. Up to 20 significant figures. Negative amounts are signed by minus.<br><br>The decimal separator is a dot.<br><br>Trailing zeroes must be truncated. |
| priceDateTime | ISODateTime | {Or | Date / date and time of the evaluation of this price. |
| priceDate | ISODate | Or} | |
| priceType | Type of Price Code | Optional | Type of the price. |
| sourceOfPrice | Source of Price | Optional | Indicates the source of the respective price. |
| description | Max500Text | Optional | Additional description of the source of price. E.g., if the source of price indicates a local market, the ASPSP can include the local market's name in this field. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| exchangeRates | Array of Report Exchange Rate | Optional | Relevant exchange rates for the determined price. |

## 2.78 Extended Party Description

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| postalAddress | Postal Address | Optional | Postal Address of the party. |
| identification | Party Identification | Optional | Identification of the party. |
| countryOf Residence | Country Code | Optional | Country in which a person resides (the place of a person's home). In the case of a company, it is the country from which the affairs of that company are directed. |
| contactDetails | Contact Details | Optional | Set of elements used to indicate how to contact the party. |

## 2.79 Financial Institution Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| bicfi | BICFI | optional | Code allocated to a financial institution. |
| clearingSystemMemberId | Clearing System Member Identification | optional | Information used to identify a member within a clearing system. |
| name | Max140Text | optional | Name of the financial institution |
| postalAddress | Postal Address | Optional | Postal Address of the financial institution. |
| other | Generic Financial | Optional | Unique identification of an organisation, as assigned by |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | Institution Identification | | an institution, using an identification scheme. |

### 2.80 Financial Institution Identification1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| bicfi | BICFI | Mandatory | Code allocated to a financial institution. |

### 2.81 Financial Instrument Identification

This data structure represents financial instrument identification.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| isin | ISIN | {Or | ISIN of the financial Instrument.<br><br>The primitive ISIN type is defined as in ISO20022. |
| otherId | Generic Financial Instrument Identification | Or} | If an ISIN is not available, the ASPSP may instead include an identification by other means. |
| name | Max70Text | Optional | Name of the financial instrument. |
| normalisedPrice | Evaluated Price | Optional | Price per unit of the financial instrument in case of a price amount. Percentage price otherwise.<br><br>If used in the context of a securities transaction, the price here shall indicate the applied price (without fees) for the trade.<br><br>Note: Not applicable to account statement |
| description | Max140Text | Optional | Textual description of the financial instrument. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Usage rule: description is considered to be the last choice to describe the financial instrument, in case neither isin nor at least one instance of otherId is present. |

**Remark:** Publicly available information on the financial instrument like interests (e.g. in the case of bonds), various dates (maturity date, issue date,..) or details on options are intentionally not supported by the data model. Individual markets might extend the definition, for example to meet certain regulatory requirements.

### 2.82 Flat Fee Details

| Parameter | Type | Condition | Description |
|---|---|---|---|
| invoiceItem Number | Max35Text | Optional | Identifier of the item related to the described price point within this object |
| description | Max140Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the given price point. |
| feeFrequency | Event Frequency Code | Mandatory | The frequency of the fee. It determines how often the fee must be payed. |
| price | Amount | Mandatory | This attribute yields the fee amount. |

### 2.83 FromTo Amount Range

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fromAmount | Boundary Amount | Mandatory | |
| toAmount | Boundary Amount | Mandatory | |

## 2.84 FromToDate

This data structure represents a timeperiod.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fromDateTime | ISODateTime | Mandatory | Date and time at which the period starts. |
| toDateTime | ISODateTime | Mandatory | Date and time at which the period ends. |

This data type is used in [oFA-IG-Disc]

## 2.85 Funds Reservation

| Attribute | Type | Condition | Description |
|---|---|---|---|
| reservationId | UUID | Mandatory | resource identification of the addressed funds reservation. |
| paymentIdentification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification.<br><br>If this attribute is not provided, then the corresponding paymentIdentification as defined in the initial payment resource is used. |
| reservedAmount | Amount | Mandatory | Instructed Amount of the addressed initiation. |
| remainingReservedAmount | Amount | Conditional | After a successful funds reservation, for multiple and multiple recurring pre-authorised payments.<br><br>This attribute is showing the maximum reserved amount which can still be use for an initiation. |
| transactionStatus | String | Mandatory | Status of the addressed reservation. |
| remittanceInformationUnstructured | Array of Max140Text | {Or Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information.<br><br>If this attribute is not provided, then the corresponding remittance as defined in the initial payment resource is used. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittanceInformationStructured | Array of Remittance | Or Optional} | The supported sub structure will depend on the underlying payment product.<br><br>If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information.<br><br>If this attribute is not provided, then the corresponding remittance as defined in the initial payment resource is used. |
| _links | Links | Conditional | links of href type "changedVersion?inChange=true" |

This data type is used in [oFA-IG-XPIS].

### 2.86 Generic Account Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Unique and unambiguous identification of an account. |
| schemeNameCode | Account Identification Code | {Or - Optional | An entry provided by an external ISO code list |
| schemeNameProprietary | Max35Text | Or – Optional} | A scheme name defined in a proprietary way. |
| issuer | Max35Text | Optional | Issuer of the identification |

### 2.87 Generic Financial Instrument Identification

This data structure represents the identification of a financial instrument by means other than ISIN.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Identification of a security. |
| suffix | Max16Text | Optional | Identifies the suffix of the security identification. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | External Financial Instrument Identification Type Code | {Or | Unique and unambiguous identification source, as assigned via a pre-determined code list. |
| typeProprietary | Max35Text | Or} | Unique and unambiguous identification source using a proprietary identification type. |

## 2.88 Generic Financial Institution Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Unique and unambiguous identification of a financial insitution. |
| schemeNameCode | Financial Institution Identification Code | {Or - Optional | An entry provided by an external ISO code list |
| schemeNameProprietary | Max35Text | Or – Optional} | A scheme name defined in a proprietary way. |
| issuer | Max35Text | Optional | Issuer of the identification |

## 2.89 Generic Organisation Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Unique and unambiguous identification of an organisation. |
| schemeNameCode | Organisation Identification Code | {Or - Optional | An entry provided by an external ISO code list |
| schemeNameProprietary | Max35Text | Or – Optional} | A scheme name defined in a proprietary way. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| issuer | Max35Text | Optional | Issuer of the identification |

### 2.90 Geo Location

Format using [RFC2426], i.e. GEO:<latitude>;< longitude >.

This data type is used in [oFA-PFSM].

### 2.91 href Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| href | String | Mandatory | |

### 2.92 Index

| Attribute | Type | Condition | Description |
|---|---|---|---|
| index | Max35Text | Optional | Though arbitrary text is technically supported, it is recommended to use the following keywords:<br><br>"CPI" – customer Price Index<br><br>"FC" – foreign currency<br><br>"other" – for others, not clearly specified index relations. |
| rootIndexValue | Max35Text | Optional | A number (represented as a string) giving the basic index value which is the basis for the loan contract. |
| exchangeRate | Amount dependent Rate | Optional | Intended for usage in case of index = "FC". |
| additional Information | Max500Text | Optional | Explanations e.g. to specify index = "other". |

## 2.93 Initiation

Initiation provides informations about entries in an /initiations sub resource of a payment resource.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| initiationId | UUID | Mandatory | resource identification of the addressed payment initiation. |
| paymentIdentification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification.<br><br>If this attribute is not provided, then the corresponding paymentIdentification as defined in the initial payment resource is used. |
| instructedAmount | Amount | Mandatory | Instructed Amount of the addressed initiation. |
| transactionStatus | Transaction Status | Mandatory | Status of the addressed initiation. |
| remittanceInformationUnstructured | Array of Max140Text | {Or Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information.<br><br>If this attribute is not provided, then the corresponding remittance as defined in the initial payment resource is used. |
| remittanceInformationStructured | Array of Remittance | Or Optional} | The supported sub structure will depend on the underlying payment product.<br><br>If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information.<br><br>If this attribute is not provided, then the corresponding remittance as defined in the initial payment resource is used. |
| _links | Links | Mandatory | links of href type "paymentInitiation" |

This data type is contained in [oFA-IG-XPIS].

### 2.94 Initiated Volume Interval

| Parameter | Type | Condition | Description |
|---|---|---|---|
| fromInitiated Volume | Amount | Mandatory | This parameter yields the amount that API client has to initiated at least at the API such that the given price model applies. |
| toInitiated Volume | Amount | Mandatory | This parameter yields the upper bound for the amount that API client may initiate at the API such that the given price model still applies. |

### 2.95 Initiated Calls Interval

| Parameter | Type | Condition | Description |
|---|---|---|---|
| fromInitiated Calls | Integer | Mandatory | This yields the lower bound for the number of calls the API client has to initiate at the API such that the prices listed below apply. |
| toInitiated Calls | Integer | Mandatory | This yields the upper bound for the number of calls the API client has to initiate at the API such that the prices listed below apply. |

### 2.96 Initiated Access Interval

| Parameter | Type | Condition | Description |
|---|---|---|---|
| fromInitiated Access | Integer | Mandatory | This yields the lower bound for the number of the API accesses of the API client such that the prices listed below apply. |
| toInitiated Access | Integer | Mandatory | This yields the upper bound for the number of the API accesses of the API client such that the prices listed below apply. |

## 2.97 Interest

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Interest Type Code3 | Optional | Type of the interest. Currently, interests are distinguished between those with fixed rates ("FIXD") and those with rates derived from an index ("INDE"). |
| relatedIndices | Array of Index | Optional | List of indices related to the interest rate. |
| rate | Array of Amount dependent Rate | Mandatory | An array of interest rates, which might apply to different amount ranges. |
| fromDateTime | ISODateTime | Optional | The date from which this interest rate is applicable. If no exact time is applicable, 00:00:00 is chosen as time definition. |
| toDateTime | ISODateTime | Optional | The date until this interest rate is applicable. If no exact time is applicable, 23:59:59 is chosen as time definition. |
| reason | Max35Text | Optional | Specifies the reason of the interest.<br><br>Though arbitrary text is technically supported, it is recommended to use the following keywords with pre-defined meaning:<br><br>- **arrears**:The addressed interest rate applies only in case of arrears.<br>- **alternateRateMaximumOf**: The addressed alternate interest rate applies in case where this rate implies a higher interest in a dedicated interest period than the regular interest rate provided without reason element.<br>- **alternateRateMinimumOf**: The addressed alternate interest rate applies in cases where this rate implies a lower interest in a dedicated interest period than the regular interest rate provided without reason element. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | ASPSPs may define further keywords and shall publish them in their documentation. |
| changeMechanism | Max1024Text | Optional | An explanation of a mandated change mechanism. |

## 2.98 Interest Record

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | Mandatory | |
| typeCode | Interest Type Code | Optional | InterestType1Code |
| rate | Rate | Optional | |
| fromDateTime | ISODateTime | Optional | |
| toDateTime | ISODateTime | Optional | |
| reason | Max35Text | Optional | |
| tax | Tax | Optional | |

## 2.99 Lean Account Report

| Attribute | Type | Condition | Description |
|---|---|---|---|
| booked | Array of transactions | Conditional | booked entries on the related account |
| pending | Array of transactions | Optional | pending entries on the related account |
| information | Array of transactions | Optional | information entries related to the addressed account. |

This data type is used in [oFA -IG-PAIS].

## 2.100 Limit

| Attribute | Type | Condition | Description |
|---|---|---|---|
| limitType | Limit Type | Mandatory | |
| limitAmount | Amount | Mandatory | |

## 2.101 Links

The structure of Links is conform to [HAL].

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaRedirect | href Type | Optional | A link to an ASPSP site where SCA is performed within the Redirect SCA approach. |
| scaOAuth | href Type | Optional | The link refers to a JSON document specifying the Oauth details of the ASPSP's authorisation server. JSON document 70ollowst he definition given in [RFC 8414]. |
| confirmation | href Type | Optional | "confirmation": Might be added by the ASPSP if either the "scaRedirect" or "scaOAuth" hyperlink is returned in the same response message. This hyperlink defines the URL to the resource which needs to be updated with<br>• a confirmation code as retrieved after the plain redirect authentication process with the ASPSP authentication server or<br>• an access token as retrieved by submitting an authorization code after the integrated Oauth based authentication process with the ASPSP authentication server. |
| creditorNameConfirmation | href Type | Optional | A link to an endpoint, where the submitted payment needs to be confirmed explicitly for execution after a verification of payee process has detected a deviation in the creditor account/creditor name pair. If this hyperlink is |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | provided, the addressed payment will not be executed without a related confirmation. |
| startAuthorisation | href Type | Optional | A link to an endpoint, where the authorisation of a transaction or the authorisation of a transaction cancellation shall be started with a POST command. No specific data is needed for this process start. |
| startAuthorisationWithPsuIdentification | href Type | Optional | The link to an endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where PSU identification shall be uploaded with the corresponding call. |
| updatePsuIdentification | href Type | Optional | The link to the payment initiation or account information resource, which needs to be updated by the PSU identification if not delivered yet. |
| startAuthorisationWithProprietaryData | hrefType | Optional | A link to the endpoint, where the authorisation of a transaction or of a transaction cancellation shall be started, and where proprietary data needs to be updated with this call. The TPP can find the scope of missing proprietary data in the ASPSP documentation.<br><br>The usage of this hyperlink is not further specified in the specification but is used analogously to e.g. the startAuthorisation withPsuIdentification hyperlink. |
| updateProprietaryData | href Type | Optional | The link to the payment initiation or account information resource, which needs to be updated by the proprietary data. |
| startAuthorisationWithPsuAuthentication | href Type | Optional | The link to an endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where PSU authentication data shall be uploaded with the corresponding call. |
| updatePsuAuthentication | href Type | Optional | The link to the payment initiation or account information resource, which needs to be updated by a PSU password and eventually the PSU identification if not delivered yet. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| startAuthorisationWithEncryptedPsuAuthentication | href Type | Optional | The link to an endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where encrypted PSU authentication data shall be uploaded with the corresponding call. |
| updateEncryptedPsuAuthentication | href Type | Optional | The link to the payment initiation or account information resource, which needs to be updated by an encrypted PSU password and eventually the PSU identification if not delivered yet. |
| startAuthorisationWithAuthenticationMethodSelection | href Type | Optional | This is a link to and endpoint where the authorisation of a transaction or of a transaction cancellation shall be started, where the selected SCA method shall be uploaded with the corresponding call. |
| selectAuthenticationMethod | href Type | Optional | This is a link to a resource, where the TPP can select the applicable second factor authentication methods for the PSU, if there were several available authentication methods. |
| startAuthorisationWithTransactionAuthorisation | href Type | Optional | A link to an endpoint, where an authorisation of a transaction or a cancellation can be started, and where the response data for the challenge is uploaded in the same call for the transaction authorisation or transaction cancellation at the same time in the Embedded SCA Approach. |
| authoriseTransaction | href Type | Optional | The link to the payment initiation or consent resource, where the "Transaction Authorisation"Request" is sent to. This is the link to the resource which will authorise the payment or the consent by checking the SCA authentication data within the Embedded SCA approach. |
| updateResourceByDebtorAccountResource | href Type | Optional | A link to a payment related resource which needs to be updated by an account, referenced by a resource identification. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| self | href Type | Optional | The link to the payment initiation resource created by the request itself.<br><br>This link can be used later to retrieve the transaction status of the payment initiation. |
| status | href Type | Optional | A link to retrieve the status of the transaction resource. |
| changedVersion?{inChange=true} | href Type | Optional | A link to retrieve the changed version of a resource that was created due to a Change Transaction Resource Request. The link can be used to retrieve the related ETag of the changed version. |
| transactionfees | hrefType | Optional | The link is to the status resource.<br><br>This link is only added within the authorisation process in case fee information is available via the status resource. |
| scaStatus | href Type | Optional | A link to retrieve the status of the authorisation or cancellation-authorisation sub-resource. |
| account | href Type | Optional | A link to the resource providing the details of one account |
| savingsAccount | href Type | Optional | A link to the resource providing the details of a savings account. |
| loanAccount | href Type | Optional | A link to the resource providing the details of a loan account. |
| balances | href Type | Optional | A link to the resource providing the balance of a dedicated account. |
| transactions | href Type | Optional | A link to the resource providing the transaction history of a dedicated account. |
| cardAccount | href Type | Optional | A link to the resource providing the details of one card account. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardTransactions | href Type | Optional | A link to the resource providing the transaction history of a dedicated card account. |
| transactionDetails | href Type | Optional | A link to the resource providing details of a dedicated transaction. |
| ibanCheck | href Type | Optional | A link to the endpoint offering the addressed iban check result. |
| paymentInitiation | href Type | Optional | A link to an initiation related to a payment resource. |
| securitiesAccount | href Type | Optional | A link to the resource providing the details of one securitiesAccount. |
| positions | href Type | Optional | A link to the resource providing the list of positions of one securitiesAccount. |
| orders | href Type | Optional | A link to the resource providing the list of orders of one securitiesAccount. |
| orderDetails | href Type | Optional | A link to the resource providing details of one specific order. |
| relatedOrders | Array of href Type | Optional | An array of links to request order details of related orders related to the order that is represented by the data structure containing this element (e.g. other orders that originated from the same order split as this order). |
| relatedTransactions | Array of href Type | Optional | An array of links to request securities transaction details of transactions that resulted from this order. |
| subscription | href Type | Optional | A link to the resource providing the details of a subscription for Push AIS Services. |
| entryStatusRevoked | Array of href Type | Optional | Links to entry endpoints where the entry status is revoked. |
| first | href Type | Optional | Navigation link for paginated account reports. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| next | href Type | Optional | Navigation link for paginated account reports. |
| previous | href Type | Optional | Navigation link for paginated account reports. |
| last | href Type | Optional | Navigation link for paginated account reports. |
| download | href Type | Optional | Download link for huge AIS data packages. |
| paymentInitiation | href Type | Optional | link to an initiation related to a payment resource. |
| confirmInitiation | href Type | Optional | link to a confirmation endpoint, where a payment initiation needs to be confirmed explicitly by the API Client for execution. |

This data type is part of the API Framework definition, introduced in [oFA-PFSM], but used in all Implementation Guidelines (not further specified here).

### 2.102 Mandate Related Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| mandateId | Max35Text | Mandatory | |
| dateOfSignature | ISO Date | Mandatory | |
| amendmentInformationDetails | Amendment Information Details | Optional | |
| electronicSignature | Max1025Text | Optional | Only used for e-mandates |

## 2.103 Mandate Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| localInstrumentCode | Local Instrument Code | {Or | External List<br>e.g. Core, B2B, DDMC (for electronic mandate) |
| localInstrumentProprietary | Max35Text | Or} | |
| serviceLevelCode | Service Level Code | {Or Optional | External code |
| serviceLevelProprietary | Max35Text | Or Optional} | |
| categoryPurposeCode | Category Purpose | {Or Optional | External List |
| categoryPurposeProprietary | Max35Text | Or Optional} | |
| classificationCode | Classification Code | {Or Optional | FIXE, USGB, VARI (internal code) |
| classificationProprietary | Max35Text | Or Optional} | |

## 2.104 Market Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| mic | Max4Text | {Or | ISO 10383 code of the market place. |
| market Identifier Proprietary | Max35Text | Or} | Proprietary identifier of the market place. |

## 2.105 OAuth Additional Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| mandatoryScopes | Array of Max256Text | Mandatory | List of required OAuth2 scopes for initiating OAuth2 authorization for the respective authorization resource |
| metadataAuthentication | Boolean | Optional | When set to “true”, the OAuth metadata linked to the respective authorization resource requires API Client Authentication according to [oFA-PFSM] Chapter 5.1<br><br>When set to “false” or not set - no authentication is required. |

## 2.106 Occurrences

| Attribute | Type | Condition | Description |
|---|---|---|---|
| sequenceType | Sequence Type | Mandatory | RCUR, OOFF |
| frequencyType | Frequency Code | Optional | |
| duration | Duration | Optional | Length of time for which the mandate remains valid. |
| firstCollectionDate | ISODate | Optional | Date of the first collection of a direct debit as per the mandate. |
| finalCollectionDate | ISODate | Optional | Date of the final collection of a direct debit as per the mandate. |

## 2.107 Organisation Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| anyBIC | BIC | {Or | A code allocated to a business entity or to a financial institution by a Registration Authority under an international identification scheme. |
| lei | LEI | Or | Legal Entity Identifier. |
| others | Array of Generic Organisation Identification | Or} | Unique identification of an organisation, as assigned by an institution, using an identification scheme. |

## 2.108 Original and Current Face Amount

| Attribute | Type | Condition | Description |
|---|---|---|---|
| faceAmount | Amount | Mandatory | Quantity expressed as an amount representing the face amount, that is, the principal of a debt instrument. |
| amortisedValue | Amount | Mandatory | Quantity expressed as an amount representing the current amortised face amount of a bond, for example, a periodic reduction/increase of a bond's principal amount. |

## 2.109 Original Transaction Information and Status

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalInstructionId | Max35Text | Conditional | Unique identification, as assigned by the original instructing party for the original instructed party, to unambiguously identify the original instruction. |
| originalEndToEndId | Max35Text | Conditional | Unique identification, as assigned by the original initiating party to |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | unambiguously identify the original transaction |
| originalUetr | UUID | Conditional | Universally unique identifier to provide the original end-to-end reference of a payment transaction. |
| transactionStatus | Transaction Status | Mandatory | Specifies the status of a transaction, as published in an external payment transaction status code list. |
| statusReasonInformationCode | Status Reason Code | {Or-Optional | Provides detailed information on the status reason. |
| statusReasonInformationProprietary | Max35Text | Or Optional} | Proprietary additional information on the reason for e.g. rejecting the request.<br><br>Remark: If an ISO Code is available it should be used instead of Proprietary Reasons. Further restrictions could be defined by API Access Schemes. |
| statusReasonAdditional Information | Max105Text | Optional | Further details on the status reason. |
| originalTransaction Reference | Original Transaction Reference | Optional | Key elements used to identify the original transaction that is being referred to. |

This data type is used in [oFA-IG-Com].

## 2.110 Original Transaction Information and VOP Status

The data type defined below is an extension of the data type Original Transaction Information and Status defined above. The attributes with yellow background are added.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalInstructionId | Max35Text | Conditional | Unique identification, as assigned by the original instructing party for the original instructed party, to unambiguously identify the original instruction. |
| originalEndToEndId | Max35Text | Conditional | Unique identification, as assigned by the original initiating party to unambiguously identify the original transaction |
| originalUetr | UUID | Conditional | Universally unique identifier to provide the original end-to-end reference of a payment transaction. |
| transactionStatus | Transaction Status | Mandatory | Specifies the status of a transaction, as published in an external payment transaction status code list. |
| statusReasonInformationCode | Status Reason Code | {Or-Optional | Provides detailed information on the status reason. |
| statusReasonInformationProprietary | Max35Text | Or Optional} | Proprietary additional information on the reason for e.g. rejecting the request.<br><br>Remark: If an ISO Code is available it should be used instead of Proprietary Reasons. Further restrictions could be defined by API Access Schemes. |
| statusReason Additional Information | Max105Text | Optional | Further details on the status reason. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalTransaction Reference | Original Transaction Reference | Optional | Key elements used to identify the original transaction that is being referred to. |
| creditorNameMatch | Party Name Match Code | Conditional | Will be provided, if an account/ owner name match was requested, if the related code in the interbank VOP service was "CMTC", "NMTC" or "NOAP" ,i.e. if the singleTransactionStatus also equals "RVCM" |
| creditorOrganisationIdMatch | Party Identification Match Code | Conditional | Will be provided, if an account/ owner identification match was requested and if the related code in the interbank VOP service was "NMTC" or "NOAP", i.e. if the singleTransactionStatus also equals "RVCM". |
| matchedCreditorName | Max140Text | Optional | Provided only in case of "CMTC" as code in creditorNameMatch |

This data type is used in [oFA-IG-VOP].

## 2.111 Original Transaction Reference

| Attribute | Type | Condition | Description |
|---|---|---|---|
| instructedAmount | Amount | {Or Optional | |
| equivalentAmount | Equivalent Amount | Optional Or} | |
| creditor | Party Description | Optional | |
| creditorAccount | Account Reference | Optional | |
| ultimateCreditor | Party Description | Optional | |

## 2.112 Parameters API Security

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageSigningRequired | Boolean | Mandatory | Mandate the API Client to sign the requests on application level.<br><br>• True:<br>The fields x-jws-signature and Digest have to be included in the message header. In addition, the TLS Certificate is used on transport layer.<br><br>• False:<br>Only the TLS Certificate on the transport layer is used. The ASPSP has to ensure that a check of access rights can be performed. This check has to be done previous to changing the transport layer and access right information which are contained in the certificate being potentially removed, e.g. by firewalls.<br>(IO1) |
| messageSigningCertificate Mandated | Boolean | Mandatory | Indicates whether the ASPSP mandates the API Client to include the certificate used for message signing into the message (as part of the JWS Protected Header). |
| supportedMessageSignatur e Algorithms | Array of Signature Algorithm Code | Conditional | Array [] containing one or more identifier indicating signature algorithms according to RFC7518, i.e. RS256, PS512, etc. applicable to http message signing. |
| scaMethods | Array of Authenticati on Type | Mandatory | Supported SCA Methods<br><br>(IO11) |
| scaApproaches | Array of SCA Approach Type | Mandatory | One or several of the following values:<br><br>• Decoupled<br>• Embedded<br>• Oauth2<br>• Redirect<br>(IO5) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaApproaches MethodsMapping | SCA Approach Methods Mapping | Optional | Configuration of supported SCA methods per applicable SCA Approaches<br>• Decoupled<br>• Embedded<br>• Oauth2<br>• Redirect<br>• ASPSP-Channel<br>(IO12) |
| oauth2PrestepRequired | Boolean | Mandatory | Oauth2 required as a pre-step for PSU authentication (of the first factor)<br><br>The ASPSP faces the following options:<br><br>• True:<br>The ASPSP requires a Oauth2 prestep before sendig the first request to the openFinance or XS2A API. The API Client has to perform an Oauth2 based authorization prior to the opfenFinance service request. This authorisation covers only the first factor of an SCA of the full (simple) authorisation if no second factor is used, e.g. in case of exemptions.<br><br>If an Oauth2 prestep is used, the field Authorization in the header has to carry the bearer token Oauth2 authorization.<br><br>• False:<br>No Oauth2 prestep is used.<br><br>(IO6) |
| oauth2PrestepMetadataUri | Max140Text | Optional | The URI of the Oauth implementation Metadata information. |
| oauth2OfflineScopeRequired | Boolean | Optional | Defines, whether the Oauth scope "offline_access" needs to be supported when addressing the API where the PSU is not online. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaProcessFlowRequirement | SCA Process Flow Requirement Code | Optional | There are some options regarding the SCA process flow: there are various points in the process flow where the selection of the SCA method could be performed.<br><br>(IO9) |
| clientExplicitAuthorisationPreferenceSupported | Boolean | Mandatory | Indicates whether the ASPSP will not start the authorisation implicitly, if the header parameter Client-Explicit-Authorisation-Preferred equals true. |
| supportedStartAuthorisationHyperlinks | Array of Max35Text | Mandatory | All "startAuthorisationXXX" hyperlinks supported in this API.<br><br>If the Array is empty, start authorisation is not supported in this API instance.<br><br>(IO39) |
| supportedUpdate AuthorisationHyperlinks | Array of Max35Text | Mandatory | All "updateAuthorisationXXX" hyperlinks supported in this API.<br><br>If the Array is empty, update authorisation is not supported in this API instance. |
| firstFactorViaApiForDecoupledScaRequired | Boolean | Mandatory | In case of a decoupled SCA approach, parts of the PSU authentication might still be required via the API.<br><br>There are essentially two variants for the implementation:<br><br>False i.e. PSSU Identification sufficient:<br><br>Only the PSU-Id is transmitted via the API. Information beyond that are not transferred via the API.<br><br>True: (OF-)Authentication required:<br><br>The first factor of the SCA is handled via the API. The remaining part of the SCA is not processed via the API. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | (IO14) |
| supportedBodySignature Algorithms | Array of Signature Algorithm Code | Conditional | Array [] containing one or more identifier indicating signature algorithms according to RFC7518, i.e. RS256, PS512, etc. applicable to body signing algorithms. |
| passwordEncryption Required | Boolean | Mandatory | PSU Authentication data delivered via the XS2A-Interface (Embedded Approach) shall be encrypted at application level.<br><br>(IO40) |
| supportedKeyEncryption Algorithms | Array of Key Encryption Algorithm Code | Conditional | Array [] containing one or more identifier indicating encryption algorithms for key encryption according to RFC7518, i.e. RSAES-OAEP, RSA-OAEP-256, etc. |
| supportedContent EncryptionAlgorithms | Array of Content Encryption Algorithm Code | Conditional | Array [] containing one or more identifier indicating encryption algorithms for encryption of the content according to RFC7518, i.e. A256GCM, etc. |
| implicitTransactionAuthorisationSupported | Boolean | Mandatory | Implicit start of transaction authorisation supported.<br><br>(IO38) |
| psuNameInAuthorisation Supported | Boolean | Mandatory | Indicates, whether providing of the PSU Name in the authorisation sub resource is supported.<br><br>(IO68) |
| clientScaPreferenceSupported | Boolean | Mandatory | Indicates whether the header Client-SCA-Approach-Preference is recognised by the ASPSP.<br><br>(IO71) |

## 2.113 Parameters Payment Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed payment initiation service, e.g. "XMDPIS", where the configuration data below relates to. |
| serviceVersion | Max10Text | Mandatory | Version of Implementation Guidelines of the addressed service, e.g. "2.1". |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| psuAccountSelection Supported | Boolean | Mandatory | The ASPSP offers to select the PSU account in a second step after a passwort has been presented. |
| multiLevelScaSupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a multi-level authorisation for some PSU.<br><br>(IO27) |
| scaForCancellationRequired | Boolean | Conditional | It is optional to require an SCA to cancel the related payment service.<br>• True:<br>SCA can be required for payment cancellations where applicable. The ASPSP is free to drop the SCA in some cases. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • False:<br>SCA is not required to cancel payments of the related service.<br><br>Attribute not provided: Cancellation of the related service is not supported.<br>(IO26) |
| resourceChangesSupported | Boolean | Mandatory | It is optional to support Change Transaction Resource mechanisms as described in [oFA-PFSM] for extended PIS. This parameter indicates whether the ASPSP offers this service or not. |
| resourceInChangeParameterSupported | Boolean | Conditional | It is optional to support the inChange query parameter on resourceId level.<br><br>• True: The API Client may use the inChange query parameter when addressing a single resource.<br>• False: The usage of the inChange query parameter when addressing a single resource is not supported |
| supportedStatusFormats | Array of Max35Text | Mandatory | Supported codes:<br><br>"JSON",<br><br>"JSON-Extended",<br><br>"pain.002.0x.0x", where x is instantiated with the correct values.<br><br>(IO44) |
| psuNameInStatusSupported | Boolean | Mandatory | Indicates whether the psuName is provided in resource status.<br><br>(IO67) |
| clientVopRequestedSupported | Boolean | Mandatory | Indicates, whether the steering of integration of VOP into payment initiation is supported. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| clientVopRequestIdSupported | Boolean | Conditional | Indicates whether the ASPSP will supporte the header Client-VOP-Request-ID.<br><br>This is only provided, if the clientVopRequestedSupported attribute equals true |
| clientVopRequestIdMandated | Boolean | Conditional | Indicates whether the ASPSP mandates the API Client to use the Client-VOP-Request-Id if VOP is applicable to the related product **and** if VOP has not been opted out.<br><br>This is only provided, if the clientVopRequestedSupported attribute equals true |
| jsonPaymentProducts | Array of Payment Product JSON | Optional | List of supported JSON based payment products. With related product specific additional information.<br><br>(IO2, IO3, IO4) |
| xmlPaymentProducts | Array of Payment Product XML | Optional | List of supported XML based payment products. |
| textPaymentProducts | Array of Payment Product Text | Optional | List of supported text based payment products. |
| debtorNameReturned | Boolean | Mandatory | Indicates whether the ASPSP will return the debtor name in JSON/XML based payment initiations after successful SCA.<br><br>(IO58) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fundsAvailableSupported | Boolean | Optional | This attribute indicates whether the attribute "fundsAvailable" is supported in payment status. |
| transactionFeesSupported | Boolean | Mandatory | Transaction fees transported via the openFinance API in Payment Initiation Services.<br><br>(IO10) |
| supportedScaExemptions | Array of SCA Exemption Code | [0..*] | Exemptions from SCA are possible in general. An ASPSP has to decide whether and if so under which condition to allow for an exemption from SCA for payment initiation. The applied condition is arbitrary but it has to be exactly one condition that determines the scenario for an SCA exemption.<br><br>Empty array implies that SCA exemption is not supported.<br><br>No entry of this field implies no information.<br><br>(IO22) |
| minLead | Integer | Optional | The minimum of bank working days from the current date which is needed for the requested execution date. |
| maxLead | Integer | Optional | The maximum of calendar days from the current date which is supported for the requested execution date. |
| maximumExpiryDays Reservation | Integer | Optional | The maximum expiry interval for a reservation of funds. |
| supportedExecutionPeriods | Array of Event Frequency Code | Optional | Supported event frequency codes for recurring payments. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| supportedMaximum ExecutionDay | Integer | Optional | Only relevant for recurring payments.<br><br>Either 30 or 31 as possible values. If 30 is the maximum execution day in a month, then "ultimo" is not supported as value. |
| supportedExecutionRules | Array of Max35Text | Optional | The supported values are "preceding" and "following". |
| supportedAccountReference | Array of Account Reference Code | Mandatory | List of account reference codes which are supported for the debtor account.<br><br>(IO18) |
| accountCurrencyCode Required | Boolean | Mandatory | Defines whether the PSU account identifcation mandates the currency code for identification. |
| multiCurrencyAccounts Supported | Boolean | Mandatory | The ASPSP supports multi-currency accounts for payment initiation services.<br><br>(IO17) |
| supportedAdditionalCharacter SetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA-PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharact erSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |
| supportedCountryCodes | Array of Country Codes | Optional | List of country codes for cross-border payment products. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| supportedCurrency Codes | Array of Currency Code | Optional | List of currencies which are accepted for cross-border payments.<br><br>(IO52) |
| supportedInstructionCodes | Array of Instruction Code | Optional | Specifies further instructions concerning the processing of a payment instruction, provided by the sending clearing agent to the next agent(s). |
| batchBookingFlagSupported | Boolean | Optional | if equals true, then the ASPSP will book the bulk transactions following this flag. |
| maximumNumberTransactions | Integer | Optional | maximum number of transactions in a bulk payment |
| totalAmountRequired | Boolean | Optional | Applicable only for bulk payments |
| additionalAmountForReservationSupported | Boolean | Optional | Only for pre-authorised payments.<br><br>If true, the ASPSP supports payment initiations where the initiated amount can be greater than the reserved amount (if a reservation is linked to the initiation).<br><br>If supported, then the ASPSP must check if the additional amount that is not covered by the reservation is still covered by the currently authorized amount of the payment resource. |
| _links | Links | Mandatory | The endpoint of the addressed payment service. |

This data type is used in [oFA-IG-Disc].

## 2.114 Parameters Account Information Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed account information service, e.g. "AIS" "XAIS-CRD", where the configuration data below relates to. |
| supportedAccessRightCodes | Array of Access Rights Code | Mandatory | Array of access right codes which might be used when submitting a consent to an account information service related to the addressed AIS service.<br><br>(IO30,54,56) |
| supportedReportFormats | Array of Max35Text | Optional | supported scheme names for XML based payment initiation, e.g. "camt.05x.0x.0x" as well as "JSON" and "MT94x".<br><br>(IO31) |
| globalStatementsSupported | Boolean | Mandatory | Defines whether statements on a dedicated endpoint /statements as introduced in [oFA-IG-XAIS] are supported within this service type or not. |
| supportedEndpoints | Array of Max35Text | Mandatory | "accountDetails", "balances", "transactions", "statements", "orders"as permitted values for the array entries.<br><br>(IO59, 61) |
| supportedQueryParametersBalances | Array of Max35Text | Mandatory | Query parameters supported for balances.<br><br>"dateFrom" as potential value.<br><br>(IO66) |
| supportedQueryParametersTransactions | Array of Max35Text | Mandatory | Query parameters supported for transactions. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "dateFrom", "dateTo", "entryReferenceFrom", "bookingStatus", "deltaList", "withBalance", "pageSize" as potential values<br><br>(IO32,33) |
| maxPageSize | Integer | Conditional | Delivers the maximum page size in numbers of transactions to be reported.<br><br>To be provided if the pageSize query parameter is supported. |
| supportedBookingStatusCode | Array of Max35Text | Conditional | IF the bookingStatus is supported for the addressed service, this attribute is mandated. It provides all booking status codes supported as query parameters.<br><br>""booked", "pending", "both", "information", "all" as potential values. |
| supportedQueryParameters Accounts | Array of Max35Text | Mandatory | Query parameters supported for account list/details.<br><br>Potential values are "withBalance" and "evaluationCurrency".<br><br>(IO32) |
| multiCurrencyAccountDetails | Max35Text | Optional | "aggregation", "sub-account" "aggregationAndSub-account" for potential solutions offered for account details in case of multi-currency accounts (IO41) |
| supportedInterestReasons | Array of Max35Text | Conditional | Shows all supported values for interest reasons defined for the data type Interest for account types with an interest definition. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Shall be used in case the reason attribute is used at all. |
| countingOfAisRequests | Max35Text | Mandatory | This attribute is defining the way of counting a 4 times a day counting for PSU not present (cp. [EBA-RTS])<br><br>"none": no dedicated AIS request counting is performed for this service.<br><br>"timeslot": ,Counting is done by aggregating all related account information endpoint accesses in a certain time interval as one access.<br><br>"byEndpointCall": Counting is done by allowing for each endpoint 4 times access per day, counting them explicitly by endpoint.<br><br>(IO47) |
| maximumInfomationInterval | Integer | Mandatory | Maximum addressable transaction information of the past, interval in days.<br><br>Might be further restricted on account level. |
| supportedBalanceTypes | Array of Balance Type | Mandatory | Balance Types supported.<br><br>(IO34,64,65) |
| creditLineIncludedSupported | Boolean | Mandatory | |
| standingOrdersSupported | Boolean | Mandatory | |
| supportedPageSize | Integer | Optional | |
| fileDownloadRequired | Boolean | Mandatory | Transaction list offered only as download link in case of too high volumes.<br><br>(IO36,35) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| signedAccountInformation Supported | Boolean | Mandatory | Signature on body level as defined in [oFA-PFSM]. |
| supportedSignature Algorithms | Array of Signature Algorithm Code | Conditional | Array [] containing one or more identifier indicating signature algorithms according to RFC7518, i.e. RS256, PS512, etc. |
| encryptedAccountInformation Supported | Boolean | Mandatory | Encryption on application level supported by the ASPSP as defined in [oFA-PFSM] and if a related certificate has been provided by the API Client. |
| _links | Links | Mandatory | The endpoint of the addressed account information service, e.g. of the related "/accounts" endpoint. |

This data type is used in [oFA-IG-Disc].

## 2.115 Parameters Consent Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed account information service, e.g. "CONS-AIS" |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| multiLevelScaSupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | multi-level authorisation for some PSU.<br><br>(IO27) |
| inconsistentConsentRejected | Boolean | Optional | Indicates, whether an inconsistent consent is rejected before PSU authentication, e.g. where the PSU ID does not match the required IBAN.<br>(IO53) |
| supportedAccountReference | Array of Account Reference Code | Mandatory | List of account reference codes which are supported for the account in the related account category in consents of type "detailed".<br><br>(IO60,62) |
| psuNameInResourceSupported | Boolean | Optional | Indicates whether the psuName is provided in resource status. (Only relevant for Version 1.3.x).<br><br>(IO67) |
| psuNameInStatusSupported | Boolean | Mandatory | Indicates whether the psuName is provided in authorisation status. |
| frequencyPerDay | Integer | Conditional | The maximum frequency offered for access without PSU being online. Only relevant for account information consent. |
| consentValidityDays | Integer | Optional | Maximum consent validity days without the validity being restricted by the ASPSP, if applicable. |
| supportedConsentTypes | Array of Consent Type Code | Mandatory | |
| multiCurrencyAccounts Supported | Boolean | Mandatory | The ASPSP supports multi-currency accounts in the consent API.<br><br>(IO17) |
| revocationViaAspspSupported | Boolean | Mandatory | Indicates whether the ASPSP supports the revocation of a consent by the PSU via the ASPSP. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | (IO51) |
| supportedAccessRightCodes | Array of Access Rights Code | Optional | Array of access right code admitted for the related consent, if it is not a consent on AIS. In the latter case, the supported access right codes are specific to the account type, which is why it is defined within the AIS information. |
| _links | Links | Mandatory | The endpoint of the addressed consent service e.g. for "/consents/account-information" |

This data type is used in [oFA-IG-Disc].

## 2.116 Parameters Funds Confirmation Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed funds confirmation service "COF" |
| cardNumberSupported | Boolean | Mandatory | Indicates whether the card number can be used for addressing the account in addition. If true and if the addressed account is a multicurrency account, then the card will address the related sub-account of the consent process, where the card number has been used. |

This data type is used in [oFA-IG-Disc].

## 2.117 Parameters Mandate Services

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed mandate service, e.g. "MAN", where the configuration data below relates to. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceVersion | Max10Text | Mandatory | Version of Implementation Guidelines of the addressed service, e.g. "2.1". |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| psuAccountSelection Supported | Boolean | Mandatory | The ASPSP offers to select the PSU account in a second step after a passwort has been presented. |
| multiLevelScaSupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a multi-level authorisation for some PSU.<br><br>(IO27) |
| scaForCancellationRequired | Boolean | Conditional | It is optional to require an SCA to cancel the related payment service.<br>• True:<br>SCA can be required for payment cancellations where applicable. The ASPSP is free to drop the SCA in some cases.<br>• False:<br>SCA is not required to cancel payments of the related service.<br><br>Attribute not provided: Cancellation of the related service is not supported.<br>(IO26) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuNameInStatusSupported | Boolean | Mandatory | Indicates whether the psuName is provided in resource status.<br><br>(IO67) |
| debtorNameMandated | Boolean | Mandatory | Default is "true". |
| debtorNameReturned | Boolean | Mandatory | Indicates whether the ASPSP will return the debtor name in submitted mandates after successful SCA.<br><br>(IO58) |
| minLead | Integer | Optional | The minimum of bank working days from the current date which is needed for the first collection date. |
| maxLead | Integer | Optional | The maximum of calendar days from the current date which is supported for the first collection date. |
| supportedExecutionPeriods | Array of Frequency Code | Optional | Supported frequency codes for mandates. |
| supportedAccountReference | Array of Account Reference Code | Mandatory | List of account reference codes which are supported for the debtor account.<br><br>(IO18) |
| supportedAdditionalCharacterSetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA-PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharacterSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| _links | Links | Mandatory | The endpoint of the addressed mandate service. |

This data type is used in [oFA-IG-Disc].

## 2.118 Parameters Document Services

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed document service, e.g. "XDOC" |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| supportedAdditionalCharacterSetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA-PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharacterSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |
| _links | Links | Mandatory | The endpoint of the addressed rtp service. |

This data type is used in [oFA-IG-Disc].

## 2.119 Parameters Push AIS Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed Push AIS sub service, "XAIPS-XX[X]", e.g. "XAIPS-RTP". |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| multiLevelScaSupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a multi-level authorisation for some PSU.<br><br>(IO27) |
| psuNameInStatusSupported | Boolean | Mandatory | Indicates whether the psuName is provided in authorisation status.<br><br>(IO67) |
| apiClientSecondaryPush URISupported | Boolean | Mandatory | Support of secondary Push URI registration |
| staticCallbackTextSupported | Boolean | Mandatory | Pushing callback text supported. |
| callbackLinksSupported | Boolean | Mandatory | Pushing links to related account information entries supported. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| pushEntriesSupported | Boolean | Mandatory | Pushing actual account information supported. |
| attributeFilteringSupported | Boolean | Mandatory | Support of attribute filers when pushing |
| documentForwardingSupported | Boolean | Mandatory | Support of pushing also documents related to the account information pushed. |
| supportedAccountEntry Criteria | Array of Max35Text | Optional | The list of supported Account Entry Trigger Criteria |
| supportedAccountStatement Criteria | Array of Max35Text | Optional | The list of supported Account Statement Trigger Criteria |
| supportedAccountBalance Criteria | Array of Max35Text | Optional | The list of supported Account Balance Trigger Criteria |
| supportedRtpCriteria | Array of Max35Text | Optional | The list of supported RTP Trigger Criteria |
| _links | Links | Mandatory | The endpoint of the addressed subscription service. |

This data type is used in [oFA-IG-Disc].

## 2.120 Parameters Signing Basket Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed signing basket function "SGNB" |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| multiLevelSCASupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a multi-level authorisation for some PSU.<br><br>(IO27) |
| transactionGroupings | Array of Transaction Type | Mandatory | The maximum groups of transaction which might be grouped for authorisation. The constant "all" is indicating that there are no restrictions.<br><br>(IO25) |

This data type is used in [oFA-IG-Disc].

## 2.121 Parameters RTP Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed request to pay service, e.g. "XRTP" |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| documentSupported | Boolean | Mandatory | Expresses, whether the transport of a document within the submitted RTP is supported. |
| jsonPaymentProducts | Array of Payment Product JSON | Mandatory | List of supported JSON based payment products. With related product specific additional information. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| supportedAdditionalCharacterSetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA-PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharacterSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |
| _links | Links | Mandatory | The endpoint of the addressed rtp service. |

This data type is used in [oFA-IG-Disc].

## 2.122 Parameters VOP Service

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed Verification of Party service, e.g. "VOP-PAYEE" |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| supportedAdditionalCharacterSetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA- |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharacterSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |
| _links | Links | Mandatory | The endpoint of the addressed rtp service. |

This data type is used in [oFA-IG-Disc].

## 2.123 Parameters Standing Orders Services

| Attribute | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | Mandatory | The addressed standing orders service. |
| serviceVersion | Max10Text | Mandatory | Version of Implementation Guidelines of the addressed service. |
| statusNotificationSupported | Boolean | Mandatory | Indicates whether the status notification function as specified in [oFA-PFSM] is supported for the related resources. |
| psuHeaderData | PSU Header Data | Mandatory | Defines whether PSU ID, Type etc are mandated by the ASPSP in the first transaction request. |
| confirmationRequired | Boolean | Mandatory | The confirmation step in authorization Redirect SCA or |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Oauth2 SCA Approach required for this service.<br><br>(IO57) |
| psuAccountSelection Supported | Boolean | Mandatory | The ASPSP offers to select the PSU account in a second step after a passwort has been presented. |
| multiLevelScaSupported | Boolean | Mandatory | Indicates, whether the service is offered as a service mandating a multi-level authorisation for some PSU.<br><br>(IO27) |
| scaForCancellationRequired | Boolean | Conditional | It is optional to require an SCA to cancel the related payment service.<br>• True:<br>SCA can be required for payment cancellations where applicable. The ASPSP is free to drop the SCA in some cases.<br>• False:<br>SCA is not required to cancel payments of the related service.<br><br>Attribute not provided: Cancellation of the related service is not supported.<br>(IO26) |
| resourceChangesSupported | Boolean | Mandatory | It is optional to support Change Transaction Resource mechanisms as described in [oFA-PFSM] for standing orders. This parameter indicates whether the ASPSP offers this service or not. |
| resourceInChangeParameterSupported | Boolean | Conditional | It is optional to support the inChange query parameter on resourceId level.<br><br>• True: The API Client may use the inChange query parameter when addressing a single resource. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • False: The usage of the inChange query parameter when addressing a single resource is not supported |
| supportedStatusFormats | Array of Max35Text | Mandatory | Supported codes:<br><br>"JSON",<br><br>"JSON-Extended",<br><br>"pain.002.0x.0x", where x is instantiated with the correct values.<br><br>(IO44) |
| psuNameInStatusSupported | Boolean | Mandatory | Indicates whether the psuName is provided in resource status.<br><br>(IO67) |
| clientVopRequestedSupported | Boolean | Mandatory | Indicates, whether the steering of integration of VOP into payment initiation is supported. |
| clientVopRequestIdSupported | Boolean | Conditional | Indicates whether the ASPSP will supporte the header Client-VOP-Request-ID.<br><br>This is only provided, if the clientVopRequestedSupported attribute equals true |
| clientVopRequestIdMandated | Boolean | Conditional | Indicates whether the ASPSP mandates the API Client to use the Client-VOP-Request-Id if VOP is applicable to the related product **and** if VOP has not been opted out.<br><br>This is only provided, if the clientVopRequestedSupported attribute equals true |
| jsonPaymentProducts | Array of Payment | Optional | List of supported JSON based payment products. With related |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | Product JSON | | product specific additional information.<br><br>(IO2, IO3, IO4) |
| textPaymentProducts | Array of Payment Product Text | Optional | List of supported text based payment products. |
| debtorNameReturned | Boolean | Mandatory | Indicates whether the ASPSP will return the debtor name in JSON based payment initiations after successful SCA.<br><br>(IO58) |
| fundsAvailableSupported | Boolean | Optional | This attribute indicates whether the attribute "fundsAvailable" is supported in payment status. |
| transactionFeesSupported | Boolean | Mandatory | Transaction fees transported via the openFinance API in Payment Initiation Services.<br><br>(IO10) |
| supportedScaExemptions | Array of SCA Exemption Code | [0..*] | Exemptions from SCA are possible in general. An ASPSP has to decide whether and if so under which condition to allow for an exemption from SCA for payment initiation. The applied condition is arbitrary but it has to be exactly one condition that determines the scenario for an SCA exemption.<br><br>Empty array implies that SCA exemption is not supported.<br><br>No entry of this field implies no information.<br><br>(IO22) |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| minLead | Integer | Optional | The minimum of bank working days from the current date which is needed for the requested execution date. |
| maxLead | Integer | Optional | The maximum of calendar days from the current date which is supported for the requested execution date. |
| minimumNumberOf BusinessDays | Integer | Optional | The minimum number of business days before a standing order creation, change or deletion becomes applicable. If a creation, change or deletion is requested to become active within less business days than given in this attribute, the ASPSP cannot guarantee the request to be processed in time. |
| supportedExecutionPeriods | Array of Event Frequency Code | Optional | Supported event frequency codes for recurring payments. |
| supportedMaximum ExecutionDay | Integer | Optional | Only relevant for recurring payments.<br><br>Either 30 or 31 as possible values. If 30 is the maximum execution day in a month, then "ultimo" is not supported as value. |
| supportedExecutionRules | Array of Max35Text | Optional | The supported values are "preceding" and "following". |
| supportedAccountReference | Array of Account Reference Code | Mandatory | List of account reference codes which are supported for the debtor account.<br><br>(IO18) |
| accountCurrencyCode Required | Boolean | Mandatory | Defines whether the PSU account identifcation mandates the currency code for identification. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| multiCurrencyAccounts Supported | Boolean | Mandatory | The ASPSP supports multi-currency accounts for payment initiation services.<br><br>(IO17) |
| supportedAdditionalCharacter SetTextfields | Array of Max1Text | Mandatory | Characters in addition to the standard character set as defined in[oFA-PFSM], which are accepted in the payment API for text fields (names, address and remittance information). If the array is empty, no additional characters are permitted in the API. |
| transformedAdditionalCharact erSetTextfields | Array of Max1Text | Optional | Additional Characters accepted for text fields within payments (see above), which are transformed into a different character/characters in addition. |
| supportedCountryCodes | Array of Country Codes | Optional | List of country codes for cross-border payment products. |
| supportedCurrency Codes | Array of Currency Code | Optional | List of currencies which are accepted for cross-border payments.<br><br>(IO52) |
| supportedInstructionCodes | Array of Instruction Code | Optional | Specifies further instructions concerning the processing of a payment instruction, provided by the sending clearing agent to the next agent(s). |
| batchBookingFlagSupported | Boolean | Optional | if equals true, then the ASPSP will book the bulk transactions following this flag. |
| _links | Links | Mandatory | The endpoint of the addressed standing orders service. |

This data type is used in [oFA-IG-Disc].

### 2.124 Party Description

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| postalAddress | Postal Address | Optional | Postal Address of the party. |
| identification | Party Identification | Optional | Identification of the party. |
| additionalPartyInformation | Additional Party Information | Optional | Only supported in extended services for creditor related parties, if at all.<br><br>**NOTE:** This information will be neither put to the related interbank payment nor to account reports/statements and might only be used to display related information to the PSU during potential authorisation processes. |

This data type is used in many services.

### 2.125 Party Description1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |

This data type is used in [oFA-PFSM].

### 2.126 Party Description2

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| postalAddress | Postal Address | Optional | Postal Address of the party. |

This data type is used in [oFA-PFSM]

### 2.127 Party Description3

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Party Identification1 | Optional | Identification of the party. |

This data type is used in [oFA-PFSM], [oFA-IG-Adm].

### 2.128 Party Description4

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| identification | Party Identification | Optional | Identification of the party. |

This data type is used in [oFA-IG-VOP].

### 2.129 Party Description5

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| postal Address | Postal Address1 | Optional | Postal address of the party. |

This data type is used in [oFA-PFSM] .

### 2.130 Party Description6

| Attribute | Type | Condition | Description |
|---|---|---|---|
| name | Max140Text | Optional | Name of the party. |
| postal Address | Postal Address2 | Optional | Postal Address of the party. |

This data type is used in [oFA-PFSM].

### 2.131 Party Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| organisationId | Organisation Identification | {Or | An entry provided by an external ISO code list |
| privateId | Private Identification | Or } | A scheme name defined in a proprietary way. |

**Note:** Only one of the entries is allowed.

This data type is used in [oFA -IG-PAIS].

### 2.132 Party Identification1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| privateId | Private Identification | Mandatory | A scheme name defined in a proprietary way. |

### 2.133 Party Verification Request

| Tag | Type | Usage | Description |
|---|---|---|---|
| uetr | UUID | Mandatory | Identifies this party identification request. Shall be a unique identifier. |
| partyAccount | Account Reference | Mandatory | The data type might be restricted by the ASPSP to e.g. "iban" use only, which would be Account Reference2 as data type. |
| partyAgent | Agent Description | Optional | |
| party | Party Description4 | Mandatory | This structure shall contain the party name and/or a party identifier |

This data type is used in [oFA-IG-VOP].

## 2.134 Party Verification Request and Response

| Tag | Type | Usage | Description |
|---|---|---|---|
| uetr | UUID | Mandatory | Identifies this party identification request. Shall be a unique identifier. |
| partyAccount | Account Reference | Mandatory | The data type might be restricted by the ASPSP to e.g. "iban" use only, which would be Account Reference2 as data type. |
| partyAgent | Agent Description | Optional | |
| party | Party Description4 | Mandatory | This structure shall contain the party name and/or a party identifier, |
| partyNameMatch | Party Name Match Code | Conditional | Only provided, if a party name has been provided and if the processing of the related interbank VOP request has been finalized already. |
| partyIdMatch | Party Identification Match Code | Conditional | Only provided, if a party identification has been provided and if the processing of the related interbank VOP request has been finalized already. |
| matchedName | Max140Text | Conditional | This attribute might be provided in case of a near match and contains the name as provided by the party agent. |
| additionalInformation | Max500Text | Optional | Should be human readable text. |

This data type is used in [oFA-IG-VOP].

## 2.135 Party Verification Response

| Attribute | Type | Condition | Description |
|---|---|---|---|
| uetr | UUID | Mandatory | Replies the uetr entry of the related request. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| partyNameMatch | Party Name Match Code | Conditional | Only provided, if a party name has been provided. |
| partyIdMatch | Party Identification Match Code | Conditional | Only provided, if a party identification has been provided. |
| matchedName | Max140Text | Conditional | This attribute might be provided in case of a near match and contains the name as provided by the party agent. |
| additionalInformation | Max500Text | Optional | Should be human readable text. |

This data type is used in [oFA-IG-VOP].

## 2.136 Payment Conditions

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amountModificationAllowed | Boolean | optional | Indicates if the debtor is allowed to pay a different amount then the requested amount. |
| earlyPaymentAllowed | Boolean | optional | Indicates if the debtor is allowed to pay before the requested execution date. |
| latePaymentAllowed | Boolean | optional | Indicates if the debtor is allowed to pay later than the requested execution date. |
| remittanceInformation ModificationAllowed | Boolean | optional | Indicates if the debtor is allowed to change the remittance information. |
| debtorAccount ModificationAllowed | Boolean | optional | Indicates if the debtor is allowed to modify the requested debtor account. |

### 2.137 Payment Context Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardPresent | Boolean | Optional | |
| cardDataEntryMode | Card Data Entry Mode | Optional | |

### 2.138 Payment Exchange Rate

| Attribute | Type | Condition | Description |
|---|---|---|---|
| unitCurrency | Currency Code | Optional | Currency in which the rate of exchange is expressed in a currency exchange. In the example 1EUR = xxxCUR, the unit currency is EUR. |
| exchangeRate | String | Optional | Factor used to convert an amount from one currency into another. This reflects the price at which one currency was bought with another currency. |
| contractIdentification | Max35Text | Optional | Unique identification to unambiguously identify the foreign exchange contract. |
| rateType | Exchange Rate Type Code | Optional | Specifies the type used to complete the currency exchange.<br><br>Only SPOT, SALE and AGRD is allowed. |

This data type is used in [oFA-PFSM].

### 2.139 Payment Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| instructionId | Max35Text | Optional | Unique identification as assigned by an instructing party for an instructed party to unambiguously identify the instruction. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| endToEndId | Max35Text | Optional | |
| uetr | UUID | Optional | Universally unique identifier to provide an end-to-end reference of a payment transaction.<br><br>It is recommended to use time-based version (version 1) and variant 8,9,a or b of the UUID as defined in [RFC4122] for UUID fields such as uetr. |

This data type is used in [oFA-PFSM], [oFA-IG-XPIS].

### 2.140 Payment Identification1

| Attribute | Type | Condition | Description |
|---|---|---|---|
| endToEndId | Max35Text | Mandatory | Unique identification assigned by the initiating party to unambiguously identify the transaction. This identification is passed on, unchanged, throughout the entire end-to-end chain |

This data type is used in [oFA-PFSM] .

### 2.141 Payment Product JSON

| Attribute | Type | Condition | Description |
|---|---|---|---|
| pathProductName | Max35Text | Mandatory | path definition of the related JSON formatted product, e.g. "sepa-credit-transfers" |
| supportedJSONPaymentsAttributes | Array of Max35Text | Mandatory | Supported payment attributes (first level attributes) for the addressed product.<br><br>In [oFA-PFSM] first level attributes for single payments e.g. "paymentIdentification", "creditorAccount", |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "instructedAmount" are defined. These attributes may come with a full data type, e.g. "Payment Identification" or with a restricted data type, e.g. "Payment Identification 1".<br><br>This array defines, which of these attributes are accepted within this service. It further supports that the related attributes are presented with the potential restriction, e.g.<br><br>by "paymentIdentification" for the data type "Payment Identification" or<br><br>by "paymentIdentifcation_1" for the data Type "Payment Identification 1".<br><br>Remark: By this definition, the discovery services define implicitly level one and level two of the data structure. It is the choice of the API Clients to ignore the implicit definition of the level 2 definition, if this is not needed for the supported use cases. For bulk or multi-bulk payments data structures defined in the related attributes might be defined on a lower level. However, this field still defines, whether the related attribute is supported (with the related potential restriction in the data type), potentially on a lower level.<br><br>(IO21) |
| supportedMutableAttributes | Array of Max140Text | Conditional | Supported mutable payment attributes given by its full x-path to the location in the related payment resource.<br><br>This is to be included of the ASPSP allows Change Trasnaction |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Resource processes for the addressed service. |
| debtorAccountMandated | Boolean | Mandatory | If true, the debtor account shall be used within this service.<br><br>If false, the usage of the attribute is optional for the API client. |
| supportedPurposeCodes | Array of Purpose Code | Mandatory | A list of the supported purpose codes for the related product. |
| finalStatusCodes | Array of Transaction Status | Mandatory | Final transaction stati for the related product.<br><br>(IO45) |

## 2.142 Payment Product XML

| Attribute | Type | Condition | Description |
|---|---|---|---|
| pathProductName | Max35Text | Mandatory | path definition of the related XML formatted product, e.g. "pain.001-sepa-credit-transfers" |
| supportedVersions | Array of Max35Text | Mandatory | Additional information on format versions supported, e.g. different XML schemas like "pain.001.01.09" |
| supportedPurposeCodes | Array of Purpose Code | Mandatory | A list of the supported purpose codes for the related product. |
| finalStatusCodes | Array of Transaction Status | Mandatory | Final transaction stati for the related product.<br><br>(IO45) |

## 2.143 Payment Products Text

| Attribute | Type | Condition | Description |
|---|---|---|---|
| pathProductName | Max35Text | Mandatory | Path definition of the related text formatted product, e.g. "dtazv" which stands for a legacy German text based payment format for cross-border payments.<br><br>The related values are defined on domestic level only., cp. [oFA-DomDef] |
| supportedVersions | Max35Text | Optional | The related values are defined on domestic level only., cp. [oFA-DomDef]. |
| finalStatusCodes | Array of Transaction Status | Mandatory | Final transaction stati for the related product.<br><br>(IO45) |

## 2.144 Payment Return Reason

| Attribute | Type | Condition | Description |
|---|---|---|---|
| originalBankTransactionCode | Bank Transaction Code | Optional | |
| originalBankTransactionCodeProprietary | Max35Text | Optional | |
| originalBankTransactionCodeIssuer | Max35Text | Optional | |
| originator | Party Description | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| reasonCode | Return Reason Code | {Or Optional | ExternalReturnReason1Code |
| reasonProprietary | Max35Text | Optional Or} | |
| additionalInformation | Array Max105Text | Optional | |

## 2.145 Person Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Unique and unambiguous identification of a oersib. |
| schemeNameCode | Person Identification Code | {Or - Optional | An entry provided by an external ISO code list |
| schemeNameProprietary | Max35Text | Or – Optional} | A scheme name defined in a proprietary way. |
| issuer | Max35Text | Optional | Issuer of the identification |

## 2.146 Postal Address (Either Structured or Unstructured Address)

| Attribute | Type | Condition | Description |
|---|---|---|---|
| addressLines | Array of Max140Text | {Or - Optional | At most seven entries are permitted.<br><br>**Remark:** For SEPA transactions this is further restricted to a maximum of 1 entry. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| department | Max70Text | Or – Optional} | Identification of a division of a large organisation or building. |
| subDepartment | Max70Text | | Identification of a sub-division of a large organisation or building. |
| streetName | Max70Text | | Name of a street or thoroughfare. |
| buildingNumber | Max16Text | | Number that identifies the position of a building on a street. |
| buildingName | Max35Text | | Name of the building or house. |
| floor | Max70Text | | Floor or storey within a building. |
| postBox | Max16Text | | Numbered box in a post office, assigned to a person or organisation, where letters are kept until called for. |
| room | Max70Text | | Building room number. |
| postCode | Max16Text | | Identifier consisting of a group of letters and/or numbers that is added to a postal address to assist the sorting of mail. |
| townName | Max35Text | | Name of a built-up area, with defined boundaries, and a local government.<br><br>Usage Rule: If address lines are not used, this attribute is mandatory. |
| townLocationName | Max35Text | | Specific location name within the town. |
| districtName | Max35Text | | Identifies a subdivision within a country sub-division. |
| countrySubDivision | Max35Text | | Identifies a subdivision of a country such as state, region, county. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| country | Country Code | Conditional | Nation with its own government.<br><br>Usage Rule: If address lines are not used, this attribute is mandatory. |

**Remark:** The elements of the structured address information marked by "Optoinal Or}" may only be used, if the element "addressLines" is not used.

**Remark**: The unstructured address is not supported anymore by SEPA or Swift starting from November 2026.

### 2.147 Postal Address1 (Hybrid Address)

| Attribute | Type | Condition | Description |
|---|---|---|---|
| addressLines | Array of Max140Text | Optional | At most two entries are permitted. |
| department | Max70Text | Optional | Identification of a division of a large organisation or building. |
| subDepartment | Max70Text | Optional | Identification of a sub-division of a large organisation or building. |
| streetName | Max70Text | Optional | Name of a street or thoroughfare. |
| buildingNumber | Max16Text | Optional | Number that identifies the position of a building on a street. |
| buildingName | Max35Text | Optional | Name of the building or house. |
| floor | Max70Text | Optional | Floor or storey within a building. |
| postBox | Max16Text | Optional | Numbered box in a post office, assigned to a person or organisation, where letters are kept until called for. |
| room | Max70Text | Optional | Building room number. |
| postCode | Max16Text | Optional | Identifier consisting of a group of letters and/or numbers that is added to a postal address to assist the sorting of mail. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| townName | Max35Text | Mandatory | Name of a built-up area, with defined boundaries, and a local government. |
| townLocationName | Max35Text | Optional | Specific location name within the town. |
| districtName | Max35Text | Optional | Identifies a subdivision within a country sub-division. |
| countrySubDivision | Max35Text | Optional | Identifies a subdivision of a country such as state, region, county. |
| country | Country Code | Mandatory | Nation with its own government. |

## 2.148 Postal Address2 (Structured Address)

| Attribute | Type | Condition | Description |
|---|---|---|---|
| department | Max70Text | Optional | Identification of a division of a large organisation or building. |
| subDepartment | Max70Text | Optional | Identification of a sub-division of a large organisation or building. |
| streetName | Max70Text | Optional | Name of a street or thoroughfare. |
| buildingNumber | Max16Text | Optional | Number that identifies the position of a building on a street. |
| buildingName | Max35Text | Optional | Name of the building or house. |
| floor | Max70Text | Optional | Floor or storey within a building. |
| postBox | Max16Text | Optional | Numbered box in a post office, assigned to a person or organisation, where letters are kept until called for. |
| room | Max70Text | Optional | Building room number. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| postCode | Max16Text | Optional | Identifier consisting of a group of letters and/or numbers that is added to a postal address to assist the sorting of mail. |
| townName | Max35Text | Mandatory | Name of a built-up area, with defined boundaries, and a local government.<br><br>Usage Rule: If address lines are not used, this attribute is mandatory. |
| townLocationName | Max35Text | Optional | Specific location name within the town. |
| districtName | Max35Text | Optional | Identifies a subdivision within a country sub-division. |
| countrySubDivision | Max35Text | Optional | Identifies a subdivision of a country such as state, region, county. |
| country | Country Code | Mandatory | Nation with its own government. |

### 2.149 Price List Details 1

| Parameter | Type | Condition | Description |
|---|---|---|---|
| service Endpoint | Max512 Text | {Or | This attribute yields the specific API service endpoint for which the price model given in the access methods applies to. |
| parent Endpoint | Max512Text | Or} | This attribute yields a specific path (not necessarily an endpoint of its own) at the API. For all endpoints that have the related path given in this parameter as parent endpoint the following price model applies.<br><br>Remark: If the given path is an endpoint itself, then the price model shall also apply for this endpoint. |
| access Methods | Array of Price List Details 2 | Conditional | Must be used if the "flatFee" parameter is not included. This parameter yields a list of all |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| | | | access methods of the given service endpoint resp. parent endpoint.<br><br>Within this parameter the prices for the issuing an API call using the addressed endpoint and access method are given. |
| flatFee | Flat Fee Details | Optional | This attribute yields the flat fee applicable for the given endpoint. All flat fee prices arise independently of specific parameters used in the related API calls and are issued periodically for a given period/frequency. |

### 2.150 Price List Details 2

| Parameter | Type | Condition | Description |
|---|---|---|---|
| method | HTTP access method | Mandatory | Specific method for accessing the API. |
| responseCode | HTTP response Code | Optional | the HTTP response code which was returned by the ASPSP in response of receiving the API call.<br><br>If the response code is not included it is assumed that the pricing model given in the JSON only applies in the successful cases (http response codes 20x) and unsuccessful API calls are not priced at the API.<br><br>If the response code is included then the following pricing model determined applies only if the response of the related call includes this specific HTTP response code. |
| transaction Authorised | Boolean | Optional | This attribute is only supported if the related API Call may need to be authorised via dedicated SCA. The indicator specifies whether an |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| | | | authorisation (if needed) took place after the API Call was received or not.<br><br>The ASPSP may use this parameter to implement different prices depending on whether the addressed API Call<br><br>• was issued and a related authorisation took place or was not needed for executing the transaction, or<br>• was issued but the authorisation via SCA was needed but not completed.<br><br>To differentiate these two scenarios, the indicator shall be used and equals<br><br>• `true` if the related transaction authorisation was successfully executed or not needed, and<br>• `false` if authorisation was necessary but not completed.<br><br>If the parameter is not included, it is assumed that the prices apply only in the positive case, i.e. the requested service was executed. |
| perUsage | Boolean | Optional | If used and equals `true` the pricing given in this entry does not apply to one single API call but instead yields the price of an API service which consists of (potentially) multiple API calls. This indicates that the pricing does apply for the overall service usage. |
| maximumFee Amount | Amount Reference | Optional | This attribute yields a maximum amount for the price of the addressed API service function. |
| minimumFee Amount | Amount Reference | Optional | This attribute yields a minimum amount for the price of the addressed API service function. |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| invoiceItems | Array of Price List Details 3 | Mandatory | The price of an API service might be the sum of more than one price point (summand). The different summands leading to the overall price are given within this parameter.<br><br>The attribute baseFeeAmount may be used at most once within this data structure. |
| initiatedVolumePerPeriod | Initiated Volume Interval | Optional | If the API Client's initiated amount at the lies within the given interval for the per pre-defined period (e.g. a month), then the following price details apply |
| initiatedAccessPerPeriod | Initiated Access Interval | Optional | If the API Client has accessed the API for a certain number of PSUs within the given interval for the per pre-defined period, then the following price details apply |
| initiatedCallsPerPeriod | Initiated Calls Interval | Optional | If the API Client's number of API calls for a pre-defined period lies within the given interval, then the following prices apply |
| deferredPricing | Boolean | Conditional | This conveys if the API Client is priced based on the current usage of the API ("deferredPricing = false") or if the price will be calculated relying on the overall usage of the API ("deferredPricing = true"), cf. [oFA-IG-Adm]<br><br>Must be used if and only if at least one of the following three parameters is used as well:<br><br>• initiatedVolumePerPeriod,<br>• initiatedAccessPerPeriod,<br>• initiatedCallsPerPeriod<br><br>If more than one of the listed parameters is used, then they all must |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| | | | relate to the same calculation method, which is given by this parameter. |
| referencePeriod | Event Frequence Code | Conditional | Must be used if and only if at least one of the following three parameters is used as well:<br>• initiatedVolumePerPeriod,<br>• initiatedAccessPerPeriod,<br>• initiatedCallsPerPeriod<br>If more than one of the listed parameters is used, then they all must relate to the same period, given within this parameter. |

**RULE**: If an entry in the Price Lists Details 2 obtains more than one of the following attributes: initiatedVolumePerPeriod, initiatedAccessPerPeriod or initiatedCallsPerPeriod, than the price point given in this entry only applies if the API Client fulfils all the given conditions at the end of the billing period. For example (if all three parameters are used), the price entry only applies if the API Client has initiated a combined volume within the given volume interval and as many API calls as given by the call interval and for as many PSUs as the given by the respective access interval.

### 2.151 Price List Details 3

| Parameter | Type | Condition | Description |
|---|---|---|---|
| baseParameter | Max35Text | Mandatory | This attribute yields the parameter contained in the respective API call which influences the value of the amount or of the percentage used when determining the price point.<br>**Note**: In case of a percentual price point, this parameter is not necessarily the same parameter used as a reference point for calculating the price itself (the reference point is given in the priceFunction attribute explicitly)<br>If the API call itself is priced (independently of the parameters used in the call) or if the |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| | | | baseFeeAmount is used within this object, the parameter is set to "**null**". |
| baseUnit | Max35Text | Conditional | The unit of the baseParameter. It might be needed for determining different price points.<br><br>It can be used if the attribute baseParameter is used and its value differs from null. It is not supported if the baseFeeAmount attribute is used.<br><br>It must be included if the price model uses the baseUnit as a variable in its pricing rule to define a staggering pricing model. |
| description | Max140 Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the model, e.g. how the calculated price is determined.<br><br>Not supported if the attribute baseFeeAmount is used. |
| priceValue | Array of Price Value Details | {Or | If the partial price point is a fixed amount which may or may not depend on the baseParameter and baseUnit, then the fixed price is the given within this parameter. |
| priceFunction | Array of Price Function Details | Or | If the partial price point is a percentual amount and calculated by using a percentage, then this is described via this parameter. If in addition, it is defined by a staggered price model (e.g. for the percentage number), it may or may not depend on the baseParameter and baseUnit. |
| baseFeeAmount | Base Fee Amount Details | Or} | This attribute yields a based amount of the service function. It is independent of any parameters that might be included within the call. |

## 2.152 Price Function Details

| Parameter | Type | Condition | Description |
|---|---|---|---|
| invoiceItem Number | Max35Text | Optional | Identifier of the item related to the described price point within this object |
| description | Max140Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the given price point. |
| unitBase Parameter | Max140Text | {Or – Optional | If the base parameter is defined discretely (e.g. in case of "frequency"), then this parameter yields the data value(s) of the base parameter such that the following pricing rule applies.<br><br>If multiple values apply for the same price point, this data element yields a colon separated list of the possible values. |
| fromBaseUnit | Max35Text | Optional – Or} | This parameter describes from which baseUnit onwards the following pricing rule applies. Together with toBaseUnit, this yields one of the intervals in priceRanges for a certain rule of pricing. |
| toBaseUnit | Max35Text | | This parameter describes until which baseUnit the given pricing rule applies. Together with fromBaseUnit, this yields one of the intervals in priceRanges for a certain rule of pricing.<br><br>If toBaseUnit is not given, the interval is assumed to cover all units equal or bigger than the unit given in fromBaseUnit. |
| percentage Reference Parameter | Max35Text | Conditional | Parameter contained in the respective API call, for which the partial price point is given by a percent value of the parameter specified in this attribute |
| percentage | Percentage Rate | Conditional | The given percentage which applied to the percentageReferenceValue yields the partial price point. |

## 2.153 Price Value Details

| Parameter | Type | Condition | Description |
|---|---|---|---|
| invoiceItem Number | Max35Text | Optional | Identifier of the item related to the described price point within this object |
| description | Max140 Text | Optional | The ASPSP may use this attribute to include an explanatory text into its price model clarifying the given price point. |
| unitBase Parameter | Max140 Text | {Or – Optional | If the base parameter is defined discretely (e.g. in case of the frequency), then this parameter yields the data value(s) of the base parameter such that the following pricing rule applies.<br><br>If multiple values apply for the same price point, this data element yields a colon separated list of the possible values. |
| fromBaseUnit | Max35Text | Optional – Or} | This parameter describes from which baseUnit onwards the following pricing rule applies. Together with toBaseUnit, this yields one of the intervals in priceRanges for a certain rule of pricing. |
| toBaseUnit | Max35Text | | This parameter describes until which baseUnit the given pricing rule applies. Together with fromBaseUnit, this yields one of the intervals in priceRanges for a certain rule of pricing.<br><br>If the value of this parameter is set to null, the interval is assumed to cover all units equal or bigger than the unit set in fromBaseUnit. |
| price | Amount | Mandatory | This attribute yields the price amount. |

## 2.154 Private Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| birthDate | ISODate | Optional | |
| provinceOfBirth | Max35Text | Optional | |
| cityOfBirth | Max35Text | Optional | |
| countryOfBirth | Country Code | Optional | |
| others | Array of Person Identification | Conditional | Unique identification of a person, as assigned by an institution, using an identification scheme.<br><br>Shall be used if none of the above attributes is used. |

## 2.155 Product Rights

| Attribute | Type | Condition | Description |
|---|---|---|---|
| product | Payment Product | Mandatory | payment product definitions as used in the URI for payment initiation |
| signingClass | Singing Class | Mandatory | |
| limits | Array of Limit | Optional | Limits applying to the authorisation of related payment products. |

## 2.156 Proprietary Price

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Max35Text | Mandatory | |
| price | Amount | Mandatory | |

### 2.157 Proprietary Quantity

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Max35Text | Mandatory | |
| quantity | Max35Text | Mandatory | |

### 2.158 Proxy Account Identification

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Proxy Account Type Code | {Or - optional | Type of the proxy identification |
| typeProprietary | Max35Text | Or – optional} | |
| identification | Max2048Text | mandatory | |

### 2.159 PSU Credentials

| Attribute | Type | Condition | Description |
|---|---|---|---|
| password | String | Conditional | Contains a password in plaintext. |
| encryptedPassword | String | Conditional | Is used when a password is encrypted on application level. |

This data type is used in [oFA-PFSM].

### 2.160 PSU Data

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuId | Max140Text | Mandatory | |
| psuIdType | PSU Id Type | Optional | |
| psuName | Max140Text | Mandatory | |
| psuAddress | Postal Address | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| privateId | Private Identification | Optional | |
| psuCorporateId | Max140Text | Optional | |
| psuCorporateIdType | PSU Corporate Id Type | Optional | |
| scaMethods | Array of Authentication Type | Optional | |
| limits | Array of Limit | Optional | Global limits of the PSU. |

## 2.161 PSU Header Data

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuIdRequired | Boolean | Mandatory | The ASPSP is providing whether the PSU-ID is mandatory for all of the following requests (if supported):<br>• Payment Initiation Request<br>• Consent Request<br>• Payment Cancellation<br>• Signing Basket<br>• Subscription for Push AIS<br>(IO15) |
| psuIdTypeRequired | Boolean | Mandatory | The PSU-ID-Type is necessary if different types of identifiers are allowed by the ASPSP to login and the ASPSP is either not able or does not want to identify the type from the content of the field PSU-ID. Usual examples for a PSU-ID-Types are: |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | • Username<br>• Customer reference number<br>• Account reference, e.g. an IBAN or MSISDN<br>• email address<br>The ASPSP has to decide whether the PSU-ID-TYPE (additional to the PSU-ID) is mandatory in all of the following requests where supported<br><br>• Payment Initiation Request<br>• Consent Request<br>• Payment Cancellation<br>• Signing Basket<br>• Subscription Request<br><br>(IO16) |
| supportedPsuIdTypes | Array of PSU ID Type | Conditional | Shall be supported, if psu-id-typeRequired equals true. |
| psuCorporate-idRequired | Boolean | Mandatory | PSU-Corporate-ID required in transaction initiation message, if a corporate account is affected<br><br>(IO19) |
| psuCorporateIdTypeRequired | Boolean | Mandatory | PSU-Corporate-ID-TYPE re-quired in message, if a corporate account is affected<br><br>(IO20) |
| supportedPsuCorporateIdTypes | Array of PSU | Conditional | Shall be supported, if psu-corporate-id-typeRequired equals true. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | Corporate ID Type | | |

### 2.162 PSU Id Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuIdType | Max35Text | Mandatory | A supported PSU-Id-Type. |
| description | Max250Text | Optional | Additional description of the addressed PSU-Id-Type. |

### 2.163 PSU Corporate Id Type

| Attribute | Type | Condition | Description |
|---|---|---|---|
| psuCorporateIdType | Max35Text | Mandatory | A supported PSU-Corporate-Id-Type. |
| description | Max250Text | Optional | Additional description of the addressed PSU-Corporate-Id-Type. |

### 2.164 Push Account Entry Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accountEntryCriteria | Push Account Entry Trigger Criteria | Optional | This attribute is defining the account entries to be pushed to the API Client push URI: All entries which are fulfilling **all** the criteria listed in this attribute will be pushed.<br><br>If the attribute is not provided, all account entries will be pushed. |
| acceptedFormat | Mime Type Code | Mandatory | This attribute describes the mime type which is supported for pushing the account entries by the API Client. If there is no match with the mime types offered by the ASPSP, |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | the subscription is rejected with a dedicated error code. |
| preferredAttributes | Array of Max35Text | Optional | These attributes are the preferred ones for every account entry to be pushed. The ASPSP might ignore this preference. Only attributes of the first level of Type Transactions as defined in [oFA-IG-Com] might be used. |
| documentsPreferred | Boolean | Optional | **RFU**: This data element indicates that the API Client prefers to also receive documents attached to an account entry. This data attribute might be ignored by the ASPSP. |

This data type is used in [oFA -IG-PAIS].

### 2.165 Push Account Entry Trigger Criteria

| Attribute | Type | Condition | Description |
|---|---|---|---|
| bankTransactionCodePatterns | Array of Bank Transaction Code Pattern | optional | The criterion is fulfilled if the bankTransactionCode of the related account entry matches one of the bank transaction codes or code patterns (see the following paragraph) defined by this list.<br><br>Any particle of the Bank Transaction Code triple might be replaced by the "????" character, indicating that all sub family codes apply. However, at least one particle of the triple must be stated explicitly (e.g. "????-CCRD-????"). |
| proprietaryBankCodes | Array of Max35Text | Optional | The criterion is fulfilled if the proprietaryBankTransactionCode of the related account entry equals one of the proprietary bank |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | transaction codes defined by this list. |
| accountEntryStatus | Account Entry Status | Optional | The criterion is fulfilled if the account entry has the related status booked or pending respectively.<br><br>**Note:** Entries might be pushed twice in case where this criterion is not provided if the transactionStatus is changed from pending to booked in the account system. |
| maximumAmount | Amount | Optional | The criterion is fulfilled if the (absolute value of the) transactionAmount of the related account entry is provided in the same currency and if the transactionAmount is less or equal to the amount provided in this attribute. |
| minimumAmount | Amount | Optional | The criterion is fulfilled if the (absolute value of the) transactionAmount of the related account entry is provided in the same currency and if the transactionAmount is greater or equal to the amount provided in this attribute. |
| debtorAccount | Account Reference | Optional | The criterion is fulfilled if the counterparty account of the related account entry is a debtor account and equals the account defined in this attribute. |
| creditorAccount | Account Reference | Optional | The criterion is fulfilled if the counterparty account of the related account entry is a creditor account |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | and equals the account defined in this attribute. |
| creditDebitIndicator | Credit Debit Code | Optional | The criterion is fulfilled if the related account entry is a credit as defined in this attribute, or a debit respectively. |
| endToEndId | Max35Text | Optional | The criterion is fulfilled if the endToEndId of the related accountpayment entry equals the string provided in this attribute. |
| purpose | Purpose Code | Optional | The criterion is fulfilled if the related account entry has a purpose code equal to the code provided in this attribute. |
| remittanceInformation Unstructured | Max140Text | Optional | The criterion is fulfilled if the related account entry has an unstructured remittance information where the string provided in this attribute is contained as a substring. When comparing substrings, the usage of small or capital letters is ignored. |

## 2.166 Push Account Statements Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accountStatementCriteria | Push Account Statement Trigger Criteria | Mandatory | This attribute is defining the account statements to be pushed to the API Client push URI: Every time, the criteria listed in this attribute are all fulfilled, the current account statement of the related account is pushed. |

This data type is used in [oFA -IG-PAIS].

## 2.167 Push Account Statement Trigger Criteria

| Attribute | Type | Condition | Description |
|---|---|---|---|
| reports | Max35Text | {OR | One of the values ""MT942" or one of the camt.052 versions offered in the Discovery API should be used, e.g. "camt.052.001.02", "BG.JSON2.0". " The criterion is fulfilled if a related report is available.If the related report format is not supported, then the ASPSP is rejecting the subscription with a dedicated error code. |
| notifications | Max35Text | OR | One of the values "MT941", "MT900", "MT910" or camt.054 versions.<br><br>If the related notification format is not supported, then the ASPSP is rejecting the subscription with a dedicated error code. |
| statements | Max35Text | OR} | One of the values "MT940", and "camt.053", "BG.JSON2.0" shall be used. The criterion is fulfilled if a related statement is available.<br><br>If the related statement format is not supported, then the ASPSP is rejecting the subscription with a dedicated error code. |
| event | Max35Text | Optional | Only the value "afterGeneration" may be used. The criterion is fulfilled if the related report is generated and made available to the PSU in the online channel. |
| times | Array of ISO Time | Optional | The value is provided in format "hh:mm:ss". The criterion is fulfilled if the current local ASPSP time is |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | matching one of the defined times in the list of times.<br><br>The list shall not be empty. |

## 2.168 Push Balance Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| balanceCriteria | Push Balance Trigger Criteria | Mandatory | This attribute is defining the balance information to be pushed to the API Client push URI: Every time, a balance is fulfilling all the criteria listed in this attribute it is pushed. |

This data type is used in [oFA -IG-PAIS].

## 2.169 Push Balance Trigger Criteria

| Attribute | Type | Condition | Description |
|---|---|---|---|
| balanceAmount | Amount | Optional | The criterion is fulfilled if the current balance of type balanceType provided below fulfills the balanceOperator requirement provided below together with the provided balanceAmount in this attribute and where the last provided balance did not fulfill it. |
| balanceOperator | Max35Text | Optional | Must be one of the folowing codes:<br><br>• less,<br>• lessOrEqual,<br>• greaterOrEqual,<br>• greater |
| balanceType | Balance Type | Optional | This criterion is fulfilled if the balance is of this type.<br><br>If the related balance type is not supported for the addressed account, then the ASPSP is |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | rejecting the subscription with a dedicated error code. |
| creditLimitIncluded | Boolean | Optional | This criterion is fulfilled if the related current balance is provided with the credit limit included (if this attribute is true) or not (if this attribute is false).<br><br>If the attribute is true and if the related balance type defined above is not applicable to the condition whether a credit limit is included then the subscription is rejected with a dedicated error code. |
| times | Array of ISO Time | Optional | The value is provided in format "hh:mm:ss". The criterion is fulfilled if the current local ASPSP time is matching one of the defined times in the list of times.<br><br>The list shall not be empty. |

## 2.170 Push RTP Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| rtpCriteria | Push RTP Trigger Criteria | Optional | This attribute is defining the incoming RTP requests to be pushed to the API Client push URI: All RTPs which are fulfilling all the criteria listed in this attribute will be pushed.<br><br>If the attribute is not provided, all RTPs will be pushed as soon as they are arriving at the ASPSP's system. |
| acceptedFormat | Mime Type Code | Mandatory | This is defining the mime type. If the requested mime type is not supported by the ASPSP, the |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | request is rejected. If not used, then the ASPSP is choosing the mime type.<br><br>At a minimum the ASPSP shall support a JSON mime type. |
| documentsPreferred | Boolean | Optional | **RFU**: This data element indicates that the API Client prefers to also receive documents attached to an RTP. This data attribute might be ignored by the ASPSP. |

This data type is used in [oFA -IG-PAIS].

## 2.171 Push RTP Trigger Criteria

| Attribute | Type | Condition | Description |
|---|---|---|---|
| event | Max35Text | Optional | "afterReception" is the only supported value. |
| timeToExpire | Integer | Optional | only forward incoming RTP with an expiry timestamp within that period, where the period is defined by the number of minutes as provided in this attribute. This criterion is meant to forward only short term RTPs. |
| expiryReminder | Boolean | Optional | This criterion is fulfilled if a long term RTP is still not confirmed 2 days before the RTP expires. |

## 2.172 Quantity

| Attribute | Type | Condition | Description |
|---|---|---|---|
| unit | Decimal Number | {Or | |
| faceAmount | Amount | Or | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amortisedValue | Amount | Or} | |

### 2.173 Rate

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typePercentage | Percentage Rate | {Or Optional | |
| typeOther | Max35Text | Or Optional} | |
| validityRange | Amount Range | Optional | Amount range, where the interest rate is applicable. |

### 2.174 Remittance

The remittance type is re-defined in version 2 to be able to support more complex requirements. This is not downwards compatible.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| referredDocumentInformation | Referred Document Information | Optional | Set of elements used to identify the documents referred to in the remittance information. |
| creditorReferenceInformation | Creditor Reference Information | Optional | Reference information provided by the creditor to allow the identification of the underlying documents. |
| additionalRemittanceInformation | Array of Max140Text | Optional | Additional information to be displayed to the PSU e.g. within authorisation processes. This will not be used in related interbank payments. |

This data type is used in [oFA-PFSM], [oFA-IG-XPIS].

### 2.175 Remittance Reports

| Attribute | Type | Condition | Description |
|---|---|---|---|
| referredDocumentInformation | Array of Referred Document Information | Optional | Set of elements used to identify the documents referred to in the remittance information. |
| referredDocumentAmount | Remittance Amount | Optional | |
| creditorReferenceInformation | Creditor Reference Information | Optional | Reference information provided by the creditor to allow the identification of the underlying documents. |
| invoicer | Party Description | Optional | |
| invoicee | Party Description | Optional | |
| taxRemittance | | Optional | |
| garnishmentRemittance | | Optional | |
| additionalRemittanceInformation | Array of Max140Text | Optional | Additional information to be displayed to the PSU e.g. within authorisation processes. This will not be used in related interbank payments. |

### 2.176 Remittance Location

| Attribute | Type | Condition | Description |
|---|---|---|---|
| method | Method Code | Mandatory | |
| electronicAddress | Max2048Text | Option | Electronic address to which an agent is to send the remittance information. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| postalAddress | Party Description2 | Optional | |

## 2.177 References

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accountServicer Reference | Max35Text | Optional | |
| instructionId | Max35Text | Optional | Unique identification as assigned by an instructing party for an instructed party to unambiguously identify the instruction. |
| endToEndId | Max35Text | Optional | |
| uetr | UUID | Optional | Universally unique identifier to provide an end-to-end reference of a payment transaction.<br><br>It is recommended to use time-based version (version 1) and variant 8,9,a or b of the UUID as defined in [RFC4122] for UUID fields such as uetr. |
| mandateId | Optional | Optional | direct debit related mandate. |
| checkNumber | Max35Text | Optional | |

## 2.178 References Statement

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageId | Max35Text | Optional | |
| accountServicer Reference | Max35Text | Optional | |
| paymentInformationId | Max35Text | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| instructionId | Max35Text | Optional | Unique identification as assigned by an instructing party for an instructed party to unambiguously identify the instruction. |
| endToEndId | Max35Text | Optional | |
| uetr | UUID | Optional | Universally unique identifier to provide an end-to-end reference of a payment transaction.<br><br>It is recommended to use time-based version (version 1) and variant 8,9,a or b of the UUID as defined in [RFC4122] for UUID fields such as uetr. |
| transactionId | Max35Text | Optional | |
| mandateId | Max35Text | Optional | direct debit related mandate. |
| checkNumber | Max35Text | Optional | |
| clearingSystemReference | Max35Text | Optional | Unique reference as defined by clearing system. |
| accountOwnerTransactionId | Max35Text | Optional | Unambiguous identification of the securities transaction as known by the securities account owner (or the instructing party managing the account). |
| accountServicerTransactionId | Max35Text | Optional | Unambiguous identification of the securities transaction as known by the securities account servicer. |
| marketInfrastructureTransactionId | Max35Text | Optional | Identification of a securities transaction assigned by a market infrastructure other |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | than a central securities depository, for example, Target2-Securities. |
| processingId | Max35Text | Optional | Identification of the securities transaction assigned by the processor of the instruction other than the securities account owner, the securities account servicer and the market infrastructure. |

## 2.179 Referred Document Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Referred Document Type Code | {Or - Optional | Specifies the type of referred document, provided as code. |
| typeProprietary | Max35Text | Or – Optional} | Specifies the type of referred document, provided in proprietary encoding. |
| typeIssuer | Max35Text | Optional | Issuer of the document type. |
| number | Max35Text | Optional | Unique and unambiguous identification of the referred document. |
| relatedDate | ISO Date | Optional | Date associated with the referred document. |

## 2.180 Related Agents

| Attribute | Type | Condition | Description |
|---|---|---|---|
| instructingAgent | Agent Description | Optional | |
| instructedAgent | Agent Description | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| debtorAgent | Agent Description | Optional | |
| creditorAgent | Agent Description | Optional | |
| intermediaryAgent1 | Agent Description | Optional | |
| intermediaryAgent2 | Agent Description | Optional | |
| intermediaryAgent3 | Agent Description | Optional | |
| receivingAgent | Agent Description | Optional | |
| deliveringAgent | Agent Description | Optional | |
| issuingAgent | Agent Description | Optional | |
| settlementPlace | Agent Description | Optional | |

### 2.181 Related Dates

| Attribute | Type | Condition | Description |
|---|---|---|---|
| acceptanceDateTime | ISODateTime | Optional | |
| tradeActivityContractualSettlementDate | ISODate | Optional | |
| tradeDate | ISODate | Optional | |
| interbankSettlementDate | ISODate | Optional | |
| startDate | ISODate | Optional | |
| endDate | ISODate | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionDateTime | ISODateTime | Optional | |

## 2.182 Related Document Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| resourceId | UUID | Mandatory | |
| relationCode | Max35Text | {Or | "parentDocument"<br><br>**RFU**: In future, replacements might be supported, if underlying use cases have been clarified with the market demand side. |
| relationProprietary | Max35Text | Or} | |

This code is used in [oFA-IG-Doc].

## 2.183 Related Parties

| Attribute | Type | Condition | Description |
|---|---|---|---|
| initiatingParty | Party Description | {Or | |
| initiatingPartyAgent | Agent Description | Or} | |
| debtor | Party Description | {Or | |
| debtorAgent | Agent Description | Or} | |
| debtorAccount | Account Reference | | |
| ultimateDebtor | Party Description | {Or | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| utlimateDebtorAgent | Agent Description | Or} | |
| creditor | Party Description | {Or | |
| creditorAgent | Agent Description | Or} | |
| creditorAccount | Account Reference | Optional | |
| ultimateCreditor | Party Description | {Or | |
| ultimateCreditorAgent | Agent Description | Or} | |
| tradingParty | Party Description | {Or | |
| tradingPartyAgent | Agent Description | Or} | |

## 2.184 Related Price

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dealPriceTypeYielded | Boolean | {Or | |
| dealPriceTypeValueType | Price Value Type Code | Or | |
| dealPriceValueRate | Percentage Rate | Or | |
| dealPriceValueAmount | Amount | Or | |
| proprietary | Array of Proprietary Price | Or} | |

## 2.185 Related Remittance

| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittance Identifciation | Max35Text | Optional | |
| remittanceLoactionDetails | Array of Remittance Location | Optional | Set of elements used to provide information on the location and/or delivery of the remittance information |

## 2.186 Related Quantities

| Attribute | Type | Condition | Description |
|---|---|---|---|
| quantity | Quantity | {Or | |
| originalAndCurrent FaceAmount | Original and Current Face Amount | Or | |
| proprietary | Proprietary Quantity | Or} | |

## 2.187 Referred Mandate Document Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Referred Document Type Code | {Or – Optional | Specifies the type of referred document, provided as code. |
| typeProprietary | Max35Text | Or – Optional} | Specifies the type of referred document, provided in proprietary encoding. |
| typeIssuer | Max35Text | Optional | Issuer of the document type. |
| number | Max35Text | Optional | Unique and unambiguous identification of the referred document. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditorReference | Max35Text | Optional | Unique and unambiguous identification as assigned by the creditor to the referred document<br><br>shared with the debtor for its own reference. |
| relatedDate | ISO Date | Optional | Date associated with the referred document. |

## 2.188 Regulatory Reporting

| Attribute | Type | Condition | Description |
|---|---|---|---|
| debitCreditReportingIndicator | Regulatory Reporting Type Code | Optional | Identifies whether the regulatory reporting information applies to the debit side, to the credit side or to both debit and credit sides of the transaction. |
| detailsCode | Max35Text | Optional | Specifies the nature, purpose, and reason for the transaction to be reported for regulatory and statutory requirements in a coded form. |
| detailsInformation | Array of Max35Text | Optional | Additional details that cater for specific domestic regulatory requirements. |

This data type is used in [oFA-PFSM].

## 2.189 Report Exchange Rate

| Attribute | Type | Condition | Description |
|---|---|---|---|
| sourceCurrency | Currency Code | Mandatory | Currency from which an amount is to be converted in a currency conversion. |
| exchangeRate | String | Mandatory | Factor used to convert an amount from one currency into another. This reflects |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | the price at which one currency was bought with another currency. |
| unitCurrency | Currency Code | Mandatory | Currency in which the rate of exchange is expressed in a currency exchange. In the example 1EUR = xxxCUR, the unit currency is EUR. |
| targetCurrency | Currency Code | Mandatory | Currency into which an amount is to be converted in a currency conversion. |
| quotationDate | ISODate | Mandatory | Date at which an exchange rate is quoted. |
| contractIdentification | Max35Text | Optional | Unique identification to unambiguously identify the foreign exchange contract. |

### 2.190 RTP Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentConditions | Payment Conditions | optional | Conditions for the execution of the payment. |
| creationDateTime | ISODateTime | optional | creationDateTime of the originator |
| requestedExpiry DateTime | ISODateTime | mandatory | Date and Time at which this request expires. |
| originatorPspId | Financial Institution Identification | Optional | Originator payment service provider in case of indirect participation regarding a related API Access Scheme or bilateral contract |

### 2.191 Safekeeping Account

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | |
| typeId | 4Text | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeIssuer | Max35Text | Optional | |
| typeSchemeName | Max35Text | Optional | |
| name | Max70Text | Optional | |

## 2.192 SCA Approach Methods Mapping

| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaApproach | SCA Approach Type | Mandatory | |
| scaMethods | Array of Authentication Type | Mandatory | |

## 2.193 Securities Account Fee

Represents a Fee rule that is applicable to a securities account:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Securities Fee Type Code | {Or | Type of the fee as a code.<br><br>Might be adjusted in the future based on market experience. |
| typeProprietary | Max35Text | Or} | Type of the fee as a proprietary string. |
| feeRules | Array of Securities Account Fee Rule | Mandatory | Array of fee rules. Each rule represents ow the amount of the fee is determined either explicitly by stating the amount or implicitly by providing a percentage, |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | minimum and maximum amount.<br><br>This array will usually only contain one entry to represent the whole rule. Only in the case of the fee being calculated as a tiered percentage, several entries are included to represent the several tiers of the fee rule. |
| applicableFrom | ISODate | Optional | First date, when this fee is applicable.<br><br>If not present, the fee is applicable starting with the creation of this account / the latest reporting date supported by the ASPSP. |
| applicableTo | ISODate | Optional | Last date, when this fee is applicable.<br><br>If not present, the fee is applicable indefinitely. |
| additionalInformation | Max500Text | Optional | |

### 2.194 Securities Account Fee Rule

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | {Or | Amount of the fee. |
| percentage | String | Or} | Percentage of the fee.<br><br>Up to 20 significant figures. The decimal separator is a dot. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Trailing zeroes must be truncated.Fee as a percentage. |
| fromBaseAmount | Amount | Optional | To be used for fees where a tiered percentage is used to calculate the fee relative to an implicitly defined base amount (such as a transaction's volume being the base amount for a courtage).<br><br>The range of one tier is defined as all applicable entities with base amounts X and<br><br>fromBaseAmount ≤ X ≤ toBaseAmount.<br><br>In any array of fee rules, only one of these entries may be missing the "fromBaseAmount" element (indicating that the rule represented by this entry is used without a lower bound to the base amount) and only one entry may be missing the "toBaseAmount" element (indicating that the rule represented by this entry is applied without an upper limit to the base amount).<br><br>In cases, where the fee is not calculated as a tiered percentage, only one entry in array "feeRules" is included. This entry must be missing both subelements |
| toBaseAmount | Amount | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "fromBaseAmount" and "toBaseAmount". |
| minimumAmount | Amount | Optional | Minimum amount of the fee in each billing period / for each billed event if applicable. |
| maximumAmount | Amount | Optional | Maximum amount of the fee in each billing / for each billed event period if applicable. |

## 2.195 Securities Order

| Attribute | Type | Condition | Description |
|---|---|---|---|
| orderId | String | Optional | Can be used as access-ID in the API, where more details on an order is offered.<br><br>If this data attribute is provided, this shows that the API Client can get access on more details about this transaction using the Read Securities Order Details Request.<br><br>**Remark:** Implementers might want to anticipate future services supporting placement or revocation of orders via the openFinance API. It is therefore recommended to define the orderId in a way that it will also identify an order in the case of a placement / revocation. |
| side | Securities Order Side | Mandatory | Type of transaction that is associated with this order. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstrument | Financial Instrument Identification | Mandatory | Financial instrument the order refers to. |
| unitsNumberOrder | Number | {Or | Nominal or numeric quantification of the financial instrument that is ordered. |
| unitsNominalOrder | Amount | Or} | |
| unitsNumberDisplay | Number | {Or – Optional | Nominal or numeric quantification of the order that shall be displayed. |
| unitsNominalDisplay | Amount | Or - Optional} | |
| placeOfTrade | Market Identification | Optional | |
| limitPriceAmount | Amount | {Or- Optional | Limit price displayed as an amount. |
| limitPricePercent | String | Or – Optional} | Limit price displayed as a percentage rate.<br><br>Up to 20 significant figures. The decimal separator is a dot.<br><br>Trailing zeroes must be truncated. |
| stopPriceAmount | Amount | {Or- Optional | Stop price displayed as an amount. |
| stopPricePercent | String | Or – Optional} | Stop price displayed as a percentage rate.<br><br>Up to 20 significant figures. The decimal separator is a dot.<br><br>Trailing zeroes must be truncated. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| tradingSessionIndicator | Trading Session Type Code | Optional | |
| typesOfOrder | Array of Type of Order Code | Optional | One or more codes to indicate characteristics of the order. |
| timeInForce | Order Time Limit Code | Optional | If the order is restricted by a time limit, the type time limit is indicated by a value of the corresponding code set. |
| expiryDate | ISODate | {Or - Optional | Expiry date of the order if applicable. |
| expiryDateTime | ISODateTime | Or – Optional} | Expiry date and time of the order if applicable. |
| relatedCashAccount | Account Reference Statements | Optional | If the execution of this order implies the transfer of money, cash account to be affected by this transfer from the PSU's side. |
| orderSplit | Boolean | Optional | Value true indicates that this order is the result of an order split. Missing values indicate "false". |
| orderModifyable | Boolean | Optional | Value true indicates that this order can (still) be modified. Missing values indicate "false". |
| orderStatus | Order Status Code | Mandatory | |
| details | Max500Text | Optional | Additional details to the position |
| _links | Links | Optional | The following types of links are supported:<br><br>"relatedOrders": An **array** of links to request order details of related orders (e.g. other |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | orders that originated from the same order split as this order).<br><br>"relatedTransactions": An **array** of links to request securities transaction details of transactions that resulted from this order.<br><br>"orderDetails": **Single** link for retrieving details on this specific order. |

## 2.196 Securities Position

This data structure represents one position within a securities account:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstrument | Financial Instrument Identification | Mandatory | Financial Instrument that is contained in this position. |
| unitsNumber | Number | {Or | Nominal or numeric quantification of the financial instrument within this position, negative values for short positions. |
| unitsNominal | Amount | Or} | |
| externalIdentifier | Max35Text | Optional | Name or identifier with an intrinsic meaning for the PSU to be displayed. |
| safekeepingPlace | BICFI | Optional | BIC of the place where the securities are safe-kept, physically or notionally. |
| safekeepingCountry | Country Code | Optional | Country where the securities are safe-kept. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| balanceType | SecuritiesBalanceTypeCode | Optional | Specifies the nature of the securities or investment fund balance.<br><br>Type of balance in case of multiple positions for the same financial instrument for further distinction.<br><br>**Remark**: In consequence, several positions with the same financial instrument may occur in one position list, having different values of balanceType". |
| averageBuyingPrice | Amount | Optional | Average buying price of the position excluding any fees or taxes. |
| averageSellingPrice | Amount | Optional | Average selling price of the position, e.g. in case of a short position Price excluding any fees or taxes. |
| totalBuyingPrice | Amount | Optional | In case of bonds, an average buying price does not make sense. Therefore, the total buying price excluding any fees or taxes can be displayed instead. |
| estimatedCurrentValue | Evaluated Amount | Optional | Estimated value of the position and timestamp of the estimation. |
| accruedInterest | Accrued Interest | Optional | Accrued interest by the position. |
| currencyExchange | Array of Report Exchange Rate | Optional | The ASPSP might include exchange rates e.g. if the security is denoted in another currency than the account itself. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| details | Max500Text | Optional | Additional details describing the position. |

## 2.197 Securities related Date or Time

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | String | Mandatory | Type of the date / date time. The following values are pre-defined:<br>• effectiveSettlementDate,<br>• settlementDate,<br>• valueDate,<br>• performanceDate,<br>• bookingDate,<br>• transactionDate |
| date | ISODate | {Or | |
| dateAndTime | ISODateTime | Or} | |

## 2.198 Securities Transaction

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionId | String | Optional | Can be used as access-ID in the API, where more details on a transaction is offered. If this data attribute is provided, this shows that the API Client can get access on more details about this transaction using the Read Transaction Details Request. |
| entryReference | Max35Text | Optional | Identification of the transaction as used e.g. for |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | reference for deltafunction on application level. |
| relevantDates | Array of Securities related Date or Time | Mandatory | At least one entry containing a pre-defined date type must be present. |
| financialInstrument | Financial Instrument Identification | Mandatory | Financial instrument that was transferred within the transaction. |
| orderId | String | Optional | Resource Id of the order resource that triggered this transaction, if applicable. |
| unitsNumber | Number | {Or | Nominal or numeric quantification of the financial instrument that has been transferred within this transaction.<br><br>Negative values indicate that the respective quantity of the financial instrument has been taken from the securities account, positive values indicate that the quantity has been added. |
| unitsNominal | Amount | Or} | |
| transactionTypeCode | Transaction Activity Code | {Or | Type of the transaction as code or as a proprietary string. |
| transactionTypeProprietary | Max35Text | Or} | |
| placeOfTrade | Market Identification | Optional | |
| amountIncludesFees | Boolean | Optional | Indicates whether the transactionAmount (see below) is including fees.<br><br>Default: false. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amountIncludesTaxes | Boolean | Optional | Indicates whether the transactionAmount (see below) is including taxes.<br><br>Default: false. |
| transactionAmount | Amount | Optional | Transaction amount for the transferred security for the PSU. Potential fees or taxes are reflected as indicated by elements "amountIncludesFees" and "amountIncludesTaxes".<br><br>**Remark:** The price denoted here is the price for the whole lot of securities within this transaction, not for a single item. |
| relatedFees | Array of Securities Transaction Fee | Optional | Only allowed if amountIncludesFees = true. In that case, the structure contains details of the fees that have been applied to this transaction (and therefore represent additional costs of the transaction beyond the transactionAmount).<br><br>Fees with positive amount are debited by the PSU, only in the rare case of a fee credited to the PSU (e.g. in case of a reversal) negative amounts are used. |
| currencyExchange | Array of Report Exchange Rate | Optional | The ASPSP might include exchange rates e.g. if the transaction has been settled in another currency than the PSU's currency. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| reversal Indicator | Boolean | Optional | Indicates whether it is the reversal of a previously reported movement.<br><br>Default: false |
| reversed TransactionId | String | Optional | "transactionId" of the reversed transaction, if applicable and supported by the ASPSP. |
| unitsNumber BeforeTx | Number | {Or - Optional | Nominal or numeric quantification of the financial instrument within the primary position before the transaction, negative values for short positions. |
| unitsNominal BeforeTx | Amount | Or - Optional } | |
| unitsNumber AfterTx | Number | {Or - Optional | Nominal or numeric quantification of the financial instrument within the primary position after the transaction, negative values for short positions. |
| unitsNominal AfterTx | Amount | Or - Optional } | |
| accruedInterest | Accrued Interest | Optional | Accrued interest of the position to make transparent what the PSU really lost within this transaction. |
| details | Max500Text | Optional | Additional details to the transaction. |
| _links | Links | Optional | The following types of links are supported:<br><br>"transactionDetails": Single link for retrieving details on this specific transaction. |

## 2.199 Securities Transaction Fee

| Attribute | Type | Condition | Description |
|---|---|---|---|
| typeCode | Securities Fee Type Code | {Or | |
| typeProprietary | Max35Text | Or} | |
| amount | Amount | Mandatory | |
| _links | Links | Optional | Links to resources, where the ASPSP can provide additional information on the fee, e.g. an overview on the general fee rules of the underlying securities account.<br><br>Currently no specific href types are defined in this context. |

## 2.200 Service Price List

| Parameter | Type | Condition | Description |
|---|---|---|---|
| serviceType | Service Type | {Or | This attribute specifies the service type of the service covered by this service price list. |
| serviceType List | Array of Service Type | Or} | This attribute specifies a list of service types of the services covered by this service price list. |
| service Description | Max140Text | Optional | Description of the service |
| validFrom | ISODate | Mandatory | Together with the validTo date this yields the validity period for which the price model given in this service price list applies. |
| validTo | ISODate | Mandatory | Together with the validFrom date this yields the validity period for which the price model given in this service price list applies. |

| Parameter | Type | Condition | Description |
|---|---|---|---|
| subservice Endpoints | Array of Price List Details 1 | Conditional | Must be used if the "flatFee" parameter is not included. This yields a list of all service endpoints related to the given service type and addressable at the ASPSP's API.<br><br>Each service endpoint included in this parameter obtains its own pricing rules within this parameter. |
| flatFee | Flat Fee Details | Optional | This attribute yields the flat fee applicable for the given service type.<br><br>All flat fee prices arise independently of specific parameters used in the related API calls and are issued periodically for a given period/frequency. |
| account Usage | Max4Text | Optional | Specifies that the price list only applies if the addressed account fits the account usage given in this parameter.<br><br>The possible values are:<br><br>- PRIV: private personal account<br>- ORGA: professional account |

### 2.201 Source of Price

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Market Type Code | Mandatory | |
| mic | Max4Text | {Or - Optional | If the type indicates local Market (Code: "LMAR"), the identification of the market should additionally be included here.<br><br>Technically, Source of Price is an extension of Market Identification. |
| market Identifier Proprietary | Max35Text | Or - Optional } | |

## 2.202 Standing Order Details Information

Standing orders have a double face related to the openFinance API: they may be initiatied and managed as part of a PIS service or are accessed/operated via AIS services. The attributes contained in standing order details depend in which context the standing order is addressed. This data type shall be used for AIS accesses only.

First, any attribute of the underlying payment product as defined in [oFA-PFSM] may be used. Additionally, the following attributes are used:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment product | String | Optional | This yields the payment product of the standing order resource. |
| paymentId | UUID | Optional | Resource Identifier of the standing order resource. |
| startDate | ISODate | {Or | The first applicable day of execution starting from this date the first payment was/will be executed. |
| startDateTime | ISODateTime | Or} | The first applicable day and time of execution starting from this timestamp.<br><br>This attribute is only applicable to instant payments. Seconds and milli seconds might be ignored by the ASPSP.<br><br>The ASPSP might restrict the implementation to startDate. This restriction will be part of the ASPSP documentation. |
| endDate | ISODate | {Optional Or | The last applicable day of execution<br><br>If not given, it is an infinite standing order. |
| endDateTime | ISODateTime | Optional Or} | The last applicable day and time of requested execution.<br><br>This attribute is only applicable to instant payments.<br><br>If none of the attributes is given, it is an infinite standing order. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | The ASPSP might restrict the implementation to endDate. This restriction will be part of the ASPSP documentation. |
| displayName | Max70Text | Optional | Name of the standing order defined by the PSU and displayed within the online channels |
| executionRule | Execution Rule Code | Optional | "following" or "preceding" supported as values. This data attribute defines the behavior when a transaction date resulting from a standing order falls on a weekend or bank holiday. The payment is then executed either the "preceding" or "following" working day. |
| withinAMonthFlag | Boolean | Optional | This element is only used in case of frequency equals "Monthly".<br><br>If this element equals false it has no effect. If this element equals true, then the execution rule is overruled if the day of execution would fall into a different month using the execution rule.<br><br>**Example**: executionRule equals "preceding", dayOfExecution equals "02" and the second of a month is a Sunday. In this case, the transaction date would be on the last day of the month before. This would be overruled if withinAMonthFlag equals true and the payment is processed on Monday the third of the Month.<br><br>**Remark:** This attribute is rarely supported in the market. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| monthsOfExecution | Array of Max2Text | Conditional | The format is following the regular expression \d{1,2}. The array is restricted to 11 entries. The values contained In the array entries shall all be different and the maximum value of one entry is 12. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | This attribute is contained if and only if the frequency equals "MonthlyVariable".<br><br>Example: An execution on January, April and October each year is addressed by ["1". "4", "10"]. |
| multiplicator | Numerical | Optional | This is multiplying the given frequency resulting the exact frequency, e.g.<br><br>Frequency=weekly and multiplicator=3 means every 3 weeks.<br><br>**Remark**: This attribute is rarely supported in the market. |
| dayOfExecution | Max2Text | Optional | "31" is ultimo.<br><br>The format is following the regular expression \d{1,2}.<br><br>Example: The first day is addressed by "1".<br><br>The date is referring to the time zone of the ASPSP. |
| limitAmount | Amount | Conditional | limitAmount<br><br>Amount limit for fund skimming, e.g. skim all funds above this limit to savings account, i.e. typically a specific periodic payments with fixed remaining amount rather than fixed transaction amount. Amount may be zero as well as below zero, i.e. negative.<br><br>Constraints: transactionAmount needs to be zero and bankTransactionCode needs to specify PMNT-MCOP-OTHR for fund skimming |
| _links | Links | Optional | Links to the standing order resource, which can be directly used for retrieving information on the standing order.<br><br>If the ASPSP supports Change Transaction Resource Processes for Standing Order resources via its API and if the respective |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | resource is currently undergoing a change process, then the link "changeVersion?{inChange=true}" to the changed version must be included here.<br><br>These links are only supported, when the corresponding consent has been already granted. |

This data type is used in [oFA-IG-SO].

### 2.203 Standing Order Details Submission

Standing orders have a double face related to the openFinance API: they may be initiatied and managed as part of a PIS service or are accessed/operated via AIS services. The attributes contained in standing order details depend in which context the standing order is addressed. This data type shall be used for PIS accesse scenarios only

First, any attribute of the underlying payment product as defined in [oFA-PFSM] may be used. Additionally, the following attributes are used:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| startDate | ISODate | {Or | The first applicable day of execution starting from this date the first payment was/will be executed. |
| startDateTime | ISODateTime | Or} | The first applicable day and time of execution starting from this timestamp.<br><br>This attribute is only applicable to instant payments. Seconds and milli seconds might be ignored by the ASPSP.<br><br>The ASPSP might restrict the implementation to startDate. This restriction will be part of the ASPSP documentation. |
| endDate | ISODate | {Optional Or | The last applicable day of execution<br><br>If not given, it is an infinite standing order. |
| endDateTime | ISODateTime | Optional Or} | The last applicable day and time of requested execution. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | This attribute is only applicable to instant payments.<br><br>If none of the attributes is given, it is an infinite standing order.<br><br>The ASPSP might restrict the implementation to endDate. This restriction will be part of the ASPSP documentation. |
| displayName | Max70Text | Optional | Name of the standing order defined by the PSU and displayed within the online channels |
| executionRule | Execution Rule Code | Optional | "following" or "preceding" supported as values. This data attribute defines the behavior when a transaction date resulting from a standing order falls on a weekend or bank holiday. The payment is then executed either the "preceding" or "following" working day. |
| withinAMonthFlag | Boolean | Optional | This element is only used in case of frequency equals "Monthly".<br><br>If this element equals false it has no effect. If this element equals true, then the execution rule is overruled if the day of execution would fall into a different month using the execution rule.<br><br>**Example**: executionRule equals "preceding", dayOfExecution equals "02" and the second of a month is a Sunday. In this case, the transaction date would be on the last day of the month before. This would be overruled if withinAMonthFlag equals true and the payment is processed on Monday the third of the Month.<br><br>**Remark:** This attribute is rarely supported in the market. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| monthsOfExecution | Array of Max2Text | Conditional | The format is following the regular expression \d{1,2}. The array is restricted to 11 entries. The values contained In the array entries shall all be different and the maximum value of one entry is 12.<br><br>This attribute is contained if and only if the frequency equals "MonthlyVariable".<br><br>Example: An execution on January, April and October each year is addressed by ["1". "4", "10"]. |
| multiplicator | Numerical | Optional | This is multiplying the given frequency resulting the exact frequency, e.g.<br><br>Frequency=weekly and multiplicator=3 means every 3 weeks.<br><br>**Remark**: This attribute is rarely supported in the market. |
| dayOfExecution | Max2Text | Optional | "31" is ultimo.<br><br>The format is following the regular expression \d{1,2}.<br><br>Example: The first day is addressed by "1".<br><br>The date is referring to the time zone of the ASPSP. |
| limitAmount | Amount | Conditional | limitAmount<br><br>Amount limit for fund skimming, e.g. skim all funds above this limit to savings account, i.e. typically a specific periodic payments with fixed remaining amount rather than fixed transaction amount. Amount may be zero as well as below zero, i.e. negative.<br><br>Constraints: transactionAmount needs to be zero and bankTransactionCode needs to specify PMNT-MCOP-OTHR for fund skimming |

This data type is used in [oFA-IG-SO].

### 2.204 Statement

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Mandatory | Unique identification, as assigned by the account servicer, to unambiguously identify the account statement. |
| pageNumber | Integer | Optional | Page Number. |
| lastPageIndicator | Boolean | Optional | Indicates the last page. |
| electronicSequence Number | Integer | Optional | Sequential number of the statement, as assigned by the account servicer.<br><br>Usage: The sequential number is increased incrementally for each statement sent electronically. |
| legalSequence Number | Integer | Optional | Legal sequential number of the statement, as assigned by the account servicer. It is increased incrementally for each statement sent. |
| creationDateTime | ISODateTime | Optional | Date and time at which the statement was created. |
| fromDateTime | ISODateTime | Optional | Date and time at which the period starts.<br><br>**Remark:** The value 00:00:00 should be used for expressing that only the date is relevant |
| toDateTime | ISODateTime | Optional | Date and time at which the period ends<br><br>**Remark:** The value 24:00:00 should be used for expressing that only the date is relevant. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference4 | Mandatory | Unambiguous identification of the account to which credit and debit entries are made. |
| relatedAccount | Account Reference Statements | Optional | Identifies the parent account of the account, for which the statement has been issued. |
| interest | Array of Account Interest | Optional | Provides general interest information that applies to the account at a particular moment in time. |
| balance | Array of Balance Statement | Mandatory | Set of elements used to define the balance as a numerical representation of the net increases and decreases in an account at a specific point in time. |
| transactionSummary | Transaction Summary | Optional | Provides transction summary Information |
| entry | Array of Entry | Mandatory | One array element specifies an entry in the report. |

This data Type is used in [oFA-IG-XAIS]

### 2.205 Structured Additional Transaction Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | |
| transactionCreated | User Entry | Optional | |
| transaction Authorised | Array of User Entry | Optional | |
| transaction Cancelled | Array of User Entry | Optional | |

## 2.206 Structured Additional Information

| Attribute | Type | Condition | Description |
|---|---|---|---|
| standingOrderDetails | Standing Order DetailsSubmission | {OR | Details of underlying standing orders. |
| rtpDetails | RTP Details | OR} | Details of underlying incoming RTPs |

## 2.207 Subscription Entry

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accountId | Account Reference | Mandatory | This is the account from which related entries shall be pushed. |
| validUntil | ISODate | Optional | Requested validity period of the service. |
| subscriptionEntryName | Max35Text | Optional | Name of the subscription entry |
| subscriptionEntryId | String | Conditional | Forbidden in HTTP Requests, e.g. *Initiate Subscription Request* and in an *Add a Subscription Entry* Request by the TPP (as this is assigned by the ASPSP). Mandatory in each entry of a response from an ASPSP. |
| apiClientPrimaryPush URI | Max256Text | Mandatory | The URI where related account information shall be pushed to. |
| apiClientSecondaryPush URI | Max256Text | [Optional if supported] | The URI where related account information shall be pushed to if the primary push URI is not reachable.<br><br>If this attribute is used by the API Client and the ASPSP is not supporting this feature, then the request will be |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | rejected with a dedicated additional error information. |
| callbackWithLinkPreferred | Boolean | Optional | API Client prefers to receive hyperlinks pointing to the related account information element if the related subservice criteria are met. |
| callbackWithStaticTextPreferred | Boolean | Optional | API Client prefers to get informed by static text if the related subservice criteria are met. |
| staticCallbackText | Max140Text | Optional | The text to be provided by the ASPSP in case static text is sent if the related subservice criteria are met. |
| pushAccountEntryParameters | Push Account Entry Parameters | {Or | Parameters for a subscription entry for the Push Account Entry Service. |
| pushAccount StatementParameters | Push Account Statement Parameters | Or | Parameters for a subscription entry for the Push Account Statement Service. |
| pushBalanceParameters | Push Balance Parameters | Or | Parameters for a subscription entry for the Push Balance Information Service. |
| pushRtpParameters | Push RTP Parameters | Or} | Parameters for a subscription entry for the Push RTP Information Service. |

This data type is used in [oFA -IG-PAIS].

## 2.208 Subscription Entry and Status

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accountId | Account Reference | Mandatory | This is the account from which related entries shall be pushed. |
| validUntil | ISODate | Optional | Requested validity period of the service. |
| subscriptionEntryName | Max35Text | Optional | Name of the subscription entry |
| subscriptionEntryId | String | Mandatory | Identificiaton of the related entry |
| subscriptionEntryStatus | Subscription Entry Status | Mandatory | Status of the related subscription entry |
| apiClientPrimaryPush URI | Max256Text | Optional | The URI where related account information shall be pushed to.<br><br>**Note:** The delivery of this attribute by the ASPSP might depend on the API Channel and whether it is delivered on aggregation vs. details level |
| apiClientSecondaryPush URI | Max256Text | Optional | The URI where related account information shall be pushed to if the primary push URI is not reachable.<br><br>If this attribute is used by the API Client and the ASPSP is not supporting this feature, then the request will be rejected with a dedicated additional error information. |
| callbackWithLinkPreferred | Boolean | Optional | API Client prefers to receive hyperlinks pointing to the related account information |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | element if the related subservice criteria are met. |
| callbackWithStaticTextPreferred | Boolean | Optional | API Client prefers to get informed by static text if the related subservice criteria are met. |
| staticCallbackText | Max140Text | Optional | The text to be provided by the ASPSP in case static text is sent if the related subservice criteria are met. |
| pushAccountEntryParameters | Push Account Entry Parameters | {Optional Or | Parameters for a subscription entry for the Push Account Entry Service.<br><br>**Note:** The delivery of this attribute by the ASPSP might depend on the API Channel and whether it is delivered on aggregation vs. details level |
| pushAccount StatementParameters | Push Account Statement Parameters | Optional Or | Parameters for a subscription entry for the Push Account Statement Service. |
| pushBalanceParameters | Push Balance Parameters | Optional Or | Parameters for a subscription entry for the Push Balance Information Service. |
| pushRtpParameters | Push RTP Parameters | Optional Or} | Parameters for a subscription entry for the Push RTP Information Service. |
| _links | Links | Optional | The hyperlink of href type "entry" should be added if not all entry data was delivered in the related response message. |

This data type is used in [oFA -IG-PAIS].

## 2.209 Subscription Identification and Link

| Attribute | Type | Condition | Description |
|---|---|---|---|
| subscriptionId | Max70Text | Mandatory | Identification of the generated subscription. |
| subscriptionStatus | Max35Text | Mandatory | Status of the related subscription. |
| _links | Links | Mandatory | A hyperlink of type "subscription". |

This data type is used in [oFA -IG-PAIS].

## 2.210 Tax

| Attribute | Type | Condition | Description |
|---|---|---|---|
| identification | Max35Text | Optional | |
| rate | Percentage Rate | Optional | |
| amount | Amount | Optional | |

## 2.211 Tax Amount

| Attribute | Type | Condition | Description |
|---|---|---|---|
| rate | Rate | Optional | Rate used to calculate the tax. |
| taxableBaseAmount | Amount | Optional | Amount of money on which the tax is based. |
| totalAmount | Amount | Optional | Total amount as a result of the calculation of the tax record. |
| details | Array of Tax Details | Optional | Provides details on the tax period and amount |

## 2.212 Tax Authorisation

| Attribute | Type | Condition | Description |
|---|---|---|---|
| title | Max35Text | Optional | Title of position of the debtor or their representatives. |
| name | Max140Text | Optional | Name of the debtor or their representatives. |

## 2.213 Tax Creditor

| Attribute | Type | Condition | Description |
|---|---|---|---|
| taxId | Max35Text | Optional | Tax identification number of the creditor |
| registrationId | Max35Text | Optional | Unique identification, assigned by an organization, to identify a party. |
| taxType | Max35Text | Optional | Type of the tax payer |

## 2.214 Tax Debtor

| Attribute | Type | Condition | Description |
|---|---|---|---|
| taxId | Max35Text | Optional | Tax identification number of the debtor |
| registrationId | Max35Text | Optional | Unique identification, assigned by an organization, to identify a party. |
| taxType | Max35Text | Optional | Type of the tax payer |
| authorisation | Tax Authorisation | Optional | Details of the authorised tax paying party. |

## 2.215 Tax Details

| Attribute | Type | Condition | Description |
|---|---|---|---|
| period | Tax Period | Optional | Provides details on the period of time of the related tax payment. |
| amount | Amount | Mandatory | Tax amount related to the specified period. |

## 2.216 Tax Period

| Attribute | Type | Condition | Description |
|---|---|---|---|
| year | ISODate | Optional | Year of the related tax payment. |
| type | Tax Record Period Code | Optional | Identification of the period related to the tax payment. |
| fromToDate | ISODateTime | Optional | Start and end date of the tax report. |

## 2.217 Tax Record

| Attribute | Type | Condition | Description |
|---|---|---|---|
| type | Max35Text | Optional | High level code to identify the type of the tax details. |
| category | Max35Text | Optional | Specifies the tax code as published by the tax authority. |
| categoryDetails | Max35Text | Optional | Provides further details on the tax category code. |
| debtorStatus | Max35Text | Optional | Code provided by local authority to identify the |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | status of the party that has drawn up the settlement document. |
| certificateId | Max35Text | Optional | Identification number of the tax report as assigned by the taxing authority. |
| formsCode | Max35Text | Optional | Identifies on which template the tax report to be provided in a coded form. |
| period | Tax Period | Optional | Provides details on the period of time of the related tax payment. |
| taxAmount | Tax Amount | Optional | Provides information of the amount of the tax record. |
| additionalInformation | Max140Text | Optional | Further details of the tax record. |

## 2.218 Total Credit Entries

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of total credit entries. |

## 2.219 Total Debit Entries

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of total debit entries. |

## 2.220 Total Entries

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of total individual entries. |
| totalNetEntry | Total Net Entry | Optional | The debit or credit amount of the netted amounts of all credit and debit entries. |

## 2.221 Total Entries Per Bank Transaction Code

| Attribute | Type | Condition | Description |
|---|---|---|---|
| numberOfEntries | Max15Text | Optional | Only numeric text is permitted. |
| sum | Decimal Number | Optional | The sum of total individual entries. |
| totalNetEntry | Total Net Entry | Optional | The debit or credit amount of the netted amounts of all credit and debit entries. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditEntries | Credit Entries | Optional | Number of individual credit entries for the bank transaction code |
| debitEntries | Debit Entries | Optional | Number of individual debit entries for the bank transaction code |
| forecastIndicator | Boolean | Optional | Indicated whether the bank transaction code is related to booked or forcast items |
| bankTransactionCode | Bank Transaction Code | Mandatory | Set of elements used to fully identify the type of transaction resulting in an enty |
| availability | Array of Availability | Optional | Indicated when the booked amount of money will be available |
| date | ISODate | {Or Optional | Date of the transaction summary |
| dateTime | ISODateTime | Or Optional} | Date and time of the transaction summary |

### 2.222 Total Net Entry

| Attribute | Type | Condition | Description |
|---|---|---|---|
| amount | Amount | Mandatory | Amount of the netted amount of all debit and credit entries. |
| creditDebitIndicator | Credit Debit Code | Mandatory | Indicated whether the amount is a debit or credit amount. |

## 2.223 Transactions

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionId | String | Optional | Can be used as access-ID in the API, where more details on an transaction is offered. If this data attribute is provided this shows that the AIS can get access on more details about this transaction using the GET Transaction Details Request.<br><br>**Remark**: ASPSPs should ensure that transactionID, if provided, is unique relative to the account that PSU is accessing, in order to ensure the quality of the data provided to the API Client. |
| entryReference | Max35Text | Optional | Is the identification of the transaction as used e.g. for reference for delta function on application level. The same identification as for example used within camt.05x messages. |
| batchIndicator | Boolean | Optional | If this indicator equals `true`, then the related entry is a batch entry. |
| batchNumberOf Transactions | Integer | Conditional | Shall be used if and only if the batchIndicator is contained and equals `true`. |
| references | References | Optional | Might contain the payment identification attributes endToEndId as well as the new UETR field. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | In addition it is inlduing accountServicerReference, mandateId, checkId (all level 1 fields in V1.3.x). |
| localInstrumentCode | Local Instrument Code | {Or Optional | User community specific instrument as a code provided by ISO20022. |
| localInstrument Proprietary | Max35Text | Or Optional} | User community specific instrument as a proprietary attribute. |
| bookingDate | ISODate | Optional | The Date when an entry is posted to an account on the ASPSPs books. |
| valueDate | ISODate | Optional | Date at which assets become available to the account owner in case of a credit entry, or cease to be available to the account owner in case of a debit entry.<br><br>Usage: If entry status is pending and value date is present, then the value date refers to an expected/requested value date. |
| transactionAmount | Amount | Mandatory | The amount of the transaction or batch as billed to the account. |
| currencyExchange | Array of Report Exchange Rate | Optional | |
| amountDetails | Amount Details | Optional | Additional information to the transaction amount. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| interbankSettlementDate | ISODate | Optional | Date on which the amount of money ceases to be available to the agent that owes it and when the amount of money becomes available to the agent to which it is due. |
| cardTransaction | Card Transaction | Optional | Card transaction details in case of an underlying card transaction. |
| creditor | Party Description | Optional | Name and potentially an identification of the creditor if a "Debited" transaction |
| creditor Account | Account Reference Statements | Conditional | Account of the payee. |
| creditorAgent | Agent Description1 | Optional | Proprietary identifications might be provided under financialInstitutionId/other |
| ultimate Creditor | Party Description4 | Optional | Only name and identification is supported for now for this party. |
| debtor | Party Description | Optional | Name and potentially an identification of the debtor if a "Credited" transaction |
| debtorAccount | Account Reference Statements | Conditional | |
| debtorAgent | Agent Description1 | Optional | Proprietary identifications might be provided under financialInstitutionId/other |
| ultimateDebtor | Party Description4 | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittance Information Unstructured | Array of Max140Text | {Or Optional | |
| remittance Information Structured | Array of Remittance | Or Optional} | |
| entryDetails | Array of Entry Details | Optional | Might be used by the ASPSP to transport details about transactions within a batch. |
| additionalTransactionInformation | Max500Text | Optional | Might be used by the ASPSP to transport additional transaction related information to the PSU |
| additionalInformation Structured | Structured Additional Information | Conditional | Is used if and only if the bookingStatus entry equals "information".<br><br>Every active standing order related to the dedicated payment account result into one entry.<br><br>Each received RTP result into one entry. |
| additionalTransaction informationStructured | Structured Additional Transaction Information | Optional | Data about the transactional process of submission, authorisation and/or cancellation of the underlying payment. |
| purposeCode | Purpose Code | Optional | |
| bank TransactionCode | Bank Transaction Code | Optional | Bank transaction code as used by the ASPSP and using the sub elements of |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | this structured code defined by ISO20022.<br><br>For standing order reports the following codes are applicable:<br><br>"PMNT-ICDT-STDO" for credit transfers,<br><br>"PMNT-IRCT-STDO" for instant credit transfers<br><br>"PMNT-ICDT-XBST" for cross-border credit transfers<br><br>"PMNT-IRCT-XBST" for cross-border real time credit transfers and<br><br>"PMNT-MCOP-OTHR" for specific standing orders which have a dynamical amount to move left funds e.g. on month end to a saving account |
| bank TransactionCodeProprietary | Max35Text | Optional | proprietary bank transaction code as used within a community or within an ASPSP e.g. for MT94x based transaction reports. Renaming of the attribute to adapt to statements. |
| balanceAfter Transaction | Balance | Optional | This is the balance after this transaction. Recommended balance type is interimBooked. |
| _links | Links | Optional | The following links could be used here: |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | transactionDetails for retrieving details of a transaction. |

This data type is used in [oFA-IG-Com].

### 2.224 Transaction Detail

| Attribute | Type | Condition | Description |
|---|---|---|---|
| references | References Statement | Optional | Might contain the payment identification attributes endToEndId as well as the new UETR field.<br><br>In addition it is including e.g. accountServicerReference, mandateId, checkNumber |
| amount | Amount | Mandatory | transactionAmount for transactions |
| amountDetails | Amount Details | Optional | |
| availability | Array of Availability | Optional | |
| bankTransactionCode | Bank Transaction Code | Optional | |
| bankTransactionCodeProprietary | Max35Text | Optional | |
| bankTransactionCodeIssuer | Max35Text | Optional | Issuer of the proprietary bank transaction code. |
| bankTransactionCode proprietaryIssuer | Max35Text | Optional | Issuer of the proprietary bank transaction code. |
| charges | Charges | Optional | |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| interest | Transaction Interest | Optional | |
| relatedParties | Related Parties | Optional | |
| relatedAgents | Related Agents | Optional | |
| localInstrumentCode | Local Instrument Code | {Or Optional | |
| localInstrumentProprietary | Max35Text | Or Optional} | |
| purposeCode | Purpose Code | Optional | |
| relatedRemittanceInformation | Array of Related Remittance | Optional | Provides information related to the handling of the remittance information by any of the agents in the transaction processing chain. |
| remittanceInformation Unstructured | Array of Max140Text | {Or Optional | |
| remittanceInformation Structured | Array of Remittance Reports | Or Optional} | |
| relatedDates | Related Dates | Optional | |
| relatedPrice | Related Price | Optional | |
| relatedQuantities | Array of Related Quantity | Optional | Set of elements used to identify the related quantities, such as securities, in the underlying transaction. |

| Attribute | Type | Condition | Description |
|---|---|---|---|
| financialInstrumentId | Financial Instrument Identification | Optiional | |
| tax | Details Tax | Optional | |
| returnInformation | Payment Return Reason | Optional | |
| coporateAction | Corporate Action | Optional | |
| safekeepingAccount | Safekeeping Account | Optional | |
| cashDeposit | Array of Cash Deposit | Optional | |
| cardTransaction | Card Transaction | Optional | |
| additionalTransactionInformation | Max500Text | Optional | |

## 2.225 Transaction Interest

| Attribute | Type | Condition | Description |
|---|---|---|---|
| totalInterestAndTaxAmount | Amount | Optional | |
| record | Array of Interest Record | Optional | |

## 2.226 Transaction Summary

| Attribute | Type | Condition | Description |
|---|---|---|---|
| totalEntries | Total Entries | Optional | The total number and sum of credit and debit entries. |
| totalCreditEntries | Total Credit Entries | Optional | The total number and sum of credit entries |
| totalDebitEntries | Total Debit Entries | Optional | The total number and sum of debit entries |
| totalEntriesPerBankTransactionCode | Array of Total Entries Per Bank Transaction Code | Optional | The total number and sum of entries per bank transaction code |

## 2.227 User Parameter

| Attribute | Type | Condition | Description |
|---|---|---|---|
| userData | PSU Data | Mandatory | |
| accountAccessRights | Array of Account Access and Authorisation Rights | Mandatory | |

This data type is used in [oFA-IG-Disc].

## 2.228 User Entry

| Attribute | Type | Condition | Description |
|---|---|---|---|
| user | Max70Text | Mandatory | |
| dateTime | ISODateTime | Mandatory | |

# 3 Code Lists

**NOTE**: It is indicated below each code, in which openFinance API Framework Implementation Guidelines the related data type is used in attributes of API requests and API responses on **first** level.

## 3.1 Access Rights Codes

The current list of access right codes. This might be further extended.

| Codes | Description |
|---|---|
| ais | Allow to retrieve account details, balances and transactions |
| accountDetails | Allow retrieve generic account product information details |
| balances | Allow to retrieve balances of the addressed account. |
| transactions | Allow to retrieve transactions of the addressed account. |
| orders | Allow to retrieve orders from an addressed order book related to a securities account. |
| positions | Allow to retrieve account positions related to a securities account |
| ownerName | Allow to retrieve the owner name/owner names related to this account.<br><br>**Note**: This access right is deprecated for a later version of the specification in analogy to changing the ownerName(s) attributes to owner(s). |
| owner | Allow to retrieve the owner/owners related to this account. |
| psuName | Allow to retrive the PSU name related to the consent authorisation. |
| psuLeanIdentification | Allow to retrieve the PSU Name as well as PSU identification related data from the PSU parameters, e.g. birth date, address or passport ID. |
| trustedBeneficiaries | Allow to retrieve the list of trusted beneficiaries related to this account. |
| initiatePayments | Allow to initiate payments with the related token. |

| Codes | Description |
|---|---|
| fundsConfirmations | Allows to access an addressed account for a funds confirmation check. |
| userParameters | Allows to access the PSU's user parameters applicable to the account configuration. |
| ibanChecks | Allows to access a restricted version of the user parameters related to signing rights. |
| corporateParameters | RFU Will be supported in future. |
| accountCheckParameters | Allows to access restricted user parameters e.g. role definitions of the PSU related to the account. |

## 3.2 Account Entry Status

| Code | Description |
|---|---|
| booked | Entry is booked on the account. |
| pending | Entry is pending, funds might be reserved or not. |

## 3.3 Account Reference Code

| Attribute | Description |
|---|---|
| iban | |
| bban | |
| msisdn | |
| pan | |
| maskedPan | |
| proxy-<proxytype> | with proxytype being of Type Account Identficiation Code |

## 3.4 Account Status Code

| Code | Description |
|---|---|
| enabled | account is available |
| deleted | account is terminated |
| blocked | account is blocked e.g. for legal reasons |

## 3.5 Balance Type

The following balance types are excluding credit limits unless the creditLimitIncluded element is present and equals true in the corresponding balance element.

**Remark**: This definition is following ISO20022 logic for defining balance types.

| Type | Description |
|---|---|
| closingBooked | Balance of the account at the end of the pre-agreed account reporting period. It is the sum of the opening booked balance at the beginning of the period and all entries booked to the account during the pre-agreed account reporting period.<br><br>For card-accounts, this is composed of<br><br>• invoiced, but not yet paid entries |
| expected | Balance composed of booked entries and pending items known at the time of calculation, which projects the end of day balance if everything is booked on the account and no other entry is posted.<br><br>For card accounts, this is composed of<br><br>• invoiced, but not yet paid entries,<br>• not yet invoiced but already booked entries and<br>• pending items (not yet booked) |
| openingBooked | Book balance of the account at the beginning of the account reporting period. It always equals the closing book balance from the previous report. |
| interimAvailable | Available balance calculated in the course of the account 'servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis |

| Type | Description |
|---|---|
| | of booked credit and debit items during the calculation time/period specified.<br><br>For card-accounts, this is composed of<br><br>• invoiced, but not yet paid entries,<br>• not yet invoiced but already booked entries |
| interimBooked | Balance calculated in the course of the account servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis of booked credit and debit items during the calculation time/period specified. |
| forwardAvailable | Forward available balance of money that is at the disposal of the account owner on the date specified. |
| nonInvoiced | Only for card accounts, to be defined yet. |

### 3.6 Card Data Entry Mode

| Type | Description |
|---|---|
| CICC | EMV based |
| ECTL | EMV based contactless |
| MGST | Magnetic Stripe |
| PHYS | Manual Entry |
| BRCD | Barcode |

This is following an ISO20022 Code: CardDataReading1Code

### 3.7 Card Transaction Type

| Type | Description |
|---|---|
| AGGR | Aggregation of low payments |
| DCCV | Dynamic currency conversion (DCC) |

| Type | Description |
|---|---|
| GRTT | Card Payment with gratuity |
| INSP | Instalment payment |
| LOYT | Loyalty services |
| NRES | No show after reservation |
| PUCO | Purchase and corporate data |
| RECP | Recurring Payment |
| SOAF | Solicited available funds |
| UNAF | Unsolicited available funds |
| VCAU | Voice authorisation |

This is following ISO20022 Code: CardPaymentServiceType2Code

### 3.8 Charge Bearer

| Type | Description |
|---|---|
| DEBT | All transaction charges are to be borne by the debtor. |
| CRED | All transaction charges are to be borne by the creditor. |
| SHAR | In a credit transfer context, means that transaction charges on the sender side are to be borne by the debtor, transaction charges on the receiver side are to be borne by the creditor. In a direct debit context, means that transaction charges on the sender side are to be borne by the creditor, transaction charges on the receiver side are to be borne by the debtor. |
| SLEV | Charges are to be applied following the rules agreed in the service level and/or scheme. |

This is following ChargeBearerType1Code from ISO20022.

This code is used in [oFA-DomDef].

### 3.9 Classification Code

MandateClassification1Code from ISO20022.

### 3.10 Consent Status

| Code | Description |
|---|---|
| received | The consent data have been received and are technically correct. The data is not authorised yet. |
| rejected | The consent data have been rejected e.g. since no successful authorisation has taken place. |
| partiallyAuthorised | The consent is due to a multi-level authorisation, some but not all mandated authorisations have been performed yet. |
| valid | The consent is accepted and valid for GET account data calls and others as specified in the consent object. |
| revokedByPsu | The consent has been revoked by the PSU towards the ASPSP. |
| expired | The consent expired. |
| terminatedByTpp | The corresponding API Client or in a direct access scenario the corresponding corporate has terminated the consent by applying the DELETE method to the consent resource. |
| replacedByTpp | The corresponding TPP has terminated the (recurring) consent implicitly by submitting a new (recurring) consent. |

The ASPSP might add further codes. These codes then shall be contained in the ASPSP's documentation of the XS2A interface.

This code is used in [oFA-IG-Co], [oFA-PFSM].

### 3.11 Consent Type Code

| Code | Description |
|---|---|
| global | This consent type asks certain rights for dedicated account types without further detailing the accounts. |
| detailed | This consent type asks for access for dedicated accounts and dedicated rights. |

| Code | Description |
|---|---|
| aspspManaged | This consent type asks for access on certain account types for dedicated access rights. The accounts provisioned will be added during the authorisation process by the ASPSP. |
| accountList | This consent type asks for the list of accounts for each addressed account type. In difference to other account information consents, this consent might be authorised by using one authentication factor only, if supported by the ASPSP.<br><br>In addition to the "accountDetails" access rights, also other non-transactional access rights might be asked for. This might have an impact on the decision of the ASPSP to apply SCA or only one authentication factor of the PSU. |

This code is used by [oFA-IG-Co].

### 3.12 Contact Type

| Code | Description |
|---|---|
| technical | To be contacted in case of items related to the API implementation, |
| operational | To be contacted in case of topics related to operational issues. |
| business | To be contacted in case of business related topics on premium services. |
| security | To be contacted in case of IT security related topics. |

### 3.13 Credit Debit Code

| Code | Description |
|---|---|
| CRDT | Operation is an increase. |
| DBIT | Operation is a decrease. |

### 3.14 Credit Transfer Payment Method Code

This code set corresponds to ISO 20022 PaymentMethod3Code:

| Type | Description |
|---|---|
| TRF | Credit Transfer |
| CHK | Cheque |
| TRA | Transfer Advice<br><br>Remark: Currently not supported by the openFinance payment data model. The code "TRA" is only mentioned for completeness as it is defined in ISO20022. |

This data type is used in [oFA-PFSM].

### 3.15 Creditor Reference Type Code

This code set is equivalent to the ISO 20022 definition DocumentType3Code:

| Type | Description |
|---|---|
| RADM | Document is a remittance advice sent separately from the current transaction. |
| RPIN | Document is a linked payment instruction to which the current payment instruction is related, for example, in a cover scenario. |
| FXDR | Document is a pre-agreed or pre-arranged foreign exchange transaction to which the payment transaction refers. |
| DISP | Document is a dispatch advice. |
| PUOR | Document is a purchase order. |
| SCOR | Document is a structured communication reference provided by the creditor to identify the referred transaction. |

### 3.16 Document Status

The following status codes are supported for document resources.

| Code | Description |
|---|---|
| received | Document received, request syntactically okay. |
| rejected | Document rejected for several possible reasons. |
| accessible | Document has been made accessible for the addressed document receive. |
| withdrawn | Submitted document has been withdrawn successfully before made accessible to the addressed document receiver. |
| replaced | **RFU**: Not yet fully defined. |
| expired | **RFU:** Not yet fully defined. |

This code is used in [oFA-IG-Doc].

### 3.17 Exchange Rate Type Code

This code set is equivalent to the ISO 20022 definition ExchangeRateType1Code:

| Type | Description |
|---|---|
| SPOT | Exchange rate applied is the spot rate. |
| SALE | Exchange rate applied is the market rate at the time of the sale. |
| AGRD | Exchange rate applied is the rate agreed between the parties. |

### 3.18 Entry Status Code

The following codes of the ExternalEntryStatus1Code of ISO20022 are supported:

| Code | Type | Description |
|---|---|---|
| BOOK | booked | "Booked means that the transfer of money has been completed between account servicer and account owner. |

| Code | Type | Description |
|---|---|---|
| | | Usage: Status Booked does not necessarily imply finality of money as this depends on other factors such as the payment system used, the completion of the end-to-end transaction and the terms agreed between account servicer and owner.<br><br>Status Booked is the only status that can be reversed." |
| PDNG | pending | "Booking on the account owner's account in the account servicer's ledger has not been completed.<br><br>Usage: this can be used for expected items, or for items for which some conditions still need to be fulfilled before they can be booked. If booking takes place, the entry will be included with status Booked in subsequent account report or statement. Status Pending cannot be reversed." |
| INFO | information | Entry is only provided for information, and no booking on the account owner's account in the account servicer's ledger has been performed. |

### 3.19 Event Frequency Code

The following codes from the "EventFrequency7Code" of ISO 20022 are supported:

- Daily
- Weekly
- EveryTwoWeeks
- Monthly
- EveryTwoMonths
- Quarterly
- SemiAnnual
- Annual
- MonthlyVariable

This code is used in [oFA-IG-Com], [oFA-IG-XPIS].

### 3.20 Execution Rule Code

The following codes are supported:

- Preceding

- Following

This code is used in [oFA-IG-Com], [oFA-IG-XAIS] and [oFA-IG-XPIS].

### 3.21 Interest Type Code3

The following ISO definitions apply for these codes (based on ISO InterestType3code as defined for message type reda.006.001.01, but here, only a restricted code list is supported):

| Code | Description |
|---|---|
| FIXD | **ISO 20022:** Indicates that the type of interest is fixed.<br><br>**Remark:** This is a fixed interest for the period defined either in the interest entry or implicitly by the contract period. |
| INDE | **ISO 20022:**Indicates that the type of interest is index.<br><br>**Remark:** This rate could relate e.g. to interest rates of central banks. |

### 3.22 Limit Type

| Attribute | Description |
|---|---|
| singleOrder | The limit applies to every transaction. |
| daily | It is the limit of transactions to be authorised aggregated during a day. |
| weekly | It is the limit of transactions to be authorised aggregated during a calendar week. |
| monthly | It is the limit of transactions to be authorised aggregated during a calendar month. |

### 3.23 Mandate Setup Reason Code

This code is covered by the ISO20022 ExternalMandateSetupReason1Code.

**NOTE**: Currently, there is no external mandate setup reason code defined yet in ISO20022.

### 3.24 Method Code

| Code | Name | Description |
|---|---|---|
| FAXI | Fax | Remittance advice information must be faxed. |
| EDIC | ElectronicDataInterchange | Remittance advice information must be sent through Electronic Data Interchange (EDI). |
| URID | UniformResourceIdentifier | Remittance advice information needs tobe sent to a Uniform Resource Identifier (URI). URI is a compact string ofcharacters that uniquely identify anabstract or physical resource. URI's are the super-set of identifiers, such as URLs, email addresses, ftp sites, etc, and as such, provide the syntax for all of the identification schemes. |
| EMAL | EMail | Remittance advice information must be sent through e-mail. |
| POST | Post | Remittance advice information must be sent through postal services. |
| SMSM | SMS | Remittance advice information must be sent through by phone as a short message service (SMS). |

This is RemittanceLocationMethod2Code in ISO20022.

### 3.25 Message Code

The permitted message error codes and related HTTP response codes are listed below. New services may introduce new Message Codes which are not yet reflected here.

#### 3.25.1 Service Unspecific HTTP Error Codes

| Message Code | HTTP Response Code | Description |
|---|---|---|
| CERTIFICATE_INVALID | 401 | The contents of the signature/corporate seal certificate are not matching PSD2 general PSD2 or attribute requirements. |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| ROLE_INVALID | 401 | The TPP does not have the correct PSD2 role to access this service. |
| CERTIFICATE_EXPIRED | 401 | Signature/corporate seal certificate is expired.<br><br>Remark: If a resource has been created already, a related status reason code is used instead. |
| CERTIFICATE_BLOCKED | 401 | Signature/corporate seal certificate has been blocked by the ASPSP or the related NCA.<br><br>Remark: If a resource has been created already, a related status reason code is used instead. |
| CERTIFICATE_REVOKED | 401 | Signature/corporate seal certificate has been revoked by QSTP.<br><br>Remark: If a resource has been created already, a related status reason code is used instead. |
| CERTIFICATE_MISSING | 401 | Signature/corporate seal certificate was not available in the request but is mandated for the corresponding.<br><br>Remark: If a resource has been created already, a related status reason code is used instead. |
| CLIENT_INVALID | 401 | Client certificate is valid but the related client is not contained in the related ASPSP or Scheme directory |
| CLIENT_INCONSISTENT | 401 | Client information is not consistent with related directory entries |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| API_CONTRACT_ID_INVALID | 401 | The contract identification is not (any more) valid, or does not match with the addressed service. |
| SIGNATURE_INVALID | 401 | Application layer eIDAS Signature for API Client authentication is not correct. |
| SIGNATURE_MISSING | 401 | Application layer eIDAS Signature for API authentication is mandated by the ASPSP but is missing. |
| FORMAT_ERROR | 400 | Format of certain request fields are not matching the XS2A requirements. An explicit path to the corresponding field might be added in the return message.<br><br>This applies to headers and body entries. It also applies in cases where these entries are referring to erroneous or not existing data instances, e.g. a malformed IBAN. |
| PARAMETER_NOT_CONSISTENT | 400 | Parameters submitted by API Client are not consistent. This applies only for query parameters. |
| PARAMETER_NOT_SUPPORTED | 400 | The parameter is not supported by the API provider. This code should only be used for parameters that are described as "optional if supported by API provider." |
| PSU_CREDENTIALS_INVALID | 401 | The PSU-ID cannot be matched by the addressed ASPSP or is blocked, or a password resp. OTP was not correct. Additional information might be added. |
| SERVICE_INVALID | 400 (if payload)<br><br>405 (if HTTP method) | The addressed service is not valid for the addressed resources or the submitted data. |
| SERVICE_BLOCKED | 403 | This service is not reachable for the addressed PSU due to a channel |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| | | independent blocking by the ASPSP. Additional information might be given by the ASPSP. |
| CORPORATE_ID_INVALID | 401 | The PSU-Corporate-ID cannot be matched by the addressed ASPSP. |
| CONSENT_UNKNOWN | 403 (if path)<br><br>400 (if header) | The Consent-ID cannot be matched by the ASPSP relative to the API Client. |
| CONSENT_INVALID | 401 | The consent was created by this TPP but is not valid for the addressed service/resource. |
| CONSENT_EXPIRED | 401 | The consent was created by this TPP but has expired and needs to be renewed. |
| TOKEN_UNKNOWN | 401 | The OAuth2 token cannot be matched by the ASPSP relative to the TPP. |
| TOKEN_INVALID | 401 | The OAuth2 token is associated to the TPP but is not valid for the addressed service/resource. |
| TOKEN_EXPIRED | 401 | The OAuth2 token is associated to the TPP but has expired and needs to be renewed. |
| RESOURCE_UNKNOWN | 404 (if account-id in path)<br><br>403 (if other resource in path)<br><br>400 (if payload) | The addressed resource is unknown relative to the API Client.<br><br>An example for a payload reference is creating a signing basket with an unknown resource identficiation. |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| RESOURCE_EXPIRED | 403 (if path)<br><br>400 (if payload) | The addressed resource is associated with the TPP but has expired, not addressable anymore. |
| RESOURCE_BLOCKED | 400 | The addressed resource is not addressable by this request, since it is blocked e.g. by a grouping in a signing basket. |
| TIMESTAMP_INVALID | 400 | Timestamp not in accepted time period. |
| PERIOD_INVALID | 400 | Requested time period out of bound. |
| SCA_METHOD_UNKNOWN | 400 | Addressed SCA method in the Authentication Method Select Request is unknown or cannot be matched by the ASPSP with the PSU. |
| SCA_INVALID | 400 | Method Application on authorisation resource (e.g. Confirmation Request) blocked since SCA status of the resource equals "failed". |
| STATUS_INVALID | 409 | The addressed resource does not allow addtitional authorisation. |
| CHANGE_INVALID | 409 | The addressed resource does not allow changes in the current status or another change process is running in parallel |
| ADDRESSING_VARIANT_INVALID | 422 | The changed variant of a resource was addressed incorrectly, e.g. using both the inChange query parameter and the If-Match header parameter. |

### 3.25.2 PIS and RTP Specific HTTP Error Codes

| Message Code | HTTP Response Code | Description |
|---|---|---|
| PRODUCT_INVALID | 403 | The addressed payment product is not available for the PSU . |
| PRODUCT_UNKNOWN | 404 | The addressed payment product is not supported by the ASPSP. |
| PAYMENT_FAILED | 400 | The payment initiation POST request failed during the initial process. Additional information may be provided by the ASPSP. |
| KID_MISSING | 401 | The payment initiation has failed due to a missing KID. This is a specific message code for the Norwegian market, where ASPSP can require the payer to transmit the KID. |
| EXECUTION_DATE_INVALID | 400 | The requested execution date is not a valid execution date for the ASPSP. |
| CANCELLATION_INVALID | 405 | The addressed payment is not cancellable e.g. due to cut off time passed or legal constraints. |

### 3.25.3 AIS Specific HTTP Error Codes

| Message Code | HTTP Response Code | Description |
|---|---|---|
| CONSENT_INVALID | 401 | The consent definition is not complete or invalid. In case of being not complete, the bank is not supporting a completion of the consent towards the PSU.<br><br>Additional information will be provided. |
| CONSENT_TYPE_NOT _SUPPORTED | 400 | The consentType chosen in the consent object is not supported by the ASPSP. |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| SESSIONS_NOT_SUPPORTED | 400 | The combined service flag may not be used with this ASPSP. |
| CONTENT_TEMPORARILY_ NOT_AVAILABLE | 404 | The contents of the response can (temporarily) not be obtained because a service, the interface depends on is currently not available. |
| ACCESS_EXCEEDED | 429 | The access on the account has been exceeding the consented multiplicity without PSU involvement per day. |
| REQUESTED_FORMATS_INVALID | 406 | The requested formats in the Accept header entry are not matching the formats offered by the ASPSP. |

### 3.25.4 PIIS Specific Error Codes

| Message Code | HTTP Response Code | Description |
|---|---|---|
| CARD_INVALID | 400 | Addressed card number is unknown to the ASPSP or not associated to the PSU. |
| NO_PIIS_ACTIVATION | 400 | The PSU has not activated the addressed account for the usage of the PIIS associated with the TPP. |

### 3.25.5 Signing Basket Specific Error Codes

| Message Code | HTTP Response Code | Description |
|---|---|---|
| REFERENCE_MIX_INVALID | 400 | The used combination of referenced objects is not supported in the ASPSPs signing basket function. |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| REFERENCE_STATUS_INVALID | 409 | At least one of the references is already fully authorised. |

### 3.25.6 Push AIS specific Error Codes

Push Account Information service specific error codes are as follows:

| Message Code | HTTP Response Code | Description |
|---|---|---|
| PRIOR_SUBSCRIPTION_AVAILABLE | 409 | The PSU/Corporate initiating the Push Account Information Service subscription already holds a subscription in the quadruple API Client/PSU/ASPSP/subservice or API Client/Corporate/ASPSP/subservice respectively or in the triple API Client/ASPSP/subservice in the case of direct access. |
| SUBSCRIPTION_INVALID | 400 | Return this code in case the API Client tries to add a subscription entry, delete a subscription entry or a subscription itself where it had been deactivated already before. |
| SECONDARY_URI_NOT_SUPPORTED | 400 | An API Client is trying to register a secondary Push URI within a Push Account Information subscription, which is not supported by the ASPSP. |
| MIME_TYPE_NOT_SUPPORTED | 400 | An API Client is trying to define a Push Account Information subservice with one or several mime types, where none of the mime types is supported by the ASPSP for this subservice. |
| LIMIT_FOR_BALANCE_NOT_SUPPORTED | 400 | The subscription for a Push Balance Information Subservice is asking to involve a credit limit into the balance selection criteria, where the related |

| Message Code | HTTP Response Code | Description |
|---|---|---|
| | | balance does not support to include a related credit limit of the account. |
| ACCOUNT_CURRENCY_NOT_MATCHING | 400 | The API Client initiated a subscription where an amount is involved which is not matching the currency of the addressed account. |
| BALANCE_TYPE_NOT_SUPPORTED | 400 | The API Client initiated a subscription for a balance type that is not supported for the addressed account by the ASPSP. |

This data type is used by [oFA-PFSM].

### 3.26 Mime Type Code

| Code | Description |
|---|---|
| application/JSON | Mime type for body encoding in JSON syntax. |
| application/XML | Mime type for body encoding in XML syntax. |
| plain/text | Mime type for body encoding in text. |

### 3.27 Name Prefix Code

Specifies the terms used to formally address a person.

| Code | Description |
|---|---|
| DOCT | Doctor |
| MADM | Madam |
| MISS | Miss |
| MIST | Mister |
| MIKS | GenderNeutral |

## 3.28 Onboarding Status

| Code | Description |
|---|---|
| received | The first POST has been received and the onboarding resource has been created.<br><br>The check of the input parameter was successful. The services identified by serviceIds belong to the scheme identified by the schemeIds. The API Client is known. The necessary service contract has been signed and correspond to the ID given by serviceContractId.<br><br>The confirmation of the price lists is necessary and not done until now. |
| rejected | The second step (PUT) with the confirmation of the price lists has been failed. This can be e.g. due to one of the following reasons:<br><br>• apiClient not known or no match with QWAC.<br>• Necessary confirmation of conditions failed. |
| expired | The status of the onboarding resource is set to expired on day validTo+1. |
| terminatedByApiClient | The status of the onboarding resource is set to terminatedByApiClient, if a DELETE request has been sent by the API Client. |
| terminatedByAspsp | The status of the onboarding resource is set to terminatedByAspsp, if the ASPSP has terminated the corresponding onboarding. |
| valid | The onboarding of the API Client to the services identified by serviceIds has been completed successfully. No changes of the validity since the onboarding has been completed. |
| validTimeRestricted | The onboarding of the API Client to the services identified by serviceIds has been completed successfully. The validity has been changed since the onboarding has been completed. The validTo parameter has been set to a date when the onboarding will expire. Reasons for this will be defined by the business logic. |

This data type is used in [oFA-IG-Adm].

### 3.29 Order Status Code

Code set to identify the status of an order:

| Code | Description |
|---|---|
| unknown | The status of this order can currently not be determined. |
| new | Outstanding order with no executions. |
| partiallyFilled | Outstanding order with executions and remaining quantity. |
| filled | Order completely filled, no remaining quantity. |
| doneForDay | Order not, or partially, filled; no further executions forthcoming for the trading day. |
| canceled | Cancelled order with or without executions. |
| replaced | Cancelled order due to a replacement with or without executions. |
| pendingCancel | Order with a request for cancellation pending. Does not indicate that the order has been cancelled. |
| stopped | Order has been stopped at the exchange. Used when guaranteeing or protecting a price and quantity. |
| rejected | Order has been rejected by sell-side (broker, exchange, ECN).<br><br>**Note:** An order can be rejected subsequent to order acknowledgment, i.e. an order can pass from "new" to "rejected" status. |
| suspended | Order has been placed in suspended state at the request of the client. |
| pendingNew | Order has been received by sell-side's (broker, exchange, ECN) system but not yet accepted for execution. |
| calculated | Order has been completed for the day (either filled or done for day). Commission or currency settlement details have been calculated. |
| expired | Order has been cancelled in broker's system due to time in force instructions. |
| acceptedForBidding | Order has been received and is being evaluated for pricing. |
| pendingReplace | Order with an Order Cancel/Replace Request pending. |

### 3.30 Order Time Limit Code

Code set to identify the time an order shall be in force. Possible values:

| Code | Description |
|---|---|
| day | **Day Order:** Limit order that is only good for the remainder of the trading day on which it is placed. |
| goodTillCancel | **Good till cancelled (GTC) Order:** Order that is working regardless of the time frame, until the order is explicitly cancelled. (Might still be subject of time limits from the ASPSP / broker). |
| atTheOpening | **At the Opening Order:** Order to be executed at the very beginning of the trading day. |
| immediateOrCancel | **Immediate or cancel (IOC) Order:** Order to be executed immediately and any unfilled portion be cancelled. |
| fillOrKill | **Fill or kill (FOK) Order:** Order that is directed to be executed immediately at the market or a specified price or canceled if not filled. |
| fillAndKill | **Fill and kill Order:** Order that can be filled partially or cancelled. If the order cannot be filled in its entirety at the specified premium, as much as possible of the order is filled and the rest is killed. |
| goodTillCrossing | **Good till Crossing (GTX) Order:** Order that is canceled prior to the market entering into an auction, or crossing phase. |
| goodTillDate | **Good till Day or Date (GTD) Order:** Order which remains active till its specified date, unless it has already been fulfilled or cancelled. |
| atTheClose | **At the Close Order:** Order to be executed at the end of the trading day, at the price available. |
| goodThroughCrossing | **Good through Crossing Order:** Order that is valid up till and including a crossing phase. |
| atCrossing | **At Crossing Order:** Order that is valid only during crossing (auction) phases. |

| Code | Description |
|---|---|
| goodForTime | **Good for Time (GFT) Order:** Order that is valid for a pre-defined time period. |
| goodForAuction | **Good for Auction (GFA) Order:** Order that is valid for an auction initiated by a trading firm. |
| goodForMonth | **Good for this Month (GFM) Order:**Order that is valid until the end of the current month, i.e. from the time of order submission until the end of the last trading day of the current month. |

### 3.31 Party Name Match Code

| Code | Description |
|---|---|
| MTCH | Match |
| NMTC | No match |
| CMTC | Close Match |
| NOAP | Validation check is not applicable |

This code is used in [oFA-IG-VOP].

### 3.32 Party Identification Match Code

| Code | Description |
|---|---|
| MTCH | Match |
| NMTC | No match |
| NOAP | Validation check is not applicable |

This code is used in [oFA-IG-VOP].

### 3.33 Payment Product

The definition of payment products as used in URIs for payment initiation. The following table might be extended on domestic level. The encoding of the codes is Max35Text.

| Attribute | Description |
|---|---|
| sepa-credit-transfers | |
| instant-sepa-credit-transfers | |
| cross-border-credit-transfers. | |
| target-2-payments | |

### 3.34 Preferred Method

Preferred method used to reach the contact.

| Code | Description |
|---|---|
| LETT | Letter |
| MAIL | Email |
| PHON | Phone |
| FAXX | Fax |
| CELL | MobileOrCellPhone |

### 3.35 Priority Code

This code set is equivalent to the ISO 20022 definition Priority2Code:

| Type | Description |
|---|---|
| HIGH | Priority level is high. |

| Type | Description |
|---|---|
| NORM | Priority level is normal. |

This code is used in [oFA-PFSM].

### 3.36 Referred Document Type Code

This code set is equivalent to the ISO 20022 definition DocumentType6Code:

| Type | Description |
|---|---|
| MSIN | Document is an invoice claiming payment for the supply of metered services, for example gas or electricity supplied to a fixed meter |
| CNFA | Document is a credit note for the final amount settled for a commercial transaction. |
| DNFA | Document is a debit note for the final amount settled for a commercial transaction. |
| CINV | Document is an invoice. |
| CREN | Document is a credit note. |
| DEBN | Document is a debit note. |
| HIRI | Document is an invoice for the hiring of human resources or renting goods or equipment. |
| SBIN | Document is an invoice issued by the debtor. |
| CMCN | Document is an agreement between the parties, stipulating the terms and conditions of the delivery of goods or services. |
| SOAC | Document is a statement of the transactions posted to the debtor's account at the supplier. |
| DISP | Document is a dispatch advice. |
| BOLD | Document is a shipping notice. |
| VCHR | Document is an electronic payment document. |

| Type | Description |
|---|---|
| AROI | Document is a payment that applies to a specific source document. |
| TSUT | Document is a transaction identifier as assigned by the Trade Services Utility |
| PUOR | Document is a purchase order. |

### 3.37 Regulatory Reporting Type Code

| Type | Description |
|---|---|
| CRED | Regulatory information applies to the credit side. |
| DEBT | Regulatory information applies to the debit side. |
| BOTH | Regulatory information applies to both credit and debit sides. |

### 3.38 Request Status

Syntactically, the same codes are used as in Transaction Status, but with a different semantic, since the codes are related to a Request To Pay transaction and **not** to the corresponding payment.

| Code | Description |
|---|---|
| ACCP | The request to pay has been explicitly accepted by the PSU. |
| ACWC | The request to pay has been explicitly accepted by the PSU with changes related to the execution date or the accepted amount. |
| RCVD | The request to pay data can be mapped to a PSU, no restrictions of the PSU related to payment requests apply and the payment request can be further processed. |
| PDNG | • The request to pay transaction has not yet been mapped to a PSU, or<br>• PSU related restrictions regarding request to pay functionality could not yet been checked |
| RJCT | The request to pay has been rejected by either the API Server, the ASPSP or the PSU. |

This code is used in [oFA-IG-RTP].

## 3.39 SCA Approach Type

| Code | Description |
|---|---|
| Decoupled | Decoupled SCA Approach |
| Embedded | Embedded SCA Approach |
| OAauth2 | Redirect SCA Approach based on OAuth2 protocol |
| Redirect | Plain Redirect Approach |
| Online-Channel | Asynchronous SCA Approach via ASPSP online channels |

## 3.40 SCA Process Flow Requirement Code

| Attribute | Description |
|---|---|
| psuAuthenticationRequired | The ASPSP will not select the SCA approach to be applied until the TPP has successfully updated the PSU Authentication or delivered an OAuth2 access token. |
| psuIdentificationRequired | The ASPSP mandates the PSU-ID for services involving SCA (like PIS, AIS, …) before offering a SCA Selection. |
| scaMethodSelectionRequired | The ASPSP will not select the SCA approach to be applied until the PSU has selected the authentication method to be applied via the API Client.<br>Note: As the PSU is neither authenticated nor identified at this point, the ASPSP will offer the ASPSP-specific SCA methods. Accordingly, the PSU has to choose a method which is allowed to him. |
| none | The ASPSP is able to select the SCA approach to be applied without a preceding PSU Authentication, PSU Identification or Authentication Method Selection. This then could also be handled in the online channel during authorisation. |

## 3.41 SCA Exemption Code

| Code | Description |
|---|---|
| none | no SCA exemption supported for payment initiation. |

| Code | Description |
|---|---|
| lowValueTransactions | |
| paymentsToSelf | |
| transactionRiskAnalysis | |
| trustedBeneficiaries | |

## 3.42 SCA Status

The following codes are defined for this data type.

| Code | Description |
|---|---|
| received | An authorisation or cancellation-authorisation resource has been created successfully. |
| psuIdentified | The PSU related to the authorisation or cancellation-authorisation resource has been identified. |
| psuAuthenticated | The PSU related to the authorisation or cancellation-authorisation resource has been identified and authenticated e.g. by a password or by an access token. |
| scaMethodSelected | The PSU/TPP has selected the related SCA routine. If the SCA method is chosen implicitly since only one SCA method is available, then this is the first status to be reported instead of "received". |
| started | The addressed SCA routine has been started. |
| unconfirmed | SCA is technically successfully finalised by the PSU, but the authorisation resource needs a confirmation command by the TPP yet. |
| finalised | The SCA routine has been finalised successfully (including a potential confirmation command). This is a final status of the authorisation resource. |

| Code | Description |
|---|---|
| failed | The SCA routine failed. This is a final status of the authorisation resource. |
| exempted | SCA was exempted for the related transaction, the related authorisation is successful. This is a final status of the authorisation resource. |

This data type is used in [oFA-PFSM].

### 3.43 Securing Method Code

This code is providing information about how an authorised amount is secured within the ASPSP.

| Code | Description |
|---|---|
| reservationOfFunds | The bank is reserving the funds via a disposition of the amount on the account. |
| creditLine | The bank is reserving the funds via the usage of a credit line of the customer. |
| bankGuarantee | The bank is offering a payment guarantee. |
| consumerLoan | The payment is secured by a consumer loan. |

This code is used in [oFA-IG-XPIS].

### 3.44 Securities Fee Type Code

This code is providing information the type of a fee that is applicable to a securities account.

| Code | Description |
|---|---|
| transactionFee | Fee that applies to a transaction within this securities account. |
| brokerageFee | Fee a broker charges to execute transactions or provide specialized services on behalf of clients. |
| managementFee | Fee levied by an investment manager for overseeing an investment fund. |

| Code | Description |
|---|---|
| courtage | Courtage |
| custodyFee | Fee charged by the ASPSP for safekeeping the securities within the securities account. |
| exchangeFee | Fee charged for transfering shares from one fund to another fund within the same group. |
| thirdPartyFee | Fees charged by a third party |
| otherFee | Fee that is not covered by any of the fee types above. |

### 3.45 Securities Order Side

Code set to identify the "side" / intended action for the respective order. Possible values:

| Code | Description |
|---|---|
| buy | Order to buy. |
| sell | Order to sell. |
| subscription | Order for a subscription. |
| redemption | Order for a redemption. |

### 3.46 Service Type

| Code | Description |
|---|---|
| PIS | single payments |
| RPIS | periodic payments |
| BPIS | bulk payments |
| XFPIS | secured-payments |
| XDPIS | deferred-payments |
| XDFPIS | secured-deferred-payments |

| Code | Description |
|---|---|
| XMDPIS | multiple-deferred-payments |
| XMDFPIS | secured-multiple-deferred-payments |
| XRPIS | recurring-payments |
| XRFPIS | secured-recurring-payments |
| XMRPIS | multiple-recurring-payments |
| XPPIS | pre-authorised payments |
| XMPPIS | multiple pre-authorised payments |
| XMRPPIS | multiple recurring pre-authorised payment |
| FCS | funds confirmation |
| XSTOIS | standing order initiation services |
| CONS-AIS | consent on account information |
| CONS-XAIS | consent on extended account information and mandate services |
| CONS-DOC | consent for document services |
| CONS-USP | consent on user parameter information |
| CONS-FCS | consent for acceptance of FCS requests |
| CONS-RTP | consent for request-to-pay services |
| AIS | Account information for payment accounts |
| XAIS-LOAN | Account information for loan accounts |
| XAIS-SAV | Account information for savings accounts |
| XAIS-CRD | Account information for single cards |
| XAIS-CAC | Account information for card reconciliation accounts |
| XAIS-SEC | Account information for securities accounts |
| XAIS-MAN | Account information for mandates |

| Code | Description |
|---|---|
| XAIS-STO | Account Information Services for standing orders |
| SGNB | Signing basket |
| MAN | Mandate service |
| MAN-CANC | Cancel retrievable mandates service |
| DOC | Document sevice |
| PAIS-AE | Push account information service for account entries |
| PAIS-BI | Push account information service for account balances |
| PAIS-AS | Push account information service for account statements |
| PAIS-RTP | Push account information service for incoming RTP |
| RTP | Request to Pay |
| VOP-SNG | single verification of party |
| VOP-BLK | bulk verification of party |
| XAS | Administrative services |
| ASPSP-IS | ASPSP parameter information services |
| USP-IS | User parameter information services |
| USP-IBCK | User parameter services for iban-checks |
| CORP-IS | Corporate parameter information services |

This code is used in [oFA -IG-PAIS]

### 3.47 Signing Class

The definition of authorisation rights of a user.

| Attribute | Description |
|---|---|
| singleSigning | User is entitled to sign related transactions on his/her own. |
| firstSigning | User is entitled to sign related transactions as a first signer. |

| Attribute | Description |
|---|---|
| secondSigning | User is only entitled to sign related transactions after a first signer has signed the transaction. |
| nonSpecifiedSigning | User is entitled to sign related transactions, without providing more detailed information about the related signing class. |
| transportSigning | User is only entitled to sign the submission of a related transaction, but not to authorise the related transaction. |
| none | User has no rights related submission or authorisation of related transactions. |

### 3.48 Status Reason Code

At a minimum, the following codes from the ISO20022 ExternalStatusReasonCode1 list need to be supported by the ASPSP. The codes should only used, if a related resource hase been generated on API level, i.e. if a transaction status can be provided. Otherwise a related Message Code to be used in Error information would be sufficient.

| Code | Name | ISO 20022 Definition and openAPI Remarks |
|---|---|---|
| AM04 | InsufficientFunds | Amount of funds available to cover specified message amount is insufficient.<br>**Remark:** Indicates that the reason for rejecting the payment is that the required funds have been found to be not available for the specific (e.g due to missing funds or due to configured limits) during processing after the initial acceptance of the payment initiation. |
| AM21 | LimitExceeded | Transaction amount exceeds limits agreed between bank and client. |
| BEXX | There are several codes identifying specific invalid data. | Several circumstances. |
| CN01 | AuthorisationCancelled | Authorisation is cancelled. |
| DS0C | SignerCertificateRevoked | The signer certificate is revoked.<br>**Remark:** Is used, if the signature/corporate seal certificate is revoked. |
| DS0D | SignerCertificateNotValid | The signer certificate is not valid (revoked or not active).<br>**Remark:** Is used, if the signature/corporate seal certificate is blocked by the ASPSP or if the certificate is expired. |
| DS0A | DataSignRequested | Data signature is required. |

| Code | Name | ISO 20022 Definition and openAPI Remarks |
|---|---|---|
| | | **Remark**: Is used, if a signing by a corporate seal/certificate is mandated by the ASPSP but is missing. |
| DS04 | OrderRejected | The order was rejected by the bank side (for reasons concerning content)<br>**Remark:** Indicates that the reason for rejecting the payment is that the content of the payment initiation has been found invalid during processing after the initial acceptance of the payment initiation. |
| FOCR | FollowingCancellationRequest | Return following a cancellation request. |
| SL11 | CreditorNotOnWhitelistOfDebtor | Whitelisting service offered by the Debtor Agent; Debtor has not included the Creditor on its "Whitelist" (yet). In the Whitelist the Debtor may list all allowed Creditors to debit Debtor bank account. |
| TKSP | TokenSuspended. | Token found with suspended status. |
| TKXP | TokenExpired | Token expired. |

This code is used in [oFA-IG-Com], [oFA-PFSM]..

### 3.49 Subscription Status

| Code | Description |
|---|---|
| received | The subscription data have been received and are technically correct. The data is not authorised yet. |
| rejected | The subscription data have been rejected e.g. since no successful authorisation has taken place. |
| partiallyAuthorised | The subscription is due to a multi-level authorisation, some but not all mandated authorisations have been performed yet. |
| valid | The subscription is accepted and valid for the related subscribed services as specified in the subscription object. |
| validInChange | The subscription is accepted and valid for the related subscribed services as specified in the subscription object. A new subscription entry has been submitted which is not yet (fully) authorised. |
| revokedByPsu | The subscription has been revoked by the PSU towards the ASPSP. |

| Code | Description |
|---|---|
| cancelledByAspsp | The subscription has been cancelled by the ASPSP. |
| expired | The subscription expired. |
| terminatedByTpp | The corresponding API Client or in a direct access scenario the corresponding corporate has terminated the subscription by applying the DELETE method to the subscription resource. |

The ASPSP might add further codes. These codes then shall be contained in the ASPSP's documentation of the XS2A interface.

This code is used in [oFA-PFSM], [oFA -IG-PAIS].

### 3.50 Subscription Entry Status

| Code | Description |
|---|---|
| received | The subscription data have been received and are technically correct. The data is not authorised yet. |
| rejected | The subscription data have been rejected e.g. since no successful authorisation has taken place. |
| partiallyAuthorised | The subscription is due to a multi-level authorisation, some but not all mandated authorisations have been performed yet. |
| valid | The subscription is accepted and valid for the related subscribed service as specified in the subscription object. |
| revokedByPsu | The subscription has been revoked by the PSU towards the ASPSP. |
| expired | The subscription expired. |
| terminatedByTpp | The corresponding API Client or in a direct access scenario the corresponding corporate has terminated the subscription by applying the DELETE method to the subscription resource. |

This code is used in [oFA-PFSM], [oFA -IG-PAIS].

### 3.51 Trading Session Type Code

Code set to identify the type of a trading session, in which an order shall be executed. Possible values:

| Code | Description |
|---|---|
| auctions | Orders that are traded in regularly occurring auctions: orders are accumulated and executed on the basis of defined algorithms. |
| continuous | Orders that are executed directly against each other as they hit the marketplace. |

### 3.52 Transaction Status

The transaction status is filled with codes of the ISO 20022 data table:

| Code | Name | ISO 20022 Definition |
|---|---|---|
| ACCC | AcceptedSettlementCompleted | Settlement on the creditor's account has been completed. |
| ACCP | AcceptedCustomerProfile | Preceding check of technical validation was successful. Customer profile check was also successful. |
| ACFW | AcceptedFundsCheckedWaitingConfirmation | Preceding check of technical validation and customer profile was successful, and an automatic funds check was positive, but an explicit confirmation by the initiating party is outstanding. |
| ACSC | AcceptedSettlementCompleted | Settlement on the debtor's account has been completed. **Usage:** this can be used by the first agent to report to the debtor that the transaction has been completed. **Warning:** this status is provided for transaction status reasons, not for financial information. It can only be used after bilateral agreement |
| ACSP | AcceptedSettlementInProcess | All preceding checks such as technical validation and customer profile were successful and therefore the payment initiation has been accepted for execution. |

| Code | Name | ISO 20022 Definition |
|---|---|---|
| ACTC | AcceptedTechnicalValidation | Authentication and syntactical and semantical validation are successful |
| ACWC | AcceptedWithChange | Instruction is accepted but a change will be made, such as date or remittance not sent. |
| ACWP | AcceptedWithoutPosting | Payment instruction included in the credit transfer is accepted without being posted to the creditor customer's account. |
| RCVD | Received | Payment initiation has been received by the receiving agent. |
| PDNG | Pending | Payment initiation or individual transaction included in the payment initiation is pending. Further checks and status update will be performed. |
| RJCT | Rejected | Payment initiation or individual transaction included in the payment initiation has been rejected. |
| CANC | Cancelled | Payment initiation has been cancelled before execution |
| ACFC | AcceptedFundsChecked | Pre-ceeding check of technical validation and customer profile was successful and an automatic funds check was positive . |
| PATC | PartiallyAcceptedTechnical Correct | The payment initiation needs multiple authentications, where some but not yet all have been performed. Syntactical and semantical validations are successful. |
| PART | PartiallyAccepted | A number of transactions have been accepted, whereas another number of transactions have not yet achieved 'accepted' status. **Remark:** This code may be used only in case of bulk payments. It is only used in a situation where all mandated authorisations have been applied, but some payments have been rejected. |
| RVCM | ReceivedVerificationCompletedWithMismatches | The verification of party request for the payment counterparty result requires an explicit confirmation by the payer. |
| RVNC | ReceivedVerificationNotCompleted | The verification of party request is not yet completed. |
| RCVC | ReceivedVerificationCompleted | The verification of party request is completed, no further confirmation required. |

This code is used in [oFA-IG-Com], [oFA-PFSM], [oFA-IG-RTP].

### 3.53 Transaction Type

| Attribute | Description |
|---|---|
| payments | All payment types |
| payments.sepa-credit-transfers | All sepa credit transfers. |
| payments.cross-border-credit-transfers | Cross border payments. |
| consents | Consents, e.g. on AIS |
| subscriptions | subcriptions for Push AIS Services |
| all | All transaction types that need authorisation. |

### 3.54 Type of Order Code

Code set to indicate characteristics of an order.

| Code | Description |
|---|---|
| allOrNone | A round-lot market or limit-price order which must be executed in its entirety or not at all; unlike 'fill or kill', these orders are not cancelled if not executed as soon as received. |
| buyContraShortExempt | Order to buy contra short exempt. |
| buyContraShort | Order to buy contra short. |
| buyMinus | Order to buy at a price lower than the current market price. This is an order to buy a stated amount of a financial instrument provided that its price is not higher than the last sale if the last sale was a minus or zero minus tick, not higher than the last sale minus the minimum fractional change in the stock if the last sale was a plus or zero plus tick. The price limit indicates the highest price at which the order can be executed. |

| Code | Description |
|---|---|
| carefully | Order that is not to be executed as a whole because it may disturb the price. |
| combinationOrder | Order that is linked to another order to buy or sell and must be executed as a unit, both or none, or cancelled as a unit. |
| discretionary | Order where the executing broker or investment manager decides on the quantity or price. |
| doNotIncrease | Limit order to buy or stop order to sell or stop limit order that is not to be increased in shares on the ex-dividend date as a result of a stock dividend or distribution. |
| doNotReduce | Limit order to buy or stop order to sell, or stop-limit order to sell that is not to be reduced in price by the amount of an ordinary cash dividend. Applies only to ordinary stock dividends; should be reduced for other distributions. |
| icebergOrder | Type of limit order whose overall quantity is not transparent to the market. Rather, only a client-defined part of the order is shown to the market (the 'tip of the iceberg'). Upon execution of the first 'tip' (that is partial execution to the client while for the market it does not appear to be a 'partial') the system releases the next 'tip' of the same size to the market until the 'iceberg' has been melted down successfully. Different from a usual care order. |
| limitWith | Order to be executed at a limit price, with a round-lot (or board-lot) sales; valid only for odd lot orders. |
| limitWithout | Order to be executed at a limit price, without a round-lot (or board-lot) sales; valid only for odd lot orders. |
| limitOrder | Order to buy at the indicated price limit or lower or an order to sell at the indicated limit price or higher. |
| atMarket | Order to buy or sell a specified amount of a financial instrument at the quoted market price or better. |
| marketNotHeld | Order to buy or sell a specified amount of a financial instrument at the quoted market price or better with some discretion on the price limit. |

| Code | Description |
|---|---|
| marketToLimitOrder | Type of order that couples the high possibility of execution (Market Order) with a protection against unwanted price fluctuations (Limit Order). |
| marketUntilTouched | Order to buy or sell a specified amount of a financial instrument at the quoted market price or better with some discretion on the price limit. |
| notHeld | Order that may be executed in partials or outside the hours of the exchange or other exchange rules. |
| orderLie | Order that is related to another order where the second order may be cancelled without cancelling the first. Normally, the sell order must be executed before the buy order. |
| stopLimit | Stop order to buy (sell) that becomes a limit order at the limit price when the financial instrument trades at or above (below) the stop price after the order is submitted. |
| stopOrder | Order to buy that becomes a market order when the financial instrument trades at or above the stop price after the order is submitted or an order to sell which becomes a market order when the financial instrument trades at or below the stop price. |
| stopLoss | Order to sell that sets the sell price below the market price. |
| sellPlus | Order to sell a stated amount provided that the price is not lower than the last sale price if the last sale was a plus or zero plus tick and not lower than the last sale minus the minimum fractional change in the financial instrument if the last sale was a minus or zero minus tick. |
| sellShortExempt | Order to sell short which is exempt from short-sale rules. |
| sellShort | Order to sell a financial instrument that the seller does not own; a sale effected by delivering a financial instrument borrowed by or for the account of the seller. |

### 3.55 VOP Bulk Status

| Code | Description |
|---|---|
| received | Bulk technically received and bulk formatted correctly |
| pending | processing ongoing |
| rejected | Some processing errors have occurred which did not allow to process the requests. |
| completed | all verification results, requested in the vop bulk, are completed |

This code is used in [oFA-IG-VOP].

### 3.56 Other ISO-related basic Types

The following codes and definitions are used from ISO 20022

- **Account Identification Code**: ExternalAccountIdentification1Code
- **Address Type Code**: AddressType2Code
- **Balance Code:** ExternalBalanceType1Code
- **Balance Sub Code:** ExternalBalanceSubType1Code
- **BBAN**: BBANIdentifier
- **Bearer Code**: ChargeBearerType1Code
- **BICFI**: BICFIIdentifier
- **Category Purpose Code**: ExternalCategoryPurpose1Code
- **Cash Account Type**: ExternalCashAccountType1Code
- **Charge Type Code**: ExternalChargeType1Code
- **Clearing System Identification Code**: ExternalClearingSystemIdentification1Code
- **Credit Line Type**: ExternalCreditLineType1Code
- **Document Format Code**: ExternalDocumentFomrat1Code
- **Document Type Code**: ExternalDocumentType1Code

- **Entry Status Code**: ExternalEntryStatus1Code
- **Exchange Rate Type Code**: ExchangeRateType1Code
- **External Financial Instrument Identification Type Code**: ExternalFinancialInstrumentIdentificationType1Code (see [ISO20022_SR])
- **External Local Instrument Code**: ExternalLocalInstrument1Code
- **Financial Institution Identification Code**: ExternalFinancialInstitutionIdentification1Code
- **Frequency Code**: Frequency6Code
- **IBAN**: IBAN2007Identifier

  Pattern: [A-Z]{2}[0-9]{2}[A-Z0-9]{1,30}
- **Input Channel Code:** ExternalTechnicalInputChannel1Code
- **Interest Type Code:** InterestType1Code
- **Instruction Code**: Instruction3Code
- **ISIN**: ISINOct2015Identifier (see [ISO20022_SR])

  Pattern: [A-Z]{2,2}[A-Z0-9]{9,9}[0-9]{1,1}
- **Language Code**: Code following ISO – 639-3 (three letter code)
- **LEI**: LEIIdentifier as defined n ISO 17442 "Financial Services - Legal Entity Identifier (LEI)".
- **Mandate Reason Code**: ExternalMandateReason1Code
- **Mandate Status**: ExternalMandateStatus1Code
- **Market Type Code**: MarketType4Code (see [ISO20022_SR])
- **Merchant Category Code**: Category code conform to ISO 18245
- **MSISDN**: PhoneNumber

  Pattern: \+[0-9]{1,3}-[0-9()+\-]{1,30}
- **Organisation Identification Code**: ExternalOrganisationIdentification1Code
- **Percentage Rate**: PercentageRate

- **PersonIdentificationCode**: ExternPersonIdentification1Code
- **Phone Number**: PhoneNumber
- **Price Value Type Code**: PriceValueType1Code
- **Purpose Code**: ExternalPurpose1Code
- **Proxy Account Type Code**: ExternalProxyAccountType1Code
- **Return Reason Code**: ExternalReturnReason1Code
- **Sequence Type Code**: SequenceType3Code
- **Service Level Code**: ExternalServiceLevel1Code
- **Status Reason Code**: ExternalStatusReason1Code
- **Tax Record Period Code**: TaxRecordPeriod1Code
- **Transaction Activity Code**: TransactionActivity1Code (see [ISO20022_SR])
- **Type of Price Code**: TypeOfPrice17Code (see [ISO20022_SR])

**The following code is a concatenated code from ISO20022**

- **BankTransactionCode:** This code type is concatenating the three ISO20022 Codes Domain Code, Family Code and SubFamiliy Code by hyphens, resulting in “DomainCode”-“FamilyCode”-“SubFamilyCode”.

  **Example:** PMNT-RCDT-ESCT defining a transaction assigned to the PayMeNT Domain (PMNT), belonging to the family of ReceivedCreDitTransfer (RCDT) that facilitated the EuropeanSEPACreditTransfer (ESCT)

To reflect a securities position's balance type, **SecuritiesBalanceTypeCode** is defined as the code list, containing all codes from ISO 20022 code lists

- SecuritiesBalanceType1Code (see [ISO20022_IF])
- SecuritiesBalanceType2Code (see [ISO20022_IF])
- SecuritiesBalanceType11Code (see [ISO20022_SR])
- SecuritiesBalanceType12Code (see [ISO20022_SR])

For all codes used in JSON structures, not the abbreviation defined for XML encoding, but the name of the code is used as value.

The following Codes are used from other ISO standards:

- **Currency Code**: Codes following ISO 4217 Alpha 3
- **Country Code:** Two characters as defined by ISO 3166

Further basic ISO data types:

- **ISODateTime**: A particular point in the progression of time defined by a mandatory date and a mandatory time component, expressed in either UTC time format (YYYY-MM-DDThh:mm:ss.sssZ) orlocal time with UTC offset format (YYYY-MM-DDThh:mm:ss.sss+/-hh:mm),. These representations are defined in "XML Schema Part 2: Datatypes Second Edition - W3C Recommendation 28 October 2004" which is aligned with ISO 8601.
- **ISODate**: A particular point in the progression of time in a calendar year expressed in the YYYY-MM-DD format.

### 3.57 Additional Cryptographic Code Lists

Codes to identify algorithms for signature generation and encryption shall be used as defined by [RFC7518]. At least the following codes have to be supported:

**Signature Algorithm Code**

**PS256**

for RSASSA-PSS using SHA-256 and MGF1 with SHA-256 (section 3.5 of [RFC7518])

**Key Encryption Algorithm Code**

**RSA-OAEP-256**

for RSAES OAEP using SHA-256 and MGF1 with SHA-256 (section 4.3 of [RFC7518])

**Content Encryption Algorithm Code**

**A256GCM**

for AEC in Galois/Counter Mode using 256-bit key (section 5.3 of [RFC7518])

# 4 References

## 4.1 Normative References

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[EBA-RTS] Commission Delegated Regulation (EU) 2018/389 of 27 November 2017 supplementing Directive 2015/2366 of the European Parliament and of the Council with regard to Regulatory Technical Standards for Strong Customer Authentication and Common and Secure Open Standards of Communication, C(2017) 7782 final, published 13 March 2018

[EBA-FR] Final Report, Draft Regulatory Technical Standards, amending Commission Delegated Regulation (EU) 2018/389 supplementing Directive (EU) 2015/2366 of the European Parliament and of the Council with regard to regulatory technical standards for strong customer authentication and common and secure open standards of communication, published 5 April 2022

[eIDAS] Regulation (EU) No 910/2014 of the European Parliament and of the Council on Electronic Identification and Trust Services for Electronic Transactions in the Internal Market, 23 July 2014, published 28 August 2014

[ETSI PSD2] ETSI TS 119 495 V1.1.2; Electronic Signatures and Infrastructures (ESI); Sector Specific Requirements; Qualified Certificate Profiles and TSP Policy Requirements under the payment services Directive (EU) 2015/2366

[PSD2] Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, published 23 December 2015

[HAL] Kelley, M., "HAL - Hypertext Application Language", 2013-09-18, http://stateless.co/hal_specification.html

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[RFC2426] Dawson, F. and T. Howes, T., "vCard MIME Directory Profile", September 1998, https://tools.ietf.org/html/rfc2426

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[RFC5843] Bryan, A, "Additional Hash Algorithms for HTTP Instance Digests", RFC 5843, DOI 10.17487/RFC5843, April 2010, https://www.rfc-editor.org/info/rfc5843

[RFC6749] Hardt, D., "The OAuth 2.0 Authorization Framework", October 2012, https://tools.ietf.org/html/rfc6749

[RFC7231] R. Fielding, J. Reschke, Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content

[RFC7518] JSON Web Algorithms (JWA), Request for Comments 7518, Internet Engineering Task Force (IETF), M. Jones (Microsoft), May 2015

[RFC7807] M. Nottingham, Akamai, E. Wilde, „Problem Details for HTTP APIs“, March 2016, https://tools.ietf.org/html/rfc7807

[RFC 8414] M. Jones, N. Sakimura, J. Bradley; "OAuth 2.0 Authorization Server Metadata";

### 4.2 Informative References

[oFA-IG-Com] openFinance API Framework, Implementation Guidelines, Compliance Services, Version 2.4.2, 31 July 2026

[oFA-IG-Doc] openFinance API Framework, Implementation Guidelines, (Standalone) Document Services, Version 1.0.1, 31 July 2026

[oFA-IG-Man] openFinance API Framework, Implementation Guidelines, Mandate Services, Version 2.0.1, 31 July 2026

[oFA-IG-VOP] openFinance API Framework, Implementation Guidelines, VOP Services, Version 1.1, 03 June 2025

[oFA-IG-XPIS] openFinance API Framework, Implementation Guidelines, Extended Payment Initiation Services, Version 2.3, 31 July 2026

[oFA-IG-XAIS] openFinance API Framework, Implementation Guidelines, Extended Account Information Services, Version 2.2.1, 31 July 2026

[oFA-IG-RTP] openFinance API Framework, Implementation Guidelines, Request to Pay Services, Version 2.2.1, 31 July 2026

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[oFA-DomDef] openFinance API Framework, Domestic AIS/PIS Definitions for Version 2.x, current version

[oFA-IG-Co] openFinance API Framework, Implementation Guidelines, Consent API, Version 2.2.1, 31 July 2026

[oFA-IG-Adm] openFinance API Framework, Implementation Guidelines, Administrative Services, Version 1.2, 31 July 2026

[oFA-IG-Disc] openFinance API Framework, Implementation Guidelines, Discovery Services, Version 1.3, 31 July 2026

[oFA-IG-SO] openFinance API Framework, Implementation Guidelines, Standing Orders, Version 1.0.1, 31 July 2026

# 5 Annex A: Change Log

## 5.1 Changes from Version 2.1 to Version 2.2

The following changes have been applied in version 2.2 relative to version 2.1:

| Section | Change | Reason |
|---|---|---|
| Preamble | The licence conditions of Berlin Group have been removed. | To support the European community in re-using the openFinance data model, when not directly using openFinance APIs. |
| 2.1 | The attribute cardAccounts have been added. | single card accounts and reconciliation card accounts need now to be addressed explicitly in the consent. The former solution did not allow a proper differentiation.<br><br>Erratum |
| 2.7 | The attribute resourceId has been restricted from string to max70Text. | Clarification, as applied everywhere in the API Framework. |
| 2.7 | The description of the attribute ownerNames was extended. | Clarification |
| 2.19 | New data type to support the features of adding a debtor account to a resource. | CR 113 |
| 2.55 | The spelling of the attribute clearingSystemIdentificationCode was corrected. | Erratum |
| 2.93 | Added the status reason to the initiation data attributes | Clarification. |
| 2.101 | Added an attribute to "Links" for indicating an update of a resource by a debtor account. | CR113 |
| 2.112 | The attirubtes oauth2PrestepMetadataUri and oauth2OfflineScopeRequired have | Better support of documentation. |

| Section | Change | Reason |
|---|---|---|
| | been added to the API Security parameters. | |
| 2.114 | Added the value "pageSize" for supported query parameters in transactions | CR115 |
| 2.114 | Added the attribute maxPageSize | CR115 |
| 2.147 | Some attributes adapted to lowerCamelCase | Errata |
| 3.56 | Do not allow pure local time zone anymore (only with UTC offset). | CR111 |

### 5.2 Changes from Version 2.2 to Version 2.2.1

The following changes have been applied in version 2.2.1 relative to version 2.2:

| Section | Change | Reason |
|---|---|---|
| 2.69 | New attribute "Duration" for Mandate API | Support of new service |
| 2.78 | New attribute "Extended Party Description" for Mandate API | Support of new service |
| 2.103 | New attribute "Mandate Type" for Mandate API | Support of new service |
| In former Version 2.2, this was section 2.74 | New attribute "Mandate Status" for Mandate API | Support of new service |
| 2.105 | New attribute "Occurrences" for Mandate API | Support of new service |
| 2.107 | Condition of attributes changed | Errata |

| Section | Change | Reason |
|---|---|---|
| 2.183 | New attribute "Referred Mandate Document information" | Support of new service |
| 3.9 | New "Classification code" for Mandate API | Support of new service |
| 3.23 | New "Mandate Setup Reason Code" for Mandate API | Support of new service |
| 3.25.1 | New codes "CLIENT_INVALID" and "CLIENT_INCONSISTENT" | Support error information for directory related issues |
| 3.56 | Added "Organisation Identification Code" and "Mandate Reason Code" | Errata and support of new service |

### 5.3 Changes from Version 2.2.1 to Version 2.2.2

The following changes have been applied in version 2.2.2 relative to version 2.2.1:

| Section | Change | Reason |
|---|---|---|
| 2.105 | Corrected Occurences to Occurrences in the title<br><br>Changed the code OOF to OOFF in the description | Errata |
| 2.113 | New attribute psuAccountSelectionSupported | New feature resulting from CR113 |
| 2.117 | new data Type Parameters Mandate Services | The new Mandate Services imply additions to the discovery services data model. |
| 2.118 | new data Type Parameters Document Services | The new Document Services imply additions to the discovery services data model. |
| 2.121 | corrected the description for attribute serviceType. | Errata |

| Section | Change | Reason |
|---|---|---|
| | Added attributes for character set items | |
| 2.122 | new data type Parameters VOP Services | The new VOP Services imply additions to the discovery services data model. |
| 2.180 | new data type Related Document Information | Needed for the new Document Services |
| 2.183 | data type of attribute type code was corrected | Erratum |
| 3.16 | new status code Document Status | Needed for the new Document Services |
| 3.33 | added the new Approach Type code "Online-Channel" | Needed as new SCA approach for asynchronous authorisations in online channels, introduced in the openFinance API Framework Release 2.1 e.g. for Mandate Services |
| 3.48 | added several Status Reason Codes | Needed for several services and related updates. |
| 4.2 | implementation guidelines for document, mandate and VOP services added. | New services |
| several | Replaced the notion of "Remark for Future" by "RFU" | harmonising both expressions used in the document before to one expression. |

### 5.4 Changes from Version 2.2.2 to Version 2.2.3

| Section | Change | Reason |
|---|---|---|
| 2.82 | New data type From To Date | Needed for the Discovery API. |
| 2.108 | New data type for Compliance Specs for Extended Bulk Payment Status | New Function in Compliance Specs. |

| Section | Change | Reason |
|---|---|---|
| 2.110 | New data type for Compliance Specs for Extended Bulk Payment to add also the VOP Status | Integration of VOP Services into Payment Initiation. |
| 2.112 | Adding the value "ASPSP-Channel" to SCA approaches in Discovery APIs | Recognising the new SCA approach for asynchronous SCA in ASPSP online channels. |
| 2.112 | renaming the attribute client-explicit-authorisation-preferredSupported into clientExplicitAuthorisationPreferenceSupported<br><br>and client-sca-preferenceSupported to clientScaPreferenceSupported | lowerCamelCase is used for header parameters if they appear in the Discovery API in the payload. |
| 2.113 | The value "JSON-Extended" has been added to the values for the attribute supportedStatusFormats. | Support of the new Extended Status endpoint needs to be defined. |
| 2.113 | Three attributes with prefix "clientVop" has been added. | Potential support of the VOP related header parameters needs to be defined. |
| 2.133<br>2.134<br>2.135 | Three new data types have been added to support bulk VOP requests and responses. | New VOP service. |
| 2.160 to 2.163 | Several header parameters which come as part of attributes in the Discovery API payload have been transformed from "-" syntax to lowerCamelCase | Enhance consistency and readability. |
| 2.202 | Timestamps have been added to Standing Order Details for startpoint and endpoint of a standing order for instant payments. | New function |
| 3.25.1 | Added new Message Code "API_CONTRACT_ID_INVALID" | Adding more information in case of a related error in premium Services |
| 3.31, 3.32 | Two new code lists have been added for VOP Results. | New VOP Service / VOP service integration |

| Section | Change | Reason |
|---|---|---|
| 3.55 | New code list for a VOP bulk status. | New VOP Service |
| 3.56 | Status Reason Code was added as ISO20022 External Code List, since it was missing. | Erratum |

### 5.5 Changes from Version 2.2.3 to Version 2.2.4

| Section | Change | Reason |
|---|---|---|
| 2.8 | Account Information Indicator added as a complex data type | Related to Account Statement |
| 2.9 | Account Interest added as a complex data type | Related to Account Statement |
| 2.11 | Three new attributes added for Account Reference | Related to Account Statement |
| 2.32 | Two new attributes added for Amount Details | Required for Entry in Statement |
| 2.34 | Amount Range added in complex data types | Required for Entry in Statement |
| 2.40<br>2.42 | Availability and Balance Statement added as complex data types | Required for Account Statement |
| 2.43 | Batch Information added in complex data types | Related to Account Statement |
| 2.46<br>2.47 | Boundary Amound and Cash Deposit added in complex data types | Required for Entry in Statement |
| 2.52 | New attributes added for Card Transaction Details | CR125 |
| 2.55<br>2.56 | Charges and Charges Record added | CR125 |

| Section | Change | Reason |
|---|---|---|
| 2.61<br>to<br>2.63 | Corporate Action, Credit Line and Credit Entries added in complex data types | Related to Account Statement |
| 2.66<br>2.67 | Debit Entries and Details Tax are added as complex data types. | Related to Account Statement |
| 2.71<br>2.73 | Entry and Entry Details1 added | Required for Account Statement |
| 2.81 | New attribute added for Financial Instrument Identification. The word Identification was also added to the name of the data type in the current version. | Modification for better readability. |
| 2.82 | fromTo Amount Range added | Required for Entry |
| 2.98 | Interest Record added | Required for Entries in Account Statement |
| In former Version 2.2.3, this was section 2.94 | Modification and addition in Mandate Status | CR126 |
| 2.108 | Original and Current Face Amount added | Required for Entries in Account Statement |
| 2.144 | Payment Return Reason added | Required for Entries in Account Statement |
| 2.156<br>2.157 | Proprietary Price and Proprietary Quantity are added | Required for Entries in Account Statement |
| 2.172<br>2.173 | Quantity and Rate are added | Required for Entries in Account Statement |

| Section | Change | Reason |
|---|---|---|
| 2.175<br><br>2.176 | Remittance Reports and Remittance Location are added | Required for Entries in Account Statement |
| 2.178 | References Statement are added | Required for Entries in Account Statement |
| 2.180<br><br>to<br><br>2.186 | Related Agents, Related Dates, Related Parties Related Price, Related Remittance and Related Quantities are added in complex data types. | Required for Entries in Account Statement |
| 2.191 | Safekeeping Account added | Required for Account Statement |
| 2.204 | Statement ist added as a complex data type | Needed for Extended Account Information Service – Account Statement (XAIS-STAT) |
| 2.210<br><br>to<br><br>2.217 | Tax, Tax Amount, Tax Authorisation, Tax Creditor, Tax Debtor, Tax Details, Tax Period and Tax Record are newly added. | Related to Transaction Summary and Details in the Account Statement. |
| 2.218<br><br>To<br><br>2.222 | Total Credit Entries, Total Debit Entries, Total Entries, Total Entries Per Bank Transaction Code and Total Net Entry are newly added. | Attributes of Transaction Summary in Account Statement. |
| 2.224<br><br>2.226 | Transaction Detail, Transaction Interest and Transaction Summary are added. | Required for Account Statement |
| 3.7 | Card Transaction Type is added | CR124 |
| 3.18 | Entry Status Code is added | Required for Entries in Account Statement |
| 3.24 | Method Code is added | Required for Entries in Account Statement |

| Section | Change | Reason |
|---|---|---|
| 3.56 | Balance Code, Balance Sub Code, Bearer Code, Charge Type Code, Info Channel Code, Interest Type Code, Percentrage Rate, Price Value Type code, Return Reason Code and Entry Status Code and Tax Record Period Code are appended | Erratum |
| 3.56 | Bank Transaction Code was present two times, the first citing was wrong and is deleted. Bank Transaction Code is only available as XXXX-YYYY-ZZZZ. | Erratum |
| Overall | All attributes that start with capital letters were rewiritten with small letters | Errata |

### 5.6 Changes from Version 2.2.4 to Version 2.2.5

| Section | Change | Reason |
|---|---|---|
| 2.7 | Two new attributes "owner" and "owners" are added in Account Details. Furthermore, ownerName and ownerNames are now deprecated for a later version. This supports the migration towards the use of a data model more compliant to ISO20022, as well as supporting the related CR: | CR120 |
| 2.10 | Added four new attributes in Account Owner. There are postalAddress, identification, countryOfResidence and contactDetails, following ISO20022 | CR120 |
| 2.21 | Added Additional Information Indicator as a complex data type. | Erratum |
| 2.71 | corrected attribute technicalInputChannelCode | Erratum |

| Section | Change | Reason |
|---|---|---|
| 2.79 | corrected type entry of the attribute clearingSystemMemberId | Editorial erratum with textmarks in Word |
| 2.101 | creditorNameConfirmation added as attribute to Links | Support of VOP integration. A link provided in a response in case of an explicit confirmation of processing a payment regardless from the deviation identified in the VOP response regarding the creditor name |
| 2.109 | Added the attribute originalTransactionReference | Enable a reference to transaction also without payment identification. |
| 2.110 | Added the attribute originalTransactionReference and adjusted the attribute creditorName to matchedCreditorName | Enable a reference to transaction also without payment identification.<br><br>VOP IG has been adjusted to make the distinction between creditorName as submitted and creditor name as responded from payee bank more evident. |
| 2.111 | new data type original transaction reference. | See the description above. |
| 2.129 and 2.130 | Two new complex data types "Party Description5" and "Party Description6" are added, allowing the ASPSP to determine the use of hybrid/structured addresses in payment initiations. | CR127 |
| 2.147 and 2.148 | Two new complex data types "Postal Address1 (Hybrid Address)" and "Postal Address2 (Structured Address)" are added. | CR127 |
| 2.174 | corrected Type of attribute referredDocumentInformation | Editorial erratum with textmarks in Word |
| 3.1 | The new access right code "owner" has been added, which will follow the old code "ownerNames", which will be deprecated soon. | CR120 |

| Section | Change | Reason |
|---|---|---|
| 3.20 | Renamed Interest Type Code to Interest Type Code3 for differentiation for several interest type codes from the ISO20022. | Erratum |
| 3.45 | Added the missing service types SGNB, MAN, DOC, VOP in the list of service types | Editorial erratum |
| 3.56 | Added Bearer Code and Credit Line Type with additional correction to typos. | Errata |

## 5.7 Changes from Version 2.2.5 to Version 2.2.6

| Section | Change | Reason |
|---|---|---|
| Former Mandate Status type | Change of the definition of the Data Type "Mandate Status":no longer defined by proprietary code but by ISO 20022 codes | Simplification |
| 2.52 | Added descriptions to the attributes. | Clarification |
| 2.109, 2.110 | Added "originalEndToEnd" attribute | Support of VOP Integration |
| 2.113, 2.202 | Frequency code usage has been changed to Event Frequency Code | ISO20022 compliance |
| 3.19 | Renamed Frequency Code to Event Frequency Code | ISO20022 compliance.<br><br>To differentiate between standing orders Frequency Code and Mandate Frequency Code, which are slightly different in ISO20022. |
| 3.25.1 | Added the code CHANGE_INVALID | Erratum |
| 3.56 | Added Frequency Code, Mandate Reason Code and Mandate Status | For purposes of clarification and completeness. |
| Many sections | The payment formats definitions will be migrated to [oFA-PFSM] soon. This is already quoted here. | Editorial changes |

## 5.8 Changes from Version 2.2.6 to Version 2.3

| Section | Change | Reason |
|---|---|---|
| 2.202 | Added attribute specific of the AIS or PIS character of standing orders to the Standing Order Details.<br><br>Added the attribute “displayName” and the Payment Formats parameters given in [oFA-PFSM] to the Standing Order Details. | Support integration of standing order services at the openFinance APIs. |
| 4 | Updated references | Clarification |

### 5.9 Changes from Version 2.3 to Version 2.3.1

| Section | Change | Reason |
|---|---|---|
| 2.79 | Correction of data type “Generic Financial Institution Identification” naming. | Typo |
| 2.88 | Correction of “Generic Financial Institution Identification” section title.<br><br>Correction of data type “Financial Institution Identifcation Code”. | Typos |
| 2.114 | The reference on the transaction data model for V2 document was exchanged by a reference to the new version of XAIS IGs. | Statements are now integrated in XAIS Implementation Guidelines, the other document is deprecated. |
| 2.208 | Added new data type for showing subscription entries together with the status. Most of the sub attributes are optional, since it will be an implementation decision which entry details are shown already on a subscription level. | Erratum |
| 3.56 | Correction of the “Financial Institution Identification Code”. | Erratum |
| 4 | References updated | Release Management |

### 5.10 Changes from Version 2.3.1 to Version 2.4

| Section | Change | Reason |
|---|---|---|
| 2.7, 2.11 | Added specification for the "msisdn" attribute: the MSISDN data type shall be used which is defined to be the ISO data type "PhoneNumber" | Clarification |
| 2.85 | Added new complex data type "Funds Reservation" | Current work on Pre-Authorised Payments |

| Section | Change | Reason |
|---|---|---|
| 2.93 | UUID used as data Type of the attribute "initiationId" | Editorial |
| 2.93 | Added optional attributes "paymentIdentification", "remittanceInformationStructured" and "RemittanceInformationUnstructured" | CR136 |
| 2.101 | Included link to retrieve the changed Version of a resource. | Current work on Change Transaction Resource Processes in the framework. |
| 2.105 | Included the complex data type "OAuth Additional Parameters" | CR129 |
| 2.113 | Added parameters for the Change Transaction Resource methodology developed in the framework | Adaption to new Framework functions |
| 2.123 | Added Chapter on Parameters of Standing Order Services | Current work on Standing Order services |
| 2.136 | Added parameters to allow more changeable options for a request-to-pay message | CR134 |
| 2.141 | Added "supportedMutableAttributes" as conditional attribute which must be used by the ASPSP to communicate the mutable fields if Change Transaction Resource processes are supported via its API's | Adaption to new Framework functions |
| 2.202 | Separated the former data type "Standing Order Details" into two different data types "Standing Order Details Information" and "Standing Order Details Submission" to clearly distinct between the data used for standing orders in AIS context and in PIS context.<br><br>Added the optional attribute "_links" | Clarification and updated Framework structure |
| 2.203 | Added new subsection for Standing Order Details to be used in PIS services only | Clarification |

| Section | Change | Reason |
|---|---|---|
| 2.208 | Added description text for the "subscriptionEntryStatus" attribute | Clarification |
| 3.1 | Added new access right code "positions" | new Framework functonality |
| 3.10 | The description of "terminatedByTpp" has been updated for clarification purposes. | Clarification |
| 3.25.1 | The error code "ROLE_INVALID" was listed twice in the table. One of the entries was deleted. | Erratum |
| 3.25.1 | A new message code "ADDRESSING_ VARIANT_INVALID" was added. | Adaption to new Framework functions |
| 3.25.2 | PIS specific error codes are made available for RTP services. | Erratum |
| 3.46 | The names of the several service types were adapted to agree with the service types used in the Implementation Guidelines of the respective services. | Erratum |
| 3.49, 3.50 | The description of "terminatedByTpp" has been updated for clarification purposes. | Clarification |
| 3.52 | The ISO20022 Code ACFW is added in the table. | Erratum |
| 3.56 | Added the data type MSISDN which is defined to be the ISO20022 standard for phone numbers | Calrification |
| 4 | References updated | Release Management |

### 5.11 Changes from Version 2.4 to Version 2.4.1

| Section | Change | Reason |
|---|---|---|
| 2.1 | The condition of all attributes were incorrectly marked as mutually exclusive "Or Optional". | Erratum |

| Section | Change | Reason |
|---|---|---|
| | The condition of all attributes was changed to “optional” | |
| 2.3, 2.195, 2.204, 2.223 | Renamed the data type “Account Reference” to “Account Reference Statements” due to the renaming of the data type “Account Reference” to “Account Reference Statement”. This change only affects the name of the data type. | Editorial |
| 2.4, 2.5, 2.114, 2.115 | The data type "Array of Access Rights Code" was miss-spelled as "Array of Access Right Code", the typos are fixed | Errata |
| 2.7 | Fixed reference of the data type for the attribute "other" | Erratum |
| 2.11, 2.12 | The "Account Reference" data type was renamed "Account Reference Statements" and new "Account Reference" data type was included.<br><br>In a former version of this document the "Account Reference Statement" data type in Section 2.11 only obtained the attributes that are now included in the "Account Reference1" data type. The "Account Reference Statement" data type then was enlarged to contain all data as in the ISO20022 data type and it was forgotten to refence a restricted Account Reference data type on this level. This is now done by the new "Account Reference" data type in Section 2.12. | Erratum |
| 2.35 | The new data type “Amount Reference” was added. | adaption to new framework functionality |
| 2.43 | The new data type “Base Fee Amount Details” was added. | adaption to new framework functionality |
| 2.48 | The following changes were included for a better editorial structure:<br><br>The element "status" now has the data type "Account Status Code" as it contains the | Editorial |

| Section | Change | Reason |
|---|---|---|
| | same options as the decription for the data element before.<br><br>The element "usage" now uses the data type "Max4Text" as it suffices to contain the relvent data. | |
| 2.48 | the data type used for the "resourceId" attribute is changed to "Max70Text" to be comliant with the data type used in the specification [oFA-IG-XAIS] | adaption to framework |
| 2.72, 2.223, 2.224 | remittanceInformationStructured and remittanceInformationUnstructured are mutually exclusive | Erratum |
| 2.78, 2.124, 2.126 | Fixed Typo in attribute name "postaladdress" must be "postalAddress" | Errata |
| 2.82 | The new data type “Flat Fee Details” was added. | adaption to new framework functionality |
| 2.94, 2.95, 2.96 | The new data types “Initiated Volume Interval”, “Initiated Calls Interval” and “Initiated Access Interval” were added. | adaption to new framework functionality |
| 2.113, 2.123 | Fixed typo in attribute name “clientVopReuestIdSupported” must be “clientVopRequestIdSupported”. | Erratum |
| 2.113 | Added new attribute additionalAmountForReservationSupported for pre-authorised payments | adaption to new framework functionality |
| 2.114 | Fixed the used service types in the description to rely on the correct service type code | Erratum |
| 2.140 | Changed the condition of the attribute “endToEndId” from “optional” to “mandatory”. | Erratum, if the data type is used it may not be empty |
| 2.146 | Updated the description of the attribute “addressLines” and changed the condition of | Erratum |

| Section | Change | Reason |
|---|---|---|
| | the attribute “country” from “optional” to “conditional”.<br><br>Added remark on the limited support for SEPA and Swift | |
| 2.147 | Updated the description of the attributes “addressLines” and “townName”. | Erratum |
| 2.149, 2.150, 2.151, 2.152, 2.153 | Added new data types “Price List Details 1”, “Price List Details 2”, “Price List Details 3”, “Price Function Details” and “Price Value Details” | adaption to new framework functionality |
| 2.200 | Added new data type “Service Price List”. | adaption to new framework functionality |
| 2.206 | Updated the Data Type of "Standing Order Details" to "Standing Order Details Submission" to adapt to Framework changes | Errata |
| 2.224 | Fixed typos “remittanceInformationUnstructured” was previously called “remittanceInformationunstructured” and “remittanceInformationStructured” was previously called “remittanceInformationstructured”. | Errata |
| 3.6 | Fixed Typo "CardDataReading1Code" was previously called "CardsDataReading1Code" | Erratum |
| 3.18 | Fixed Type "PNDG" must be "PDNG" to be the correct ISO20022 Code | Erratum |
| 3.25.1 | Fixed Typo in " ADDRESSING_VARIANT _INVALID". | Editorial |
| 3.46 | Added the missing Codes: “XSTOIS”, “XAIS-CAC” and “XAIS-STO”<br><br>Added the new Codes “XPPIS”, “XMPPIS” and “XMRPPIS”. | Errata /adaption to new framework functionality |

| Section | Change | Reason |
|---|---|---|
| 3.46 | Added the new Codes “XPPIS”, “XMPPIS” and “XMRPPIS”. | adaption to new framework functionality |
| 4 | Updated References | Editorial |
| 5.2, 5.5 | Fixed references to (former) sections | Errata |

# Bank Of Israel

# Open Banking IL

## Implementation Guidelines

נספח א'10 להוראת ניהול בנקאי תקין 368

Version 2.0

27 August 2026

טיוטא

THE Berlin GROUP

A EUROPEAN STANDARDS INITIATIVE

# openFinance API Framework

# Implementation Guidelines

## Consent API for V2.x

Version 2.2

31 October 2025

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  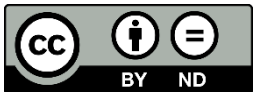

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XS2A


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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by so called Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an "access to account interface" (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework is now planned to be extended to extended services. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client's bank for KYC processes.

**BOI remarks:** In Israel, all financial information services that are subject to access obligations under the Financial Information Services Law, and under Proper Conduct of Banking Business Directive No. 368, must be provided in accordance with the relevant certificate specified in the Directive and in compliance with the requirements set out in both the Law and Directive 368.

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The term "API Client" is defined in Directive 368 as a Third-Party Provider (TPP), which may be either a Payment Initiation Service Provider (PISP) or an Account Information Service Provider (AISP).

**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to "asset broker" and "asset holder" resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as "API provider".

The following account access methods are covered by this framework:

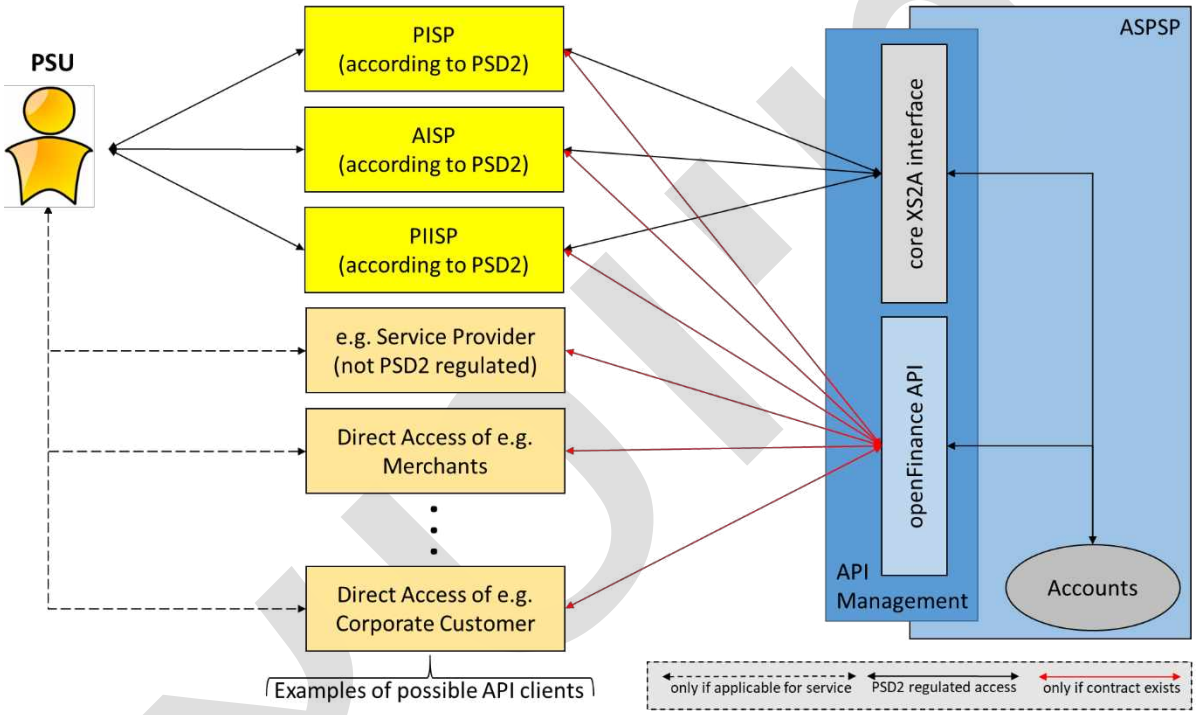


Figure 1: Core XS2A interface and openFinance API

The ASPSP may restrict the access to the services offered at its openFinance API and require dedicated onboarding. The requirements for the rights to access to services offered at the openFinance API are out of scope of this document. These requirements are specified in detail in [oFA-IG-ADM].

In contrast to the services of the openFinance API the ASPSP has to offer access to the services of his core XS2A API to any TPP without any discrimination as long as the TPP has got the necessary licence to access a service as a PISP, AISP or PIISP from an NCA according to the regulations of [PSD2].

## 1.2 Consent API

XS2A and the openFinance API have to deal with PSU consent for very different scenarios since the API client can access sensitive PSU data via the API. The legal text [PSD2] and [EBA-RTS] introduces the notion of consent for AIS, PIS as well as PIIS. In addition,

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operational rules of premium services might add requirements on PSU consent for services introduced at all times.

### 1.2.1 Implicit and explicit consent

PSU consent for some service like payments are worked out implicitly when authorising the payment as such, since the submission of the related data (e.g. payment data) and the related authorisation is worked out at the same time in one session. So, no specific consent object or related token for later access is needed in that case.

Other services are divided more explicitly in a phase, where the related consent is granted and a separate phase where the related consent is used to access certain endpoints in the the openFinance API e.g. for retrieving data. To support such a scenario technically, a dedicated consent API is defined in such cases.

### 1.2.2 Consent Categories for explicit consents

Consents in different contexts might be consents between PSU and TPP, consent between PSU and ASPSP or both. The most prominent example is the consent to share account information data with an AISP, where the consent is agreed between TPP and PSU and where the SCA of the PSU is mandated to be used to secure this consent following PSD2. In other examples within the premium openFinance API like the PSU consent for PIISP via the API, the consent is directly between ASPSP and PSU to fulfil the requirements in [EBA-RTS], but technically provided via the TPP. These two different views on consent are still technically managed via the same consent API defined within this document. Note, that the consent API will offer different path parameters to support consents on different consent categories. The consent categories supported in this document are listed in Section 1.3

### 1.2.3 Consent Token

At the end of a successful authorisation process within the consent API, the API client uses the consent resource identification consentId as a token towards the openFinance APIs addressed by the consent categories and the PSU during the consent process. Please note that the API Client needs to store the token in its system for the whole lifetime of the token. Please note that depending of the authorisation process, the ASPSP might in addition offer a bearer token following the OAuth2 standard, which then needs to be used by the API Client in addition when accessing the related APIs. In case the API client is addressing the related API without the related token, then the ASPSP will reject the API calls.

**NOTE:** This API specification relies strongly on generic API functionality of the openFinance API Framework as defined in [oFA-PFSM]. Further, complex data type definitions and code lists from [oFA DaD] are used within this specification without further reference.

## 1.3 Document Structure

The document defines the API access methods of the consent API and some application layer fundamentals on consent status and multicurrency accounts in Section 2. Detailed API specifications for the consent API then follow in Section 3 for the consent categories

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- funds-confirmations,

**BOI remarks**: not supported in Israel

- user-parameters-access and
- document-services.

**BOI remarks**: not supported in Israel

**NOTE:** The embedded SCA Approach where all PSU credentials are transported via the API is very specific. For this reason, all attributes and processes to be applied for the embedded SCA approach only will be marked with turquoise throughout this document.

**NOTE:** The openFinance API Framework is still constantly growing, by adding more needs to grant consent to specific API functions. Thus, further consent categories and access rights will be defined in a later version of the document.

### 1.4 Document History

| Version | Change/Note | Approved |
|---|---|---|
| Draft V2 | Final Draft of consent API for version 2.x | 15 July 2023 |
| V2.0 | First released version of the V2 consent API | 05 October 2023 |
| V2.1 | Adaptation to Release V2.1.<br><br>Card reconciliation accounts now need to be addressed explicitly.<br><br>Details are contained in Annex A: Change Log. | 31 July 2024 |
| V2.2 | Adaption to Release V2.2<br><br>Including the IBAN Check Service in 3.6.1<br><br>Details are contained in Section 5.2 | 31 October 2025 |

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# 2 Application Layer: Guiding Principles

## 2.1 API Access Methods

In the following, the API access methods of the openFinance consent API are presented in an overview. The following categories of consent are supported within {consent-category}:

- account-access: consent for AIS access to addressed accounts (Service Type CONS-AIS for the XS2A interface, service type CONS-XAIS in case of access to any account type not necessarily covered by PSD2).

- funds-confirmations: access consent for the funds-confirmations service for a dedicated account (Service Type CONS-FDC).

**BOI remarks:** funds-confirmations is not supported in Israel. Everything that is written regarding this service is not supported.

- user-parameters-access: consent for user data access for addressed accounts (Service Type CONS-USP).

- document-services: explicit consent to submit e.g. RTPs, documents as such or in addition retrieve PSU identification related data (service type CONS-DOC) within an onboarding of the PSU to the service on the API Client side. A document might be a pure JSON RTP or a pdf or a certain document type (eInvoice, contract etc.) or a combination.

**BoI remarks:** document-services is not supported in Israel. Everything that is written regarding this service is not supported.

Each consent type is supporting a slightly different data model, which is why they are listed separately.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| consents/account-access | POST | Mandatory | Create a consent resource, defining access rights to dedicated accounts of a given PSU-ID. These accounts are addressed explicitly in the method as parameters as a core function. (Detailed consent model)<br><br>Section 3.4.1 |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| consents/account-access | POST | Optional[2] | As an option, an ASPSP might optionally accept a specific access right<br><br>• for all AIS services for all available accounts of given account categories<br><br>(Global consent model)<br><br>BoI remarks: this service is optional. But, once supported - the ASPSP must display all available accounts and services to the PSU when performing the SCA.<br><br>As another option an ASPSP might optionally also accept a command, where only requested access rights are inserted without mentioning the addressed account(s). The actual rights and the relation to accounts is then handled afterwards between PSU and ASPSP. This option is not supported for the Embedded SCA Approach.<br><br>(ASPSP managed consent model)<br><br>**BoI remarks**: ASPSP managed consent model is Mandatory in Israel<br><br>As a last option, an ASPSP might in addition accept a command with access rights<br><br>• to see the list of available accounts (with or without balance) for given account categories<br><br>(Account list model)<br><br>Section 3.4.1 |

[2] ASPSP might choose between the additional consent models to achieve the "no manual IBAN entry" requirement by EBA.

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| consents/account-access/{consentId} | GET | Mandatory | Reads the exact definition of the given consent resource {consentId} including the validity status.<br><br>Section 3.4.2 |
| consents/funds-confirmations | POST | Optional<br><br>**BoI remarks:** not supported in Israel | Create a consent resource to register a TPP for the confirmation of funds service for a given account by a PSU for a given PSU ID.<br><br>See Section 3.5.1 |
| consents/funds-confirmations/{consentId} | GET | Mandatory<br><br>**BoI remark:** not supported in Israel | Reads the exact definition of the given consent resource {consentId} including the validity status<br><br>Section 3.5.2 |
| consents/user-parameters-access | POST | Optional | Create a consent resource to grant an API Client access to technical user parameters related to given accounts by a PSU, related to a given PSU respectively. Technical user parameters are parameters about e.g. global or service specific limits or related signing rights.<br><br>See Section 3.6.1 |
| consents/user-parameters-access/{consentId} | GET | Mandatory | Reads the exact definition of the given consent resource {consentId} including the validity status<br><br>Section 3.6.2 |
| consents/document-services | POST | Optional<br><br>**BOI remarks:**<br><br>not supported | Create a consent resource to register an Originator-RTPSP or the pair (Originator-RTPSP, RTP-Originator) for a (given) account by a PSU defined by a given PSU ID and to retrieve potentially PSU related identification data during this process. The RTP can be with or |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| | | | without eInvoice and is interpreted as a "document" as such.<br><br>**RFU**: This consent will also address postal document services in future.<br><br>See Section 3.7.1 |
| consents/document-services/{consentId} | GET | Mandatory<br><br>**BOI remarks**:<br><br>not supported | Reads the exact definition of the given consent resource {consentId} including the validity status<br><br>Section 3.7.2 |
| consents/{consent-category}/{consentId} | DELETE | Mandatory | Terminate the addressed consent.<br><br>Section 3.9 |
| consents/{consent-category}/{consentId}/status | GET | Mandatory | Read the consent status of the addressed consent resource.<br><br>Section 3.8 |

## 2.2 Multi-currency Account Specifics for Consents

### 2.2.1 Submission of Consents on Account Access

Multicurrency accounts are addressed by just using the external account identifier in the submission of a consent on access on accounts with dedicated accounts, without specifying a currency. Asking for the consent to retrieve account information data of a multicurrency accounts implies getting it for all sub-accounts.

A sub-account with a dedicated currency can still be addressed in a dedicated way by adding the currency code to the account reference. In that case, no consent is provided to access the other sub accounts.

**BOI remarks**: The multi-currency account product support is mandatory .

IBAN with no currency attribute as part of a consent means request for all currencies connected to the account at any given time as long as the consent is valid.

### 2.2.2 Submission of Consents on Confirmation of Funds

The consent data model provides an account, where the consent for a Confirmation of Funds Request is granted on. The account currency is an optional sub field in the account reference.

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In case of multi-currency accounts this implies that the default sub-account is addressed if no currency is submitted in the Establish Confirmation of Funds Request by the TPP. The default sub-account is set by the ASPSP.

### 2.3 Status Information within the Establish Consent Process and Lifecycle

The status of the consent resource is changing during the initiation process and life cycle. In difference to e.g. a payment initiation process, there are only SCA checks on the consent resource and of course account permissions but no feedback loop with the ASPSP backend e.g. regarding limits or funds. For this reason, the status lifecycle for consents is less detailed than e.g. for payments. The data element for the status of the consent is defined as "consentStatus".

The only codes within the **initiation phase** supported for the consentStatus for this process are "received", “rejected”, "partiallyAuthorised" and “valid”. The current status of the consent resource is returned within all response messages during the authorisation process of the consent.

After a successful authorisation of a consent by a PSU, the consent resource might change its status during its lifecycle which needs to be transparent to the AIS. The following codes are supported during the **lifecycle phase** of the consent following the "valid" status:

- "expired": The consent has been expired (e.g. after the period of time which is mandated by an applicable regulation or after the period time requested by the TPP).
- "revokedByPsu": The consent has been revoked by the PSU.
- "terminatedByTpp": The AISP has terminated the consent.
- "replacedByTPP": The AISP has terminated the consent implicitly by submitting a new (recurrent) consent for the same PSU/Corporate.

  BOI remarks: "suspendedByASPSP": The ASPSP has suspended the consent, according to the reasons written in the Israeli law.

The AIS can retrieve this status within the GET Status Response Message.

**BOI remarks:** any further codes should be coordinate in advance with BOI.

**Note:** The "expired" status will also apply to one off consents, once they are used or out dated.

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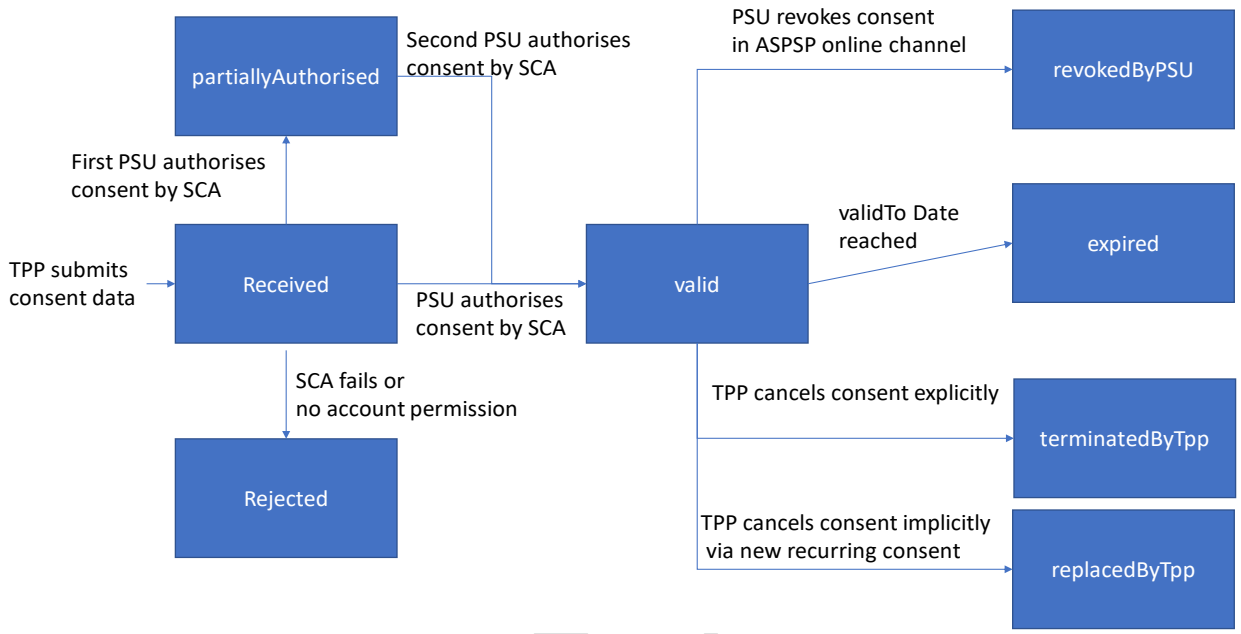
The following diagram shows the overall status transition diagram for a consent resource:




In addition, the ASPSP informs the TPP about the status of the technical SCA process for establishing a consent within the GET SCA Status Response Message. For this status reporting the data element “scaStatus” will be used.

**BOI remarks:** Any consent status change must be in accordance to table below.

Any consent status change which is not mention in the table is forbidden.

If necessary, there is an option to switch from status "Recived" to one of the statuse "SuspendedByAspsp" by switching to status "Valid" for a few seconds.

| From Status | To Status | Reasons for status change (access token validity should not change) |
|---|---|---|
| Received | Rejected | 1. short timeout for PSU authentication & authorization has passed<br>2. incorrect consent data<br>3.PSU authorization failed due to PSU decision |
| Received | partiallyAuthorised | waiting for some mandate authorisations of accounts owners |
| Received | Valid | PSU successful authentication & authorization has been |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| | | |
|---|---|---|
| | | performed and no other authorisation is needed |
| Received | terminatedByTpp | TPP invoked Delete consent |
| partiallyAuthorised | Valid | all mandate authorisations of accounts owners received |
| partiallyAuthorised | Rejected | 1.long timeout for all accounts owners authorisation has passed<br>2. consent revoked by PSU on ASPSP<br>3. one of the accounts owners did not authorise the consent |
| partiallyAuthorised | terminatedByTPP | TPP invoked Delete consent |
| Valid | revokedByPsu | 1. consent revoked by PSU on ASPSP<br>2. one of the accounts owners revoked the consent<br>3. The PSU is not anymore an owner of the account |
| Valid | Expired | 1. consent validUntil date has passed<br>2. new consent with recurringIndicator=true for the same PSU,TPP,App & ASPSP channel status changed to Valid |
| Valid | terminatedByTPP | TPP invoked Delete consent |
| Valid | suspendedByASPSP | The consent has been suspended by ASPSP according to requirements found in BOI directive section 30 |
| Valid | replacedByTPP | The AISP has terminated the consent implicitly by submitting a new (recurrent) consent for the same PSU/Corporate |
| suspendedByASPSP | Valid | All the requirements for the suspension found in BOI directive section 30 seiced to exist |
| suspendedByASPSP | revokedByPsu | 1. consent revoked by PSU on ASPSP<br>2. one of the accounts owners revoked the consent |

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| | | |
|---|---|---|
| suspendedByASPSP | Expired | 1. consent validUntil date has passed<br>2. new consent with recurringIndicator=true for the same PSU,TPP,App & ASPSP channel status changed to Valid |
| suspendedByASPSP | terminatedByTPP | TPP invoked Delete consent |

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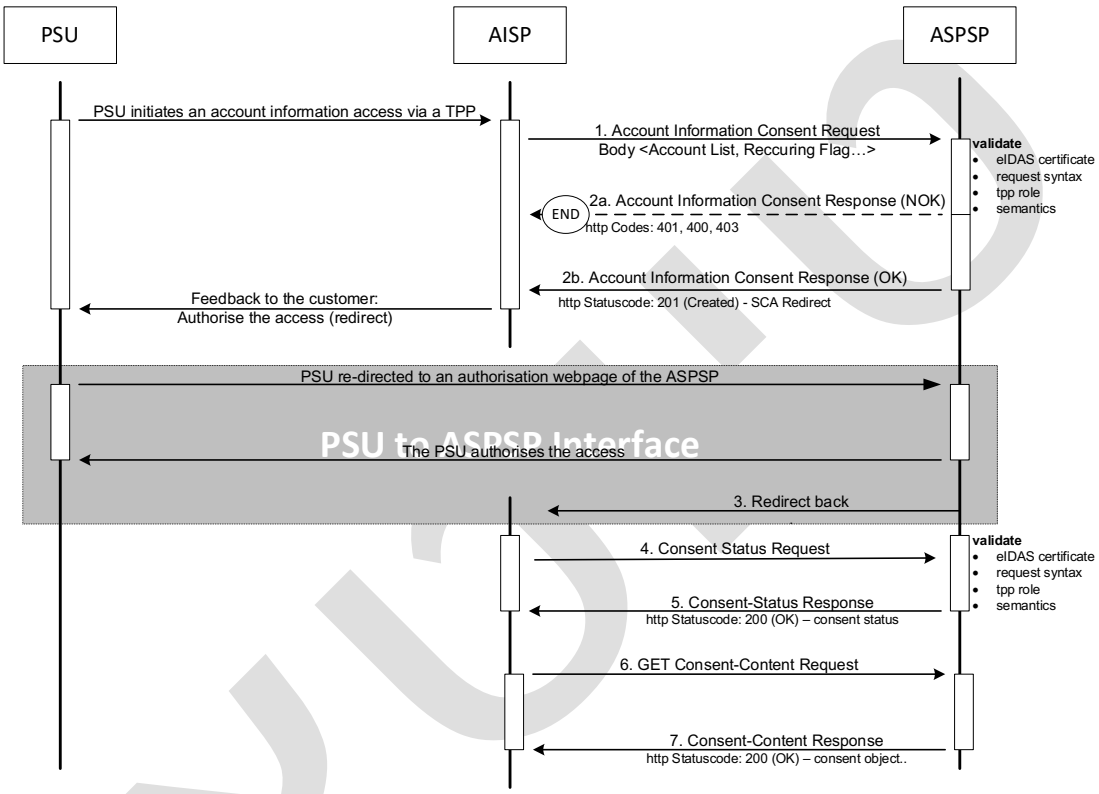
# 3 Establish Consents Messages

## 3.1 Generic Consent Flow

### 3.1.1 Redirect SCA Approach: Implicit Start of the Authorisation Process

If the ASPSP supports the Redirect SCA Approach, the message flow within the Establishing Consent sub-service is simple. The Service Consent Request is followed by a redirection to the ASPSP SCA authorisation site. A status or content request on the created consent resource might be requested by the TPP after the session is re-redirected to the TPP's system.




### 3.1.2 OAuth2 SCA Approach: Implicit Start of the Authorisation Process

**BOI remarks**: OAuth2 SCA Approach with Implicit Start supported is mandatory.

The PSU re-direct to an authorisation webpage of the ASPSP (authorisation request) should be done (if installed) to ASPSP native app and not by default browser.

The ASPSP is responsible to designate its app as the default handler of his authorisation webpage.

The use of web view by API client is forbidden.

If the ASPSP supports the OAuth2 SCA Approach, the flow is very similar to the Redirect SCA Approach. Instead of redirecting the PSU directly to an authentication server, the OAuth2

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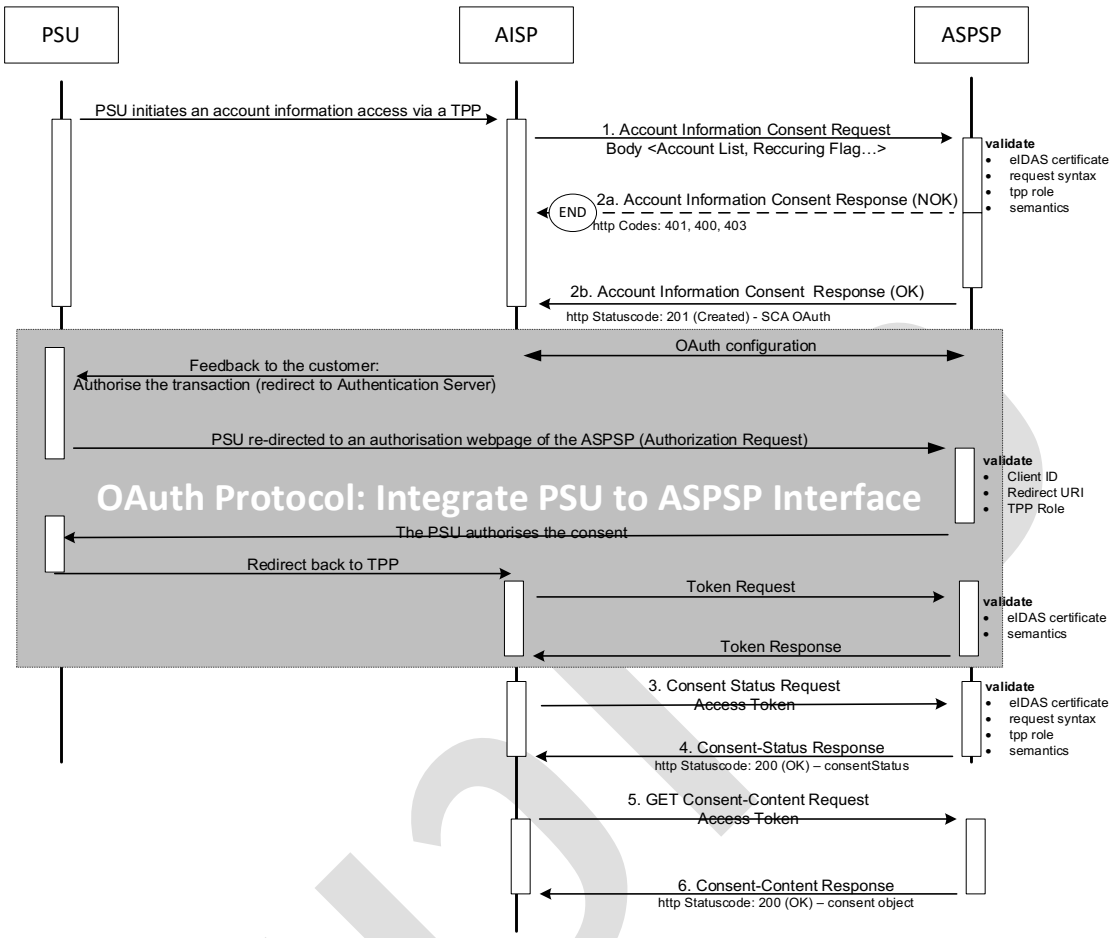
protocol is used for the transaction authorisation process. In the following, a flow is shown, where the Authorisation Process in the NextGenPSD2 API has been implicitly started.




### 3.1.3 Decoupled SCA Approach: Explicit Start of the Authorisation Process

**BOI remarks**: Decoupled SCA Approach with Implicit Start support is optional for ASPSP.

The transaction flow in the Decoupled SCA Approach is similar to the Redirect SCA Approach. The difference is that the ASPSP is asking the PSU to authorise the account access consent e.g. via a dedicated mobile app. The ASPSP is asking the TPP to inform the PSU about this authentication by sending a corresponding PSU Message like "Please use your xxx App to authorise the account access".

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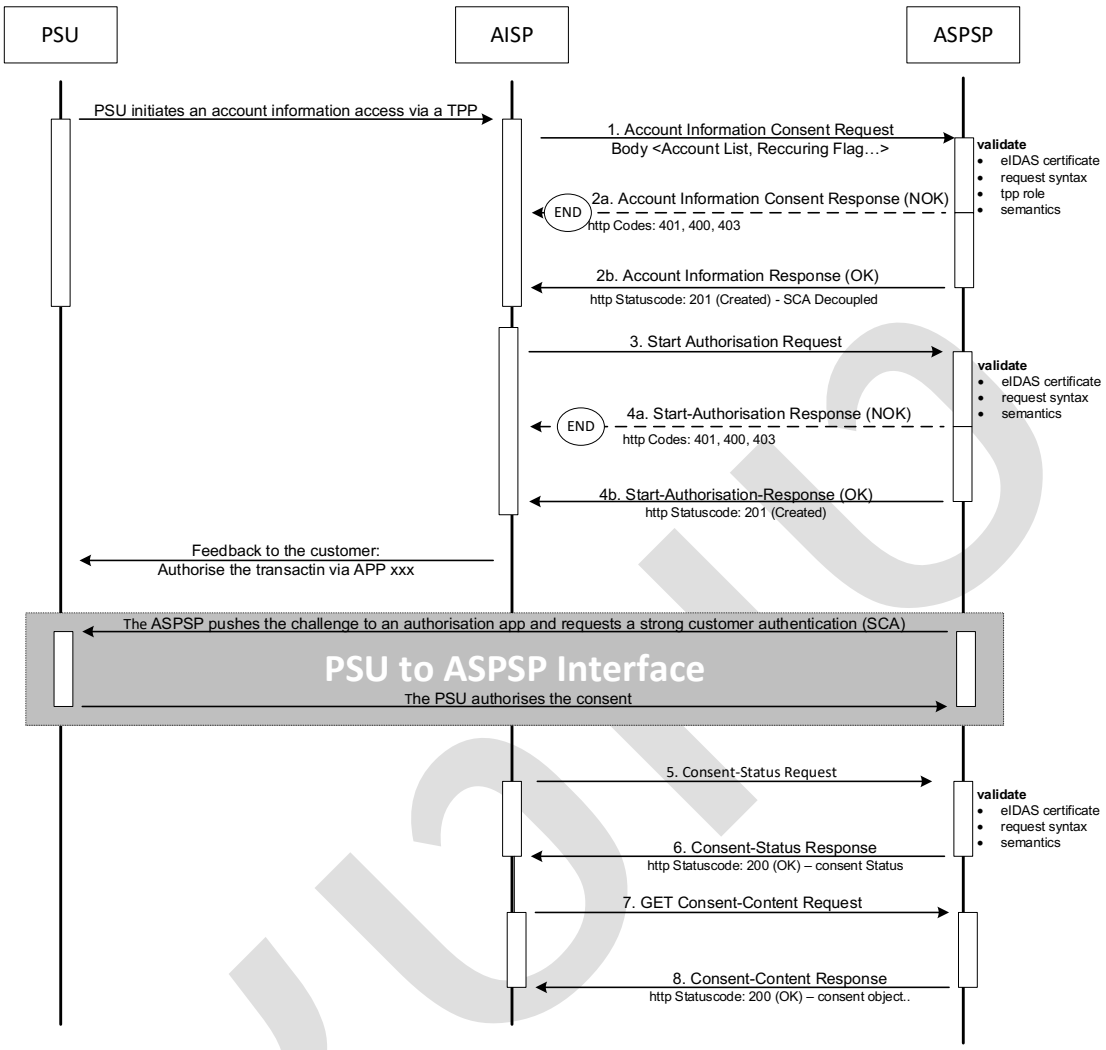
After the SCA between ASPSP and PSU, the TPP then needs to ask for the result of the transaction.




**NOTE**: A similar process is resulting if the ASPSP implicitly starts the authorisation.

### 3.1.4 Embedded SCA Approach with only one SCA method available

**BOI remarks**: forbidden to use.

In the following, several exemplary flows are shown, where the ASPSP has chosen to process the SCA methods for the consent approval through the PISP – ASPSP interface. In any case, the PSU normally will need to authenticate himself with a first factor, before any account or SCA method details will be available to the PISP.

**Remark:** In case where OAuth2 is requested by the ASPSP as a pre-step to replace the PSU- and password by an access token, the sequence of the PSU authentication

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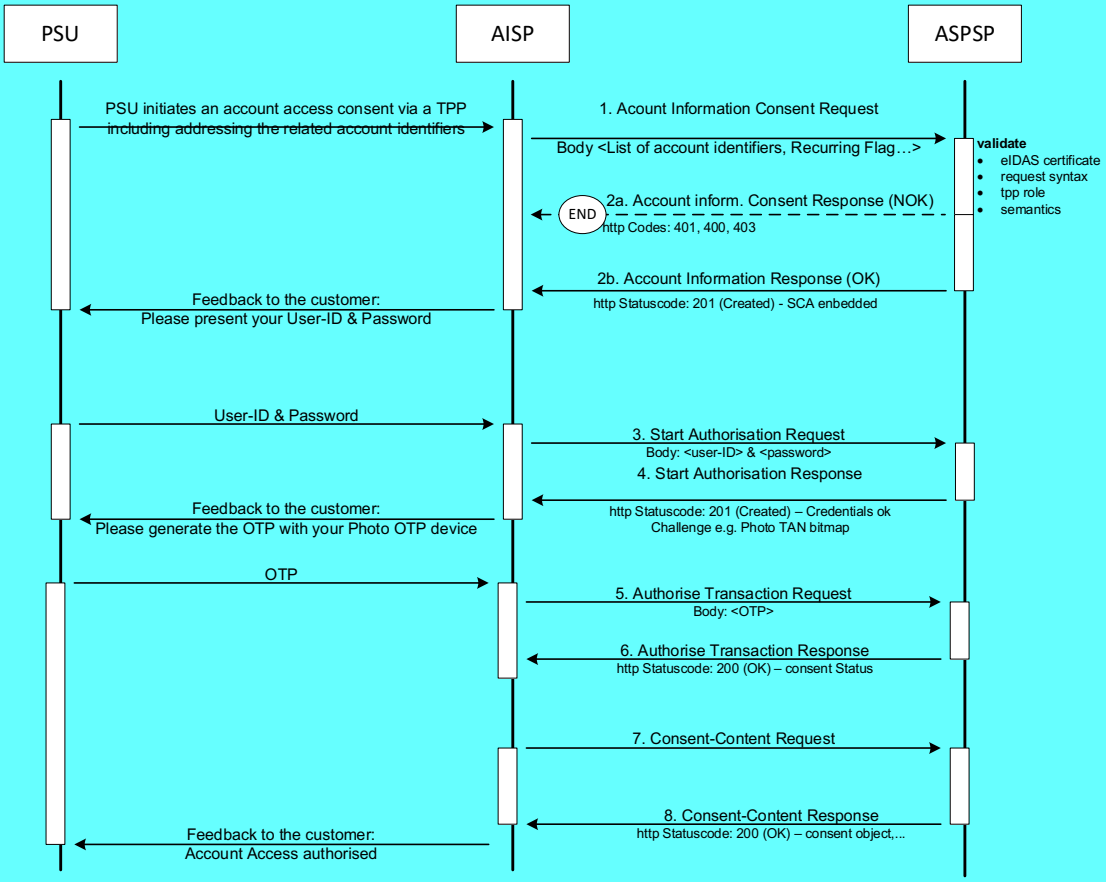
with the first authentication factor is omitted. This applies for all examples for the Embedded SCA Approach.

In case where only one SCA method is available, the "Authorise Transaction Request" is added to the flow, where the TPP is transmitting the authentication data of the customer, e.g. an OTP with included dynamic linking to the transaction details.




### 3.1.5 Embedded SCA Approach with Selection of a SCA method

**BOI remarks**: forbidden to use.

In the following flow, there is a selection of an SCA method added in case of the ASPSP supporting several SCA methods for the corresponding PSU. The ASPSP transmits first the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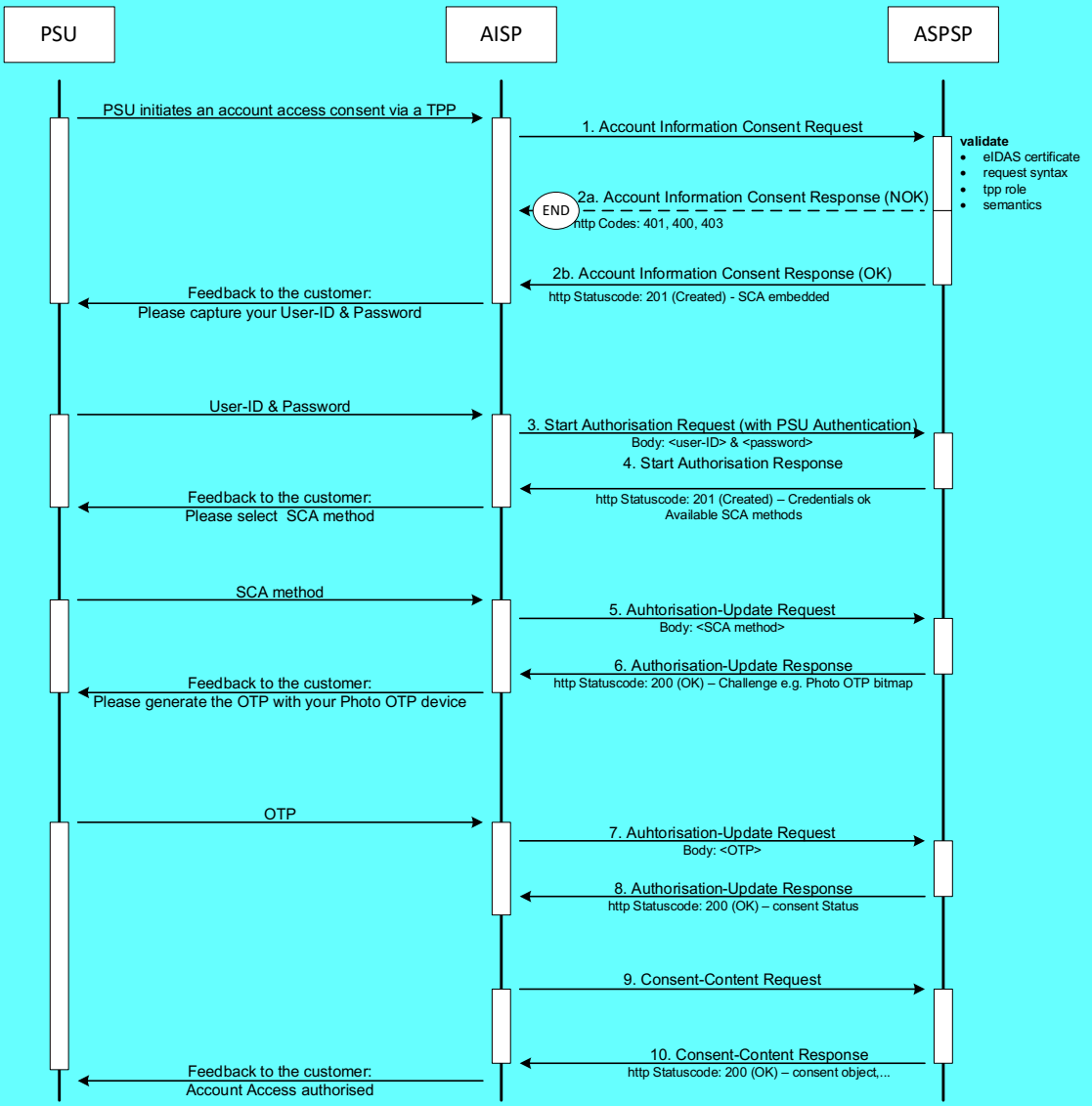
available methods to the PISP. The PISP might filter them, if not all authentication methods can be technically supported. The available methods then are presented to the PSU for choice.




### 3.1.6 Multilevel SCA Approach: Example Decoupled SCA Approach

The multilevel SCA Approach flows for the Establish Consent Requests will follow exactly the same pattern as for the Payment Initiation Services. Whereas the Redirect SCA Approach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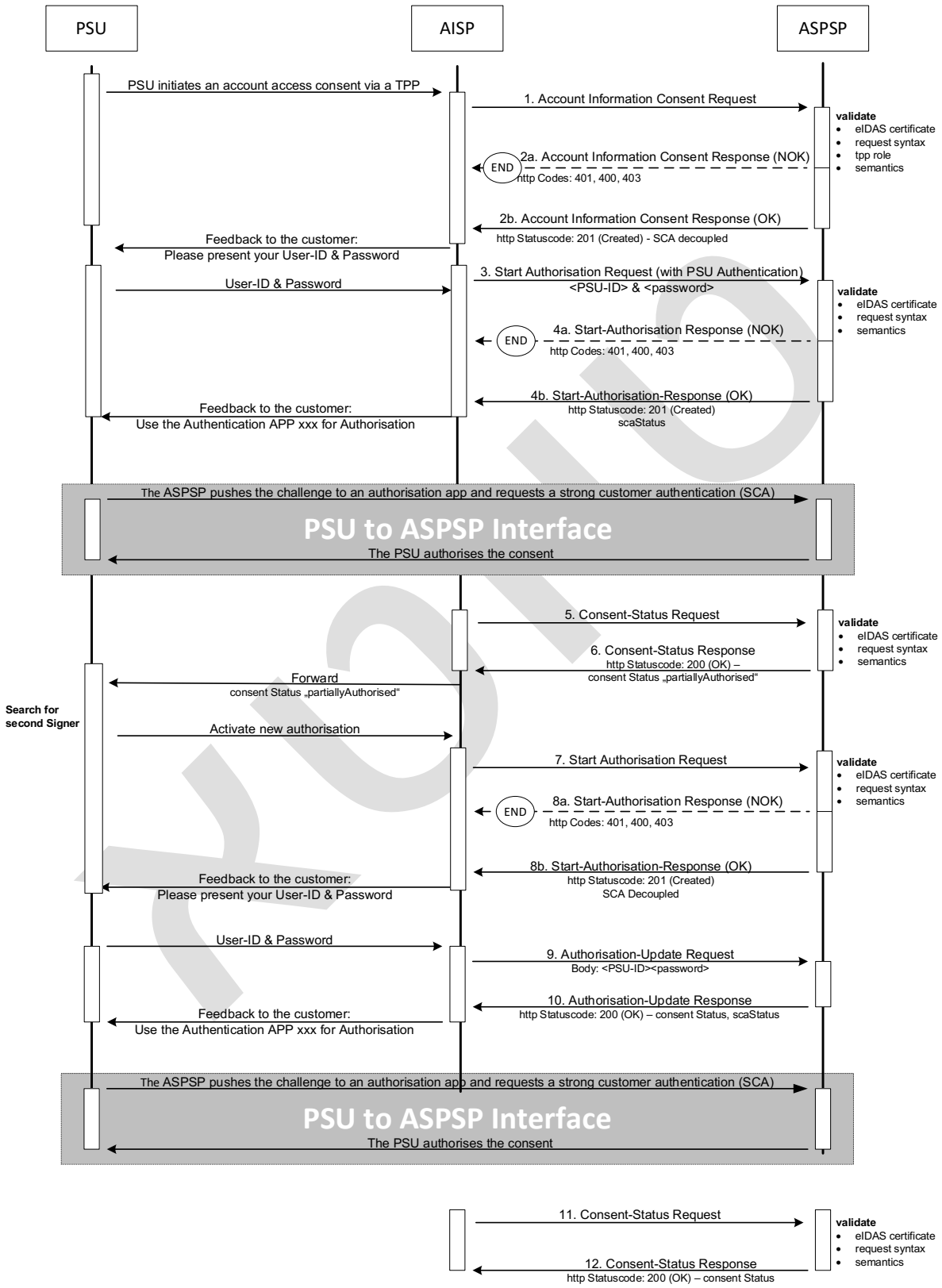
was used there as an example, the following flow will give an example for the Decoupled SCA Approach:





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Note, that in this example the ASPSP asks in Step 6b the API Client to add PSU-ID and password, since it was not uploaded together with the Start Authorisation Process.

Please note that in the context of multilevel SCA, the side effect may only apply, if a PSU with a given PSU-ID is submitting a new recurring consent and a second recurring consent exists already which had been submitted under the same PSU and potentially corporate identification.

### 3.2 Data Transport Overview

The following table does not only define requirements on request messages but also requirements on data elements for the response messages. The requirements on responses only apply to positive responses (i.e. HTTP response code 2xx). Error information is communicated as defined service independently in [oFA-PFSM].

The Establish Consent Request show more headers in the table than in the detailed definitions below. Please note that all header parameters supported for Transaction Initiation as defined in [oFA-PFSM] e.g. for PSU identification, SCA mechanism or TPP notification apply also to the Establish Consent Request. Details can be retrieved from the related Open API files.

**Remark:** The more technical functions like GET …/{consentId} and GET …/{authorisationId} and the Cancellation Request are not covered by this table.

**BOI remarks**: This table content may not be up to date. The full requirements are in the IG body.

| **Data element** | **Attribute encoding** | **Location** | | | | **Usage** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Establ.. Cons.Req. | Establ. Cons. Resp. | Consent Status Req. | Consent Status Rsp. |
| Provider Identification | | x | | | | | m | | m | |
| TPP Registration Number | | | | | | x | m | | m | |
| TPP Name | | | | | | x | m | | m | |
| TPP Role | | | | | | x | m | | m | |
| TPP National Competent Authority | | | | | | x | m | | m | |
| Request Identification | X-Request-ID | | | x | | | m | m | m | m |
| Resource ID | consentId | | | | x | | | m | | |

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| Data element | Attribute encoding | Location | | | | Usage | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Establ.. Cons.Req. | Establ. Cons. Resp. | Consent Status Req. | Consent Status Rsp. |
| Resource ID[3] | | x | | | | | | | m | |
| Access Token (from optional OAuth2) | Authorization | | | x | | | c | | c | |
| API Client Signing Certificate Data | Client-Signature-Certificate | | | x | | | c | | c | |
| API Client Signing Electronic Signature | x-jws-signature | | | x | | | c | | c | |
| Further signature related data | Digest | | | x | | | c | | c | |
| ASPSP-SCA-Approach | ASPSP-SCA-Approach | | | x | | | | c | | |
| ASPSP Multiple Consents Support | ASPSP-Multiple-Consent-Support | | | x | | | | c | | |
| Transaction Status | consentStatus | | | | x | | | m | | m |
| SCA Status | scaStatus | | | | x | | | | | o |
| PSU Message Information | psuMessage | | | | x | | | o | | o |
| API Client Message Information | apiClientMessages | | | | x | | | o | | o |
| PSU Identification | PSU-ID | | | x | | | c | | | |
| PSU Identification Type | PSU-ID-Type | | | x | | | c | | | |
| Corporate Identification | PSU-Corporate-ID | | | x | | | c | | | |
| Corporate Type | PSU-Corporate-ID-Type | | | | | | c | | | |
| Available SCA Methods | scaMethods | | | | x | | | c | | |

[3] Please note that the Resource ID is transported in the path after the generation of the consent resource. This is then a path parameter without an explicit encoding of the attribute name.


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| Data element | Attribute encoding | Location | | | | Usage | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Establ.. Cons.Req. | Establ. Cons. Resp. | Consent Status Req. | Consent Status Rsp. |
| SCA Challenge Data | challengeData | | | | x | | | c | | |
| IP Address PSU | PSU-IP-Address | | | x | | | m | | o | |
| PSU IP Port | PSU-IP-Port | | | x | | | o | | o | |
| Further PSU related Information | PSU-Accept | | | x | | | o | | o | |
| | PSU-Accept-Charset | | | x | | | o | | o | |
| | PSU-Accept-Encoding | | | x | | | o | | o | |
| | PSU-Accept-Language | | | x | | | o | | o | |
| | PSU-Http-Method | | | x | | | o | | o | |
| | PSU-Device-ID | | | x | | | o | | o | |
| PSU User Agent | PSU-User-Agent | | | x | | | o | | o | |
| GEO Information | PSU-Geo-Location | | | x | | | o | | o | |
| Redirect URL ASPSP | _links.scaRedirect | | | | x | | | c | | |
| SCA Approach Preference | Client-SCA-Approach-Preference | | | x | | | o | | | |
| Redirect URL TPP | Client-Redirect-URI | | | x | | | c | | | |
| Authorisation Preference | Client-Explicit-Authorisation-Preferred | | | x | | | o | | | |
| Client Notification URI | Client-Notification-URI | | | x | | | o | | | |
| Client Notification Content Preference | Client-Notification-Content-Preferred | | | x | | | o | | | |
| Client Brand Information | Client-Brand-Logging-Information | | | x | | | o | | | |

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| Data element | Attribute encoding | Location | | | | Usage | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Establ.. Cons.Req. | Establ. Cons. Resp. | Consent Status Req. | Consent Status Rsp. |
| PSU Account Access | access | | | | x | | m | | | |
| Consent Type | consentType | | | | | | | | | |
| Validity Period | validTo | | | | x | | m | | | |
| Frequency | frequencyPerDay | | | | x | | m | | | |
| Recurring Indicator | recurringIndicator | | | | x | | m | | | |

**Remark:** The upper table refers to the "Consent Acccount Information Request" for consentType "detailed". Establish Consent Processes for other consent types or other consent category are defined analogously.

### 3.3 Multicurrency Accounts in Submission of Consents

Multicurrency accounts are addressed by just using the external account identifier in the submission of a consent on dedicated accounts, without specifying a currency. Asking for the consent to retrieve account information data of a multicurrency accounts implies getting it for all sub-accounts.

**BOI remarks**: If ASPSP manages accounts as a multicurrency account it must grant data access to a multicurrency on aggregation and sub-account level.

### 3.4 Establish Consent on Account Information

In this section, the Establish Consent on Account Information process is defined for the openFinance API.

#### 3.4.1 Consent Request for Account Information

**Call**

```
POST /v2/consents/account-access
```

Creates an account information consent resource at the ASPSP regarding access to account information to account types and accounts specified in this request.

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**Side Effects**

When this Consent Request is a request where the "recurringIndicator" equals true, and if it exists already a former consent for recurring access on account information for the addressed PSU and potentially addressed corporate identification submitted by this API Client, then the former consent automatically expires as soon as the new consent request is authorised by the PSU.

Please note that in the context of multilevel SCA, the side effect may only apply, if a PSU with a given PSU-ID is submitting a new recurring consent and a second recurring consent exists already which had been submitted under the same PSU and potentially corporate identification.

There are no expiration side effects foreseen for Consent Requests where the "recurringIndicator" equals false.

**Optional Extended Service for Multiple Consents**.

**BOI remarks**: Not Supported. Please note paragraph 17 in ordinance 368.

The ASPSP may offer optionally to the TPP not to let automatically expire consent tokens when a new recurring consent token for the same PSU is requested. This is called "Multiple Consents Service" in the following. Thus, the above described side effect does not apply in this case.

**Remark**. The Multiple Consents Service was specified within NextGenPSD2 APIs Version 1.3.x in the dedicated service description [XS2A MCon].

**Query Parameters**

No specific query parameter.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.<br><br>If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |
| Authorization | String | Conditional | If OAuth2 has been chosen as pre-step to authenticate the PSU. |


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**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA-PFSM] or in the related Open API files. These parameters apply to all Transaction Initiation Requests, i.e. transactions, which need an authorisation within the openFinance API Framework and are left out here to achieve a better readablilty.

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| access | Account Access | Mandatory | Requested access services. |
| consentType | Consent Type Code | Mandatory | The technical consent type.<br><br>**NOTE**: The choice of this type has an effect on attribute conditions in the "access" attribute, see below. |
| recurringIndicator | Boolean | Mandatory | true, if the consent is for recurring access to the account data<br><br>false, if the consent is for one access to the account data<br><br>**BOI Remarks:**<br><br>If false it means that the consent is valid for two hours from the moment of sending GET call (except get consent request and get consent status). |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| validTo | ISODate | Mandatory | This parameter is defining a valid until date (including the mentioned date) for the requested consent. The content is the local ASPSP date in ISODate Format, e.g. 2024-10-30.<br><br>Future dates might get adjusted by ASPSP.<br><br>If a maximum available date is requested, a date in far future is to be used: "9999-12-31".<br><br>In both cases, the consent object to be retrieved by the GET Consent Request will contain the adjusted date.<br><br>The support of this adaption of the maximum available date is mandatory for the ASPSP.<br><br>**BOI remarks**:<br><br>The minimum value can be the current date.<br><br>If a maximal available date is requested, the validUntil date will be the maximum approved date by the regulator.<br><br>In case of minimum exception a message code PERIOD_INVALID is returned. |
| frequencyPerDay | Integer | Mandatory | This field indicates the requested maximum frequency for an access without PSU involvement per day. For a one-off access, this attribute is set to "1".<br><br>The frequency needs to be greater equal to one. If not otherwise agreed bilaterally between TPP and |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | ASPSP, the frequency is less equal to 4.<br><br>**BOI remarks**:<br><br>This attribute always set to "100" and has no legal significance. |

This specification mandates the ASPSP to support the consentType "detailed" as a minimum. The support of all other consentTypes is optional for the ASPSP, taking into consideration that the ASPSP shall offer at least one of the other models to achieve the "no manual IBAN entry" requirement by EBA. In case of the usage of a not supported consentType by the API Client, the ASPSP will use a dedicated Message Code in the error messaging. The following consentTypes have specific restrictions on the usage of access rights, as defined in the following. Please note, that discovery services will provide the related information, if supported by the ASPSP, cp. [oFA Disc].

- Detailed

  The access rights "accountDetails", "balances", "transactions", "trustedBeneficiaries" as well as "ownerName" and "psuName" may be used by the API Client. The ASPSP may offer in addition the access right "paymentInitiations" if the usage of the consent object for payment initiations is supported. At the minimum one access right code has to be used for every provided account reference.

- Global

  The access right "ais" shall be used by the API Client for each chosen account category. At least one account category has to be provided by the API Client. In addition, the API Client may use the access right "ownerName".

  **BOI remarks: -**

  In Global Consent the ASPSP must display all available accounts and services to the PSU when performing the SCA.

- aspspManaged

  The access rights "accountDetails", "balances", "transactions", "trustedBeneficiaries" as well as "ownerName" and "psuName" may be used by

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the API Client. Also, **no** access right could be used in this case, indicating that the PSU will choose the related access rights during authorisation.

- accountList

  The access right "accountDetails" shall be used by the API Client for each account category. In addition, the API Client may use the access rights "ownerName" and "balances". The usage by the latter rights might lead to the need to apply SCA for the related consents, if the ASPSP offers the "pure" accountList information with just one customer authentication factor.

If the access right "balances" or "transactions" is used, then the consent on providing "accountDetails" is implicitly given.

**BOI remarks**:

For the Israeli market there is no need in explicit consent to this specific additional account information: "ownerName"

If the access right "ownerName" is used, then the ASPSP is requested to support the delivery of the account owner. Please note that the account owner could also be delivered within the account details, even if the "ownerName" attribute is not used.

If the access right "trustedBeneficiaries" is used and if the ASPSP is not supporting the extended services to display trusted beneficiaries, then the ASPSP will reject the consent request. Please note that the trusted beneficiary list could also be delivered with the account details even without the trustedBeneficiary access right code used in the related consent. Still, the ASPSP in this case needs to support the "trustedBeneficiary" access right code.

**Response Code**

HTTP Response Code equals 201.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource. |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-Multiple-Consent-Support | Boolean | Conditional | true if the ASPSP supports the Multiple Consent Service. In case of support of the Multiple Consent Service, this header attribute is mandatory.<br><br>false if the ASPSP does not support the Multiple Consent Service. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | If not provided, this also implies that the ASPSP does not support the Multiple Consent Service. |
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• SIGNATURE<br>• ASPSP-CHANNEL<br>OAuth will be subsumed by the constant value REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentStatus | Consent Status | Mandatory | authentication status of the consent |
| consentId | Max70Text | Mandatory | Identification of the consent resource as it is used in the API structure |
| scaMethods | Array of Authentication Objects | Conditional<br>**BOI remarks**:<br>Not supported | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "selectAuthenticationMethods" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenScaMethod | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| challengeData | Challenge | Conditional | It is contained in addition to the data element chosenScaMethod if challenge data is needed for SCA. |
| | | | In rare cases this attribute is also used in the context of the startAuthorisationWithPsuAuthentication or startAuthorisationWithEncryptedPsuAuthentication link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client<br><br>Type of links admitted in this response (which might be extended by single ASPSPs as indicated in its XS2A documentation): are defined in [oFA-PFSM] generically for all Transaction Initiation Response messages. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU, e.g. in a Decoupled SCA Approach |

**Example**

***Request in a PSD2 compliance XS2A API***

```
POST https://api.testbank.com/psd2/v2/consents/account-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{
  "access": {
      "payments": /* payment accounts
           [{"account": account ref1,
              "rights": ["accountDetails", "balances", "transactions",
"ownerName", "trustedBeneficiaries"]},
            {"account": account ref2,
             "rights": ["accountDetails", "balances", "transactions",
"ownerName"]
           ]
      },
  "consentType": "detailed",
  "recurringIndicator
": true,
  "validTo": "2024-11-01",
  "frequencyPerDay": 4
```

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}

***Request in a premium AIS within an API Access Scheme:***

```
POST https://api.testbank.com/psd2/v2/consents/account-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{
  "access": {
      "payments": /* payment accounts
           [{"account": account ref1,  /* account ref n stands for a JSON
structure of type account reference
             "rights": ["accountDetails", "balances", "transactions",
"ownerName", "trustedBeneficiaries"]},
            {"account": account ref2,
             "rights": ["accountDetails", "balances", "transactions",
"ownerName"]
           ],
      "cards": /* this is addressing single cards entries only
           [{"account": account ref3,
              "rights": ["accountDetails", "balances", "transactions"]},
            {"account": account ref4,
             "rights": ["accountDetails", "transactions"]}
           ],
      "card-accounts": /* this is addressing specific card recon accounts
           [{"account": account ref4,
              "rights": ["accountDetails", "balances", "transactions"]}
           ],
      "savings":
           [{"account": account ref5,
              "rights": ["accountDetails", "balances"]}
           ],
      "loans":
           [{"account": account ref6,
              "rights": ["accountDetails", "balance", "transactions"]},
            {"account": account ref7,
             "rights": ["accountDetails", "balances"]}
           ],
      "securities":
           [{"account": account ref8,
             "rights": ["accountDetails", "balances", "orders",
"transactions"]}
           ]
      }
```

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```
  "consentType": "detailed",
  "recurringIndicator": true,
  "validTo": "2024-11-01",
  "frequencyPerDay": 4
}
```

***Response in case of a redirect***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "scaRedirect": {"href":
"https://www.testbank.com/authentication/3d9a81b3-a47d-4130-8765-
a9c0ff861101"},
    "status": {"href": "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101/status"},
    "scaStatus": {"href": "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101/
authorisations/123auth567"}
  }
}
```

***Response in case of a redirect with a dedicated start of the authorisation process***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "startAuthorisation": {"href": "/psd2/v2/consents/account-
access/3d9a81b3-a47d-4130-8765-a9c0ff861101/authorisations"}
  }
}
```

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**Response *in case of the OAuth2 approach with an implicit generated authorisation resource***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "self": {"href": "/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-
8765-a9c0ff861101"},
    "scaStatus": {"href": "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101/authorisations/123auth567"},
    "scaOAuth": {"href": "https://www.testbank.com/oauth/.well-known/oauth-
authorization-server"}
  }
}
```

***Response in case of the decoupled approach***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href":
"/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-
a9c0ff861101/authorisations"}
  }
}
```

***Response in case of the embedded approach***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     EMBEDDED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
```

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```
Location:               "/psd2/v2/consents/account-access/3d9a81b3-a47d-
4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "startAuthorisationWithPsuAuthentication": {"href":
"/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-
a9c0ff861101/authorisations"}
  }
}
```

### *Response in case of the signature approach*

```
HTTP/1.x 201 Created
X-Request-ID:                 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:           SIGNATURE
Body-Sig-Profile-Accepted:    JAdES_JS
Date:                         Sun, 06 Aug 2017 15:05:47 GMT
Location:                     "/psd2/v2/consents/account-access/3d9a81b3-
a47d-4130-8765-a9c0ff861101"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861101",
  "_links": {
    "startAuthorisationWithTransactionAuthorisation": {"href":
"/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-
a9c0ff861101/authorisations"}
  }
}
```

## Example Consent on Account List of Available Accounts

### *Request*

```
POST https://api.testbank.com/psd2/v2/consents/account-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT
```


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```
{ "access": {
      "payments": /* payment accounts
           [{"rights": ["accountDetails", "ownerName"]}
           ],
      "cards":
            [{"rights": ["accountDetails"]}
           ],
       "savings":
            [{"rights": ["accountDetails"]}
            ],
      "loans":
            [{"rights": ["accountDetails"]},
            ],
      "securities":
            [{"rights": ["accountDetails"]}
            ]
      }
 "consentType": "accountList",
 "recurringIndicator": false,
 "validTo": "2017-08-06",
 "frequencyPerDay": 1
}
```

### Example Consent without dedicated Account

#### *Request*

```
POST https://api.testbank.com/psd2/v2/consents/account-access
Content-Type            application/json
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address          192.168.8.78
PSU-User-Agent           Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date                    Sun, 06 Aug 2017 15:05:37 GMT

{"access": {
      "payments": /* payment accounts
           [{"rights": ["accountDetails", "balances", "transactions",
"ownerName", "trustedBeneficiaries"]}
           ],
      "cards":
            [{"rights": ["accountDetails", "transactions"]}
            ],
       "savings":
            [{"rights": ["accountDetails", "balances"]}
            ],
      "loans":
            [{"rights": ["accountDetails", "balances"]}
```


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```
            ],
      "securities":
            [{"rights": ["accountDetails", "balances", "orders",
"transactions"]}
            ]
      }
 "consentType": "aspspManaged",
 "recurringIndicator": true,
 "validTo": "2017-11-01",
 "frequencyPerDay": 4
}
```

**Example global consent**

***Request***

```
POST https://api.testbank.com/psd2/v2/consents/account-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{  "access": {
      "payments": /* payment accounts
            [{"rights": ["ais", "ownerName"]}
            ],
      "cards":
            [{"rights": ["ais"]}
            ],
       "savings":
            [{"rights": ["ais"]}
            ],
      "loans":
            [{"rights": ["ais"]},
            ],
      "securities":
            [{"rights": ["ais"]}
            ]
      }

 "consentType": "accountList",
 "recurringIndicator": false,
 "validTo": "2017-08-06",
 "frequencyPerDay": 1
}
```

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### 3.4.2 Get Consent Request

#### Call

`GET /v2/consents/account-access/{consentId}`

Returns the content of a consent object of category account-access. This is returning the data for the API Client especially in cases, where the consent was directly managed between ASPSP and PSU e.g. in a re-direct SCA Approach.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consentId | String | ID of the corresponding consent object as returned by a Consent Request |

#### Query Parameters

No specific query parameter.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

#### Request Body

No request body.

#### Response Code

HTTP Response Code equals 200.

#### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| access | Extended Account Access | Mandatory | |
| consentType | Consent Type | Mandatory | |
| recurringIndicator | Boolean | Mandatory | |
| validTo | ISODate | Mandatory | |
| frequencyPerDay | Integer | Mandatory | |
| consentStatus | Consent Status | Mandatory | The status of the consent resource. |

**NOTE**: For the consent category "account-access", the ASPSP **shall** deliver all detailed account references and consented access rights after positive SCA by the PSU within the consent object regardless of the consentType chosen in the related Establish Consent Request. In addition, hyperlinks to all accounts which are provided in the consent shall be added. In this way, the TPP can read from the consent object all relevant account information as a shortcut to get direct access to all accessible accounts without calling the endpoints /accounts, /loans etc. first.

### Example

#### *Request*

```
GET https://api.testbank.com/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-a9c0ff861101
```

#### *Response* (in case of a premium AIS within an API Access Scheme)

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
    "access": {
      "payments": /* payment accounts
           [{"account": account ref1,
             "rights": ["accountDetails", "balances", "transactions",
"ownerName", "trustedBeneficiaries"],
```


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```
            "_links": {"account": {"href":
"/psd2/v2/accounts/resourceId1"}}
            },
            {"account": account ref2,
             "rights": ["accountDetails", "balances", "transactions",
"ownerName"],
             "_links": {"account": {"href":
"/psd2/v2/accounts/resourceId2"}}
           }],
      "cards":
            [{"account": account ref3,
              "rights": ["accountDetails", "balances", "transactions"],
              "_links": {"card": {"href": "/oFA/v2/cards/resourceId3"}}
             },
            {"account": account ref4,
             "rights": ["accountDetails", "transactions"],
             "_links": {"card": {"href": "/oFA/v2/cards/resourceId4"}}
            }
            ],
       "savings":
            [{"account": account ref5,
              "rights": ["accountDetails", "balances"],
              "_links": {"savingsAccount": {"href": "/oFA/v2/savings-
accounts/resourceId5"}}
             }
            ],
      "loans":
            [{"account": account ref6,
               "rights": ["accountDetails", "balances", "transactions"],
              "_links": {"loanAccount": {"href": "/oFA/v2/loan-
accounts/resourceId6"}}
             },
             {"account": account ref7,
              "rights": ["accountDetails", "balances"],
              "_links": {"loanAccount": {"href": "/oFA/v2/loan-
accounts/resourceId7"}}
             }
           ],
      "securities":
            [{"account": account ref8,
              "rights": ["accountDetails", "balances", "orders",
"transactions"],
              "_links": {"securitiesAccount": {"href": "/oFA/v2/securities-
accounts/resourceId8"}}
             }
            ]
      }
"consentType": "aspspManaged",
"recurringIndicator": true,
```

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```
 "validTo": "2017-11-01",
 "frequencyPerDay": 4,
 "consentStatus": "valid",
}
```

**Remark**: This specification supports no detailed links to AIS service endpoints corresponding to the related account. This is due to the fact, that the /accounts endpoint will deliver all detailed information, including the hyperlinks e.g. to the balances or transactions of certain accounts. Still due to the guiding principles, the ASPSP may deliver more links in addition, which then will be documented in the ASPSPs XS2A API documentation.

## 3.5 Establish Consent on Funds Confirmation

In this section, the Establish Consent on Funds Confirmation process is defined for the openFinance API Framework.

### 3.5.1 Consent on Funds Confirmation Request

**Call**

```
POST /v2/consents/funds-confirmations
```

Creates a consent on confirmation of funds resource at the ASPSP regarding confirmation of funds access to an account specified in this request.

**Remark:** In [XS2A-CCF], a first version of this API was already published under the endpoint /v2/consents/confirmation-of-funds. This API has been adapted now under the different endpoint name to the new "access" and "consentType" data attribute usage.

**No Side Effects**

In difference to the Establish Consent on Account Information as defined in Section 3.4.1, there is no side effect by the Establish Consent on Funds Confirmation Request.

**Query Parameters**

No specific query parameter.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |
| Authorization | String | Conditional | If OAuth2 has been chosen as pre-step to authenticate the PSU. |

**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA-PFSM] or in the related Open API files. These parameters apply to all Transaction Initiation Requests, i.e. transactions, which need an authorisation within the openFinance API Framework and are left out here to achieve a better readability.

**Request Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| access | Account Access | Mandatory | requested access rights on accounts, where the confirmation of funds service is aimed to be submitted to. |
| consentType | Consent Type | Mandatory | Only the consentTypes "detailed" and "aspspManaged" may be supported. |
| recurringIndicator | Boolean | Mandatory | true, if the consent is for recurring access to the account data<br><br>false, if the consent is for one access to the account data |
| validTo | ISODate | Mandatory | This parameter is defining a valid until date (including the mentioned date) for the requested consent. The content is the local ASPSP date in ISODate Format, e.g. 2024-10-30. There is no legal restriction of the validTo entry, but maybe a restriction from the ASPSP.<br><br>Future dates might get adjusted by ASPSP. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | If a maximum available date is requested, a date in far future is to be used: "9999-12-31".<br><br>In both cases, the consent object to be retrieved by the GET Consent Request will contain the adjusted date.<br><br>The support of this adaption of the maximum available date is mandatory for the ASPSP. |
| cardNumber | Max35Text | Optional | Card Number of the card issued by the PIISP. Should be delivered if available. |
| cardExpiryDate | ISODate | Optional | Expiry date of the card issued by the PIISP |
| cardInformation | Max140Text | Optional | Additional explanation for the card product. |
| registrationInformation | Max140Text | Optional | Additional information about the registration process for the PSU, e.g. a reference to the TPP / PSU contract |

This specification mandates the ASPSP to support the consentType "detailed" and/or "aspspManaged". In both cases, only accounts of account category "payments" may be contained in the access attribute. In case of the usage of a not supported consentType by the API Client, the ASPSP will use a dedicated Message Code in the error messaging. The following consentTypes have specific restrictions on the usage of access rights, as defined in the following. Please note, that discovery services will provide the related information, if supported by the ASPSP, cp. [oFA Disc].

- detailed

  The access rights "fundsConfirmations" and "psuName" may be used by the API Client. The usage of the access right "fundConfirmations" is mandated.

- aspspManaged

  The access rights "fundsConfirmations" and "psuName" may be used by the API Client. The usage of the access right "fundsConfirmations" is mandated.

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### Response Code

HTTP Response Code equals 201.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource. |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• SIGNATURE<br>• ASPSP-CHANNEL<br><br>OAuth will be subsumed by the constant value REDIRECT |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentId | String | Mandatory | Identification of the consent resource as it is used in the API structure |
| consentStatus | Consent Status | Mandatory | authentication status of the consent |
| scaMethods | Array of Authenticatio n Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also an hyperlink of type "selectAuthenticationMethods" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| chosenScaMethod | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element chosenScaMethod if challenge data is needed for SCA.<br><br>In rare cases this attribute is also used in the context of the startAuthorisationWithPsuAuthentication or startAuthorisationWithEncryptedPsuAuthentication link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response (which might be extended by single ASPSPs as indicated in its XS2A documentation) are defined in [oFA-PFSM] generically for all Transaction Initiation Response messages. The related Open API files will also contain all details. |
| psuMessage | Max512Text | Optional | Text to be displayed to the PSU, e.g. in a Decoupled SCA Approach |

**Example**

***Request***

```
POST https://api.testbank.com/v2/consents/funds-confirmations
Content-Type:            application/json
X-Request-ID:            99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:          192.168.8.78
PSU-User-Agent:           Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                    Sun, 06 Aug 2017 15:05:37 GMT

{
  "access": {
    "payments": /* payment accounts
       [{"account": account ref1,
         "rights": ["fundsConfirmations", "psuName"]}
       ]
    },
.."consentType": "detailed",
```


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```
  "recurringIndicator": "true",
  "validTo": "9999-12-31",
  "cardNumber": "1234567891234",
  "cardExpiryDate": "2020-12-31",
  "cardInformation": "MyMerchant Loyalty Card",
  "registrationInformation": "Your contract Number 1234 with MyMerchant is
completed with the registration with your bank."

}
```

### *Response in* case *of a redirect*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
    "scaRedirect": {"href":
"https://www.testbank.com/authentication/3d9a81b3-a47d-4130-8765-
a9c0ff861102"},
    "status": {"href": "/v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102/status"},
    "scaStatus": {"href": "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102/
authorisations/123auth567"}
  }
}
```

### *Response in* case *of a redirect with a dedicated start of the authorisation process*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
```

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```
    "startAuthorisation": {"href": "v2/consents/funds-
confirmations/3d9a81b3-a47d-4130-8765-a9c0ff861102/authorisations"}
  }
}
```

**Response *in case of the OAuth2 approach with an implicit generated authorisation resource***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
    "self": {"href": "/v2/consents/funds-confirmations/3d9a81b3-a47d-4130-
8765-a9c0ff861102"},
    "scaStatus": {"href": "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102/authorisations/123auth567"},
    "scaOAuth": {"href": "https://www.testbank.com/oauth/.well-known/oauth-
authorization-server"}
  }
}
```

***Response in case of the decoupled approach***

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href":
"/v2/consents/funds-confirmations/3d9a81b3-a47d-4130-8765-
a9c0ff861102/authorisations"}
  }
```

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```
}
```

### *Response in case of the signature approach*

```
HTTP/1.x 201 Created
X-Request-ID:                 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:           SIGNATURE
Body-Sig-Profile-Accepted:    JAdES_JS
Date:                         Sun, 06 Aug 2017 15:05:47 GMT
Location:                     "v2/consents/funds-confirmations/3d9a81b3-
a47d-4130-8765-a9c0ff861102"
Content-Type:                 application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href":
"/v2/consents/funds-confirmations/3d9a81b3-a47d-4130-8765-
a9c0ff861102/authorisations"}
  }
}
```

### *Response in case of the embedded approach*

```
HTTP/1.x 201 Created
X-Request-ID:          99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:    EMBEDDED
Date:                  Sun, 06 Aug 2017 15:05:47 GMT
Location:              "v2/consents/funds-confirmations/3d9a81b3-a47d-
4130-8765-a9c0ff861102"
Content-Type:          application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861102",
  "_links": {
    "startAuthorisationWithPsuAuthentication": {"href":
"/v2/consents/funds-confirmations/3d9a81b3-a47d-4130-8765-
a9c0ff861102/authorisations"}
  }
}
```

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### 3.5.2 Get Consent Request

#### Call

`GET /v2/consents/funds-confirmations/{consentId}`

Returns the content of an funds confirmation consent object. This is returning the data for the TPP especially in cases, where the consent was directly managed between ASPSP and PSU e.g. in a re-direct SCA Approach.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consentId | Max70Text | ID of the corresponding consent object as returned by a Funds Confirmation Consent Request |

#### Query Parameters

No specific query parameter.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

#### Request Body

No request body.

#### Response Code

HTTP Response Code equals 200.

#### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| access | Account Access | Mandatory | Account access details, where the confirmation of funds service is aimed to be submitted to. |
| consentType | Consent Type | Mandatory | |
| cardNumber | Max35Text | Optional | Card Number of the card issued by the PIISP. Should be delivered if available. |
| cardExpiryDate | ISODate | Optional | Expiry date of the card issued by the PIISP |
| cardInformation | Max140Text | Optional | Additional explanation for the card product. |
| registrationInformation | Max140Text | Optional | Additional registration information. |
| consentStatus | Consent Status | Mandatory | The status of the consent resource. |

### Example

#### *Request*

```
GET https://api.testbank.com/dv2/consents/funds-confirmations/3d9a81b3-a47d-4130-8777-a9c0ff861110
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "access":
          {"payments":
            ["account": {"iban": "DE40100100103307118608" },
             "accessRights": {"fundsConfirmations"}]
          },
  "consentType": "detailed",
  "cardNumber": "1234567891234",
  "cardExpiryDate": "2020-12-31",
  "cardInformation": "MyMerchant Loyalty Card",
  "consentStatus": "valid"
```

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```
}
```

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## 3.6 Establish Consent on User Parameters Access

In this section, the Establish Consent on User Parameters Access is defined for the openFinance API Framework. User parameters are user related technical access data which is needed for the API Client so steer the user frontend e.g. for authorisation processes. This data is specifically addressing use cases for direct access of the API by API client software. It can be also used for retrieving this sort of information on PSUs for Third Parties, e.g. in account check services.

**NOTE:** User Parameter services will be described in [oFA Disc], which defines discovery services on many levels of the API. This document is still in draft mode and will be provided for market consultation later.

**Remark**: Due to the generic usage within TPP and direct access use cases, the more neutral term "user" is preferred for the owner/people with signing rights for the related account. In situations which are TPP specific, the term "PSU" is still used since this is the term in the TPP services related data model.

### 3.6.1 Consent on User Parameters Access Request

**Call**

```
POST /v2/consents/user-parameters-access
```

Creates a consent on user related technical access data (user parameters) at the ASPSP regarding accounts addressed in this request.

**Side Effects**

When this Consent Request is a request where the "recurringIndicator" equals true, and if it exists already a former consent for recurring access on user parameters for the addressed PSU and potentially addressed corporate identification submitted by this API Client, then the former consent automatically expires as soon as the new consent request is authorised by the PSU.

Please note that in the context of multilevel SCA, the side effect may only apply, if a PSU with a given PSU-ID is submitting a new recurring consent and a second recurring consent exists already which had been submitted under the same PSU and potentially corporate identification.

There are no expiration side effects foreseen for Consent Requests where the "recurringIndicator" equals false.

**Query Parameters**

No specific query parameter.

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### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.<br><br>If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |
| Authorization | String | Conditional | If OAuth2 has been chosen as pre-step to authenticate the PSU. |

**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA-PFSM] or in the related Open API files. These parameters apply to all Transaction Initiation Requests, i.e. transactions, which need an authorisation within the openFinance API Framework and are left out here to achieve a better readablilty.

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| access | Account Access | Mandatory | Requested access services. |
| consentType | Consent Type Code | Mandatory | The technical consent type.<br><br>**NOTE**: The choice of this type has an effect on attribute conditions in the "access" attribute, see below. |
| recurringIndicator | Boolean | Mandatory | true, if the consent is for recurring access to the user parameters<br><br>false, if the consent is for one access to the user parameters |
| validTo | ISODate | Mandatory | This parameter is defining a valid until date (including the mentioned date) for the requested consent. The |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | content is the local ASPSP date in ISODate Format, e.g. 2024-10-30.<br><br>Future dates might get adjusted by ASPSP.<br><br>If a maximum available date is requested, a date in far future is to be used: "9999-12-31".<br><br>In both cases, the consent object to be retrieved by the GET Consent Request will contain the adjusted date.<br><br>The support of this adaption of the maximum available date is mandatory for the ASPSP. |

This specification mandates the ASPSP to support the consentType "detailed" and/or "aspspManaged". In case of the usage of a not supported consentType by the API Client, the ASPSP will use a dedicated Message Code in the error messaging. The following consentTypes have specific restrictions on the usage of access rights, as defined in the following. Hereby, the consent usage for the generic user parameters service respectively the restricted IBAN Check Service is different:

Generic User Parameter Service:

- detailed

  The access rights "userParameters" and "psuName" may be used by the API Client. The usage of the access right "userParameters" is mandated.

- aspspManaged

  The access rights "userParameters" and "psuName" may be used by the API Client. If no code is provided, the PSU will select the related code during authorisation.

IBAN Check Service:

- detailed

  The access right codes "ibanChecks" and "psuName" may be used by the API Client. The access right codes "accountDetails" and "owner" may be used, if supported by the ASPSP. The usage of the access right "ibanChecks" is mandated.

- aspspManaged


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The access rights "ibanChecks" and "psuName" may be used by the API Client. The access right codes "accountDetails" and "owner" may be used, if supported by the ASPSP. The usage of the access right "ibanChecks" is mandated.

Please note, that discovery services will provide the related information, if supported by the ASPSP, cp. [oFA Disc]. Please further note, that the "owner" access right code also include the access on the /accounts endpoint to retrieve the owner name.

**Response Code**

HTTP Response Code equals 201.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource. |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• SIGNATURE<br>• ASPSP-CHANNEL<br><br>OAuth will be subsumed by the constant value REDIRECT |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentId | Max70Text | Mandatory | Identification of the consent resource as it is used in the API structure |
| consentStatus | Consent Status | Mandatory | authentication status of the consent |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| scaMethods | Array of Authenticatio n Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "selectAuthenticationMethods" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenSca Method | Authenticatio n Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element chosenScaMethod if challenge data is needed for SCA. |
| | | | In rare cases this attribute is also used in the context of the startAuthorisationWithPsuAuthentication or startAuthorisationWithEncryptedPsuAuthentication link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client.<br><br>Type of links admitted in this response (which might be extended by single ASPSPs as indicated in its documentation) are defined in [oFA-PFSM] generically for all Transaction Initiation Response messages. The related Open API files will also contain all details. |
| psuMessage | Max512Text | Optional | Text to be displayed to the PSU, e.g. in a Decoupled SCA Approach |

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### Example with detailed access data

#### *Request*

```
POST https://api.testbank.com/v2/consents/user-parameters-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{"access": {
  "payments": /* payments
           [{"account": account ref1,
              "rights": ["userParameters", "psuName"]},
            {"account": account ref2,
             "rights": ["userParameters", "psuName"]
           ],
       "savings":
           [{"account": account ref1,
              "rights": ["userParameters"]},
            {"account": account ref2,
             "rights": ["userParameters",]}
           ],
      "cards":
           [{"account": account ref1,
              "rights": ["userParameters"]},
            {"account": account ref2,
             "rights": ["userParameters"]}
           ],
      "securities":
           [{"account": account ref1,
             "rights": ["userParameters"]},
            {"account": account ref2,
             "rights": ["userParameters"]}
           ],
  "consentType": "detailed"
  "recurringIndicator": true,
  "validTo": "2024-11-01",
  }
```

#### *Response in* case *of a redirect*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/user-parameters-access/3d9a81b3-a47d-
4130-8765-a9c0ff861103"
Content-Type:           application/json
```

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```
{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861103",
  "_links": {
    "scaRedirect": {"href":
"https://www.testbank.com/authentication/3d9a81b3-a47d-4130-8765-
a9c0ff861103"},
    "status": {"href": "/v2/consents/user-parameters-access/3d9a81b3-a47d-
4130-8765-a9c0ff861103/status"},
    "scaStatus": {"href": "v2/consents/user-parameters-access/3d9a81b3-
a47d-4130-8765-a9c0ff861103/
authorisations/123auth567"}
  }
}
```

### Specific Example with detailed access data for IBAN check rights

#### *Request*

```
POST https://api.testbank.com/v2/consents/user-parameters-access
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{"access": {
  "payments": /* payments
           [{"account": account ref1,
              "rights": ["ibanChecks", "psuName"]},
            {"account": account ref2,
             "rights": ["ibanChecks"]
           ],
          },
  "consentType": "detailed",
  "recurringIndicator": false,
  "validTo": "2024-11-01",
  }
```

### Example without detailed access data

#### *Request*

```
POST https://api.testbank.com/psd2/v2/consents/user-parameters-access
Content-Type            application/json
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7756
```


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```
PSU-IP-Address          192.168.8.78
PSU-User-Agent          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date                    Sun, 06 Aug 2017 15:05:37 GMT

{"access": {
      "payments": /* payment accounts
           [{"rights": ["userParameters", "psuName"]}
           ],
      "cards":
            [{"rights": ["userParameters"]}
            ],
      "savings":
            [{"rights": ["userParameters"]}
            ],
      "loans":
            [{"rights": ["userParameters"]}
           ],
      "securities":
            [{"rights": ["userParameters"]}
            ]
      }
 "consentType": "aspspManaged",
 "recurringIndicator": true,
 "validTo": "9999-12-31",
}
```

### Example for global PSU parameters access

#### *Request*

```
POST https://api.testbank.com/psd2/v2/consents/user-parameters-access
Content-Type            application/json
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address          192.168.8.78
PSU-User-Agent          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date                    Sun, 06 Aug 2017 15:05:37 GMT

{"access": {
      "payments":
            [{"rights": ["userParameters"]}], /* in addition specific
elements like ownerName etc. could be added.
      "savings":
            [{"rights": ["userParameters"]}],
       "cards":
            [{"rights": ["userParameters"]}],
       "loans":
            [{"rights": ["userParameters"]}],
```


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```
      "securities":
           [{"rights": ["userParameters"]}]
    },
"consentType": "global",
"recurringIndicator": true,
"validTo": "9999-12-31"
}
```

### 3.6.2 Get Consent Request

#### Call

`GET /v2/consents/user-parameters-access/{consentId}`

Returns the content of an user parameters consent object. This is returning the data for the TPP especially in cases, where the consent was directly managed between ASPSP and PSU e.g. in a re-direct SCA Approach.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consentId | Max70Text | ID of the corresponding consent object as returned by a User Parameters Consent Request |

#### Query Parameters

No specific query parameter.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

#### Request Body

No request body.

#### Response Code

HTTP Response Code equals 200.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Access | Extended Account Access | Mandatory | |
| consentType | Consent Type | Mandatory | |
| recurringIndicator | Boolean | Mandatory | |
| validTo | ISODate | Mandatory | |
| consentStatus | Consent Status | Mandatory | The status of the consent resource. |

### Example

#### *Request*

```
GET https://api.testbank.com/dv2/consents/user-parameters-access/3d9a81b3-a47d-4130-8777-a9c0ff861110
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{

  "consentStatus": "valid"
}
```

## 3.7 Establish Consent on Document Services

In this section, the Establish Consent on Generic Access process is defined for the openFinance API Framework. A generic access could be different sorts of access, e.g. sending RTPs, sending documents or retrieving (one-time only) PSU identification related data or other PSU related data from the API. This step is sometimes also called "PSU activation"

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in API Access Schemes. The actual access is defined only by the required access rights submitted with the consents.

**NOTE:** This process is not really comparable to other consent mechanisms. It is more an explicit confirmation by the PSU to receive e.g. related rtps including eInvoices via the online channels for the addressed sender/rtpsp service provider, still adding the possibility to retrieve certain PSU related information. For this reason, the consent object is not contained in the actual RTP API, in contrast to other consent categories – while it still is when retrieving data e.g. from the PSU parameter API.

### 3.7.1 Establish Consent on Document Services Request

**Call**

```
POST /v2/consents/document-services
```

Creates a consent on document services resource at the ASPSP regarding explicitly confirming the consent to submit RTPs to (a) dedicated account(s).

**No Side Effects**

In difference to the Establish Consent on Account Information as defined in Section 3.4.1, there is no side effect by the Establish Consent on Generic Access Request.

**Query Parameters**

No specific query parameter.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.<br><br>If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |
| Authorization | String | Conditional | If OAuth2 has been chosen as pre-step to authenticate the PSU. |

**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA-PFSM] or in the related Open API files. These parameters apply to all


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Transaction Initiation Requests, i.e. transactions, which need an authorisation within the openFinance API Framework and are left out here to achieve a better readablilty.

**Request Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Access | Account Access | Mandatory | requested access rights on account(s), where the document services are intended to be addressed to. |
| consentType | Consent Type | Mandatory | Only the consentTypes "detailed" and "aspspManaged" may be supported. |
| documentOriginator | Creditor Details And Account | Conditional | The details of the sender of a document or the creditor of the related payments. Shall be used by the API Client, if the consent is on the pair (Originator-RTPSP, RTP-Originator) in case of RTP.<br><br>**RFU**: This is to be defined later for the document postal services. |
| documentTypes | Array of Document Type Code | Conditional | Might be mandated by API Access Schemes or bilateral contracts. |
| additionalRequestInformation | Additional Request Information1 | Conditional | Is used only in case of an Originator-RTPSP-Aggregator as API Client. |
| validTo | ISODate | Mandatory | This parameter is defining a valid until date (including the mentioned date) for the requested consent. The content is the local ASPSP date in ISODate Format, e.g. 2024-10-30.<br><br>Future dates might get adjusted by ASPSP.<br><br>If a maximum available date is requested, a date in far future is to be used: "9999-12-31".<br><br>In both cases, the consent object to be retrieved by the GET Consent |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Request will contain the adjusted date.<br><br>The support of this adaption of the maximum available date is mandatory for the ASPSP. |
| registrationInformation | Max140Text | Optional | Additional information about the registration process for the PSU, e.g. a reference to the TPP / PSU contract |

This specification mandates the ASPSP to support the consentType "detailed" and/or "aspspManaged". In case of the usage of a not supported consentType by the API Client, the ASPSP will use a dedicated Message Code in the error messaging. The following consentTypes have specific restrictions on the usage of access rights, as defined in the following. Please note, that discovery services will provide the related information, if supported by the ASPSP, cp. [oFA Disc].

- detailed

  The access rights "submitRtps", "submitDocs", "psuName" and "psuIdentification" may be used by the API Client. The access right "submitRtps" and/or "submitDocs" shall be used as a minimum. The ASPSP may restrict this to the usage of one of these two attributes.

- aspspManaged

  The access rights "submitRtps", "submitDocs", "psuName" and "psuIdentification" may be used by the API Client. If no code is provided, the PSU will select the related code during authorisation.

**Response Code**

HTTP Response Code equals 201.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource. |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| ASPSP-SCA-Approach | String | Conditional | Possible values are:<br>• EMBEDDED<br>• DECOUPLED<br>• REDIRECT<br>• SIGNATURE<br>• ASPSP-CHANNEL<br><br>OAuth will be subsumed by the constant value REDIRECT |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentId | String | Mandatory | Identification of the consent resource as it is used in the API structure |
| consentStatus | Consent Status | Mandatory | authentication status of the consent |
| scaMethods | Array of Authentication Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "selectAuthenticationMethods" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenScaMethod | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element chosenScaMethod if challenge data is needed for SCA. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | In rare cases this attribute is also used in the context of the startAuthorisationWithPsuAuthentication or startAuthorisationWithEncryptedPsuAuthentication link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client.<br><br>Type of links admitted in this response (which might be extended by single ASPSPs as indicated in its XS2A documentation) are defined in [oFA-PFSM] generically for all Transaction Initiation Response messages. The related Open API files will also contain all details. |
| psuMessage | Max512Text | Optional | Text to be displayed to the PSU, e.g. in a Decoupled SCA Approach |

### Example

#### *Request*

```
POST https://api.testbank.com/v2/consents/document-services
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:          Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:05:37 GMT

{
  "access": {
    "payments": /* payment accounts
       [{"account": account ref1,
         "rights": ["submitRtps", "psuName", "psuIdentifcation"]}
       ]
    },
.."consentType": "detailed",
  "validTo": "9999-12-31",
  "registrationInformation": "Your contract Number 1234 with MyMerchant is
completed with the registration with your bank."

}
```


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### *Response in case of a redirect*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "scaRedirect": {"href":
"https://www.testbank.com/authentication/3d9a81b3-a47d-4130-8765-
a9c0ff861104"},
    "status": {"href": "/v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104/status"},
    "scaStatus": {"href": "v2/consents/document-services/3d9a81b3-a47d-
4130-8765-a9c0ff861104/
authorisations/123auth567"}
  }
}
```

### *Response in case of a redirect with a dedicated start of the authorisation process*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "startAuthorisation": {"href": "v2/consents/document-services/3d9a81b3-
a47d-4130-8765-a9c0ff861104/authorisations"}
  }
}
```

### **Response** *in case of the OAuth2 approach with an implicit generated authorisation resource*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
```


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```
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "self": {"href": "/v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"},
    "scaStatus": {"href": "v2/consents/document-services/3d9a81b3-a47d-
4130-8765-a9c0ff861104/authorisations/123auth567"},
    "scaOAuth": {"href": "https://www.testbank.com/oauth/.well-known/oauth-
authorization-server"}
  }
}
```

### *Response in case of the decoupled approach*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Location:               "v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"
Content-Type:           application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href":
"/v2/consents/document-services/3d9a81b3-a47d-4130-8765-
a9c0ff861104/authorisations"}
  }
}
```

### *Response in case of the signature approach*

```
HTTP/1.x 201 Created
X-Request-ID:                 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:           SIGNATURE
Body-Sig-Profile-Accepted:    JAdES_JS
Date:                         Sun, 06 Aug 2017 15:05:47 GMT
```


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```
Location:                    "v2/consents/document-services/3d9a81b3-a47d-
4130-8765-a9c0ff861104"
Content-Type:                application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href":
"/v2/consents/document-services/3d9a81b3-a47d-4130-8765-
a9c0ff861104/authorisations"}
  }
}
```

***Response in case of the embedded approach***

```
HTTP/1.x 201 Created
X-Request-ID:          99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:    EMBEDDED
Date:                  Sun, 06 Aug 2017 15:05:47 GMT
Location:              "v2/consents/document-services/3d9a81b3-a47d-4130-
8765-a9c0ff861104"
Content-Type:          application/json

{
  "consentStatus": "received",
  "consentId": "3d9a81b3-a47d-4130-8765-a9c0ff861104",
  "_links": {
    "startAuthorisationWithPsuAuthentication": {"href":
"/v2/consents/document-services/3d9a81b3-a47d-4130-8765-
a9c0ff861104/authorisations"}
  }
}
```

### 3.7.2 Get Consent Request

#### Call

```
GET /v2/consents/document-services/{consentId}
```

Returns the content of a document serviceconsent object. This is returning the data for the TPP especially in cases, where the consent was directly managed between ASPSP and PSU e.g. in a re-direct SCA Approach.

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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consentId | Max70Text | ID of the corresponding consent object as returned by an RTP Consent Request |

### Query Parameters

No specific query parameter.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

### Request Body

No request body.

### Response Code

HTTP Response Code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Access | Account Access | Mandatory | Account access details, where the confirmation of funds service is aimed to be submitted to. |
| consentType | Consent Type | Mandatory | |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| documentOriginator | Creditor Details And Account | Optional | The details of the sender of a document or the creditor of the related payments. Shall be used by the API Client, if the consent is on the pair (Originator-RTPSP, RTP-Originator) in case of RTP.<br><br>**RFU**: This is to be defined later for the document postal services. |
| documentTypes | Array of Document Type Code | Optional | The consent might be restricted to dedicated document typtes. |
| additionalRequestInformation | Additional Request Information1 | Optional | Is used only in case of an Originator-RTPSP-Aggregator as API Client. |
| registrationInformation | Max140Text | Optional | Additional registration information. |
| consentStatus | Consent Status | Mandatory | The status of the consent resource. |

### Example

#### *Request*

```
GET https://api.testbank.com/v2/consents/document-services/3d9a81b3-a47d-4130-8777-a9c0ff861110
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "access":
          {"payments":
            ["account": {"iban": "DE40100100103307118608" },
             "accessRights": {"submitRtps"}]
          },
  "consentType": "detailed",
  "consentStatus": "valid"
}
```

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## 3.8 Get Consent Status Request

### Call

`GET /v2/consents/{consent-category}/{consentId}/status`

Retrieves the status of an addressed consent resource.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consent-category | String | The related consent type. Currently supported are the following consent types:<br>• account-access,<br>• funds-confirmations<br>• user-parameters-access<br>• document-services |
| consentId | String | The consent identification assigned to the created resource. |

### Query Parameters

No specific query parameters defined.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

### Request Body

No request body.

### Response Code

HTTP Response Code equals 200.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| consentStatus | Consent Status | Mandatory | This is the overall lifecycle status of the consent. |
| psuMessage | Max500Text | Optional | |

### Example

#### *Request*

```
GET https://api.testbank.com/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-a9c0ff861101/status
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:46 GMT
```

### Response

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "consentStatus": "valid"
}
```

## 3.9 Cancellation of a Consent

The API Client can cancel a consent object if needed with the following call:

### Call

```
DELETE /v2/consents/{consent-category}/{consentId}
```

Terminates a given consent.


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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| consent-category | String | Equals one of the strings<br>• account-access<br>• funds-confirmations<br>• user-parameters-access<br>• document-services<br>**BOI remarks**:<br>Support only account-access |
| consentId | String | Contains the resource-ID of the consent to be deleted. |

### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step. |

### Request Body

No Request Body.

### Response Code

HTTP Response Code equals 204.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

No Response Body

### Example

#### *Request*

```
DELETE https://api.testbank.com/psd2/v2/consents/account-access/3d9a81b3-a47d-4130-8765-a9c0ff861101
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date                    Sun, 13 Aug 2017 17:05:37 GMT
```

#### *Response*

```
HTTP/1.x 204 No Content
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
```

## 4 References

### 4.1 Documents of the NextGenPSD2 API Framework

[XS2A MCon] NextGenPSD2 XS2A Framework, Implementation Guidelines, Extended Services, Multiple Consents Service, Version 1.0, 30 October 2020

[XS2A-CCF] NextGenPSD2 XS2A Framework, Implementation Guidelines, Extended Services, Confirmation of Funds Consent, Version 2.0, 01 March 2019,

[XS2A-SecB] NextGenPSD2 XS2A Framework, Security Bulletin, Version 1.1, 30 October 2020

### 4.2 Documents of the openFinance API Framework

[oFA-IG-ADM] openFinance API Framework, Operational Rules for Administrative Service, Version 1.1, 9 September 2024

[oFA-PFSM] openFinance API Framework, Protocol Functions and Security Measures, Version 2.3, 31 October 2025

[oFA DomDef] openFinance API Framework, Domestic AIS/PIS definitions, current version

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[oFA Disc] openFinance API Framework, Discovery Services, Version 1.1,24 January 2025

[oFA DaD] openFinance API Framework, Data dictionary for V2 services, Version 2.3, 31 October 2025

### 4.3 Further documents

[EBA-FR] Final Report, Draft Regulatory Technical Standards, amending Commission Delegated Regulation (EU) 2018/389 supplementing Directive (EU) 2015/2366 of the European Parliament and of the Council with regard to regulatory technical standards for strong customer authentication and common and secure open standards of communication, published 5 April 2022

[EBA-OP2] Opinion of the European Banking Authority on obstacles under Article 32(3) of the RTS on SCA and CSC, EBA/OP/2020/10, published 4 June 2020

[EBA-RTS] Commission Delegated Regulation (EU) 2018/389 of 27 November 2017 supplementing Directive 2015/2366 of the European Parliament and of the Council with regard to Regulatory Technical Standards for Strong Customer Authentication and Common and Secure Open Standards of Communication, C(2017) 7782 final, published 13 March 2018

[EBA RTSA] COMMISSION DELEGATED REGULATION (EU) 2022/2360 of 3 August 2022, amending the regulatory technical standards laid down in Delegated Regulation (EU) 2018/389 as regards the 90-day exemption for account access, 05 December 2022

[eIDAS] Regulation (EU) No 910/2014 of the European Parliament and of the Council on Electronic Identification and Trust Services for Electronic Transactions in the Internal Market, 23 July 2014, published 28 August 2014

[ETSI TS 119 182-1] ETSI Technical Specification, Electronic Signatures and Infrastructures (ESI); JAdES digital signatures; Part 1: Building blocks and JAdES baseline signatures, V1.1.1 (2021-03)

[ETSI TS 119 495] ETSI Technical Specification, Electronic Signatures and Infrastructures (ESI); Sector Specific Requirements; Certificate Profiles and TSP Policy Requirements for Open Banking, V1.5.1 (2021-04)

[FAPI-CBPIA] OpenID Foundation, Financial-grade API (FAPI) Working Group, Cross-Browser Payment Initiation Attack, https://bitbucket.org/openid/fapi/src/master/TR-Cross_browser_payment_initiation_attack.md, 3.01.2019

[HAL] Kelley, M., "HAL - Hypertext Application Language", 2013-09-18, http://stateless.co/hal_specification.html

[OA-SecTop] OAuth 2.0 Security Best Current Practice draft-ietf-oauth-security-topics-13, Lodderstedt et al., 8 July 2019, https://tools.ietf.org/html/draft-ietf-oauth-security-topics-13

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[OBEsign] Open Banking Europe: JSON Web Signature Profile for Open Banking, Version 001-001, 18.05.2021, https://www.openbankingeurope.eu/media/2095/obe-json-web-signature-profile-for-open-banking.pdf

[PSD2] Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, published 23 December 2015

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# 5 Annex A: Change Log

## 5.1 Changes from Version 2.0 to Version 2.1

The following changes have been applied in version 2.1 relative to version 2.0:

| Section | Change | Reason |
|---|---|---|
| All sections | The attribute consentId has been restricted to max70Text | General approach for resource identifications. |
| All sections | In some cases, the access right code "balance" was used. This is corrected to "balances", also in many examples. | Errata |
| 3.2 | Rename TPP-SCA-Preference to Client-SCA-Preference.<br><br>Rename TPP-Explicit-Authorisation-Preferred to Client-Explicit-Authorisation-Preferred<br><br>Rename TPP-Redirect-URI to Client-Redirect-URI header. | Make these parameters also usable for direct access models for corporates. Prepare the API Framework better for corporate direct access. |
| 3.4.1 | Extended the example with card-accounts attribute | The data dictionary is now distinguishing between single cards and card accounts. |
| Several Sections | Add the value ASPSP-CHANNEL to the ASPSP-SCA-APPROACH header. | Adding asynchronous SCA via ASPSP channels explicitly to the framework resulting from new services. |
| 3.7.2 | Some attributes have been changed in the response body. | Erratum, copy and paste error from funds-confirmations consent category. |
| 3.8, 3.9 | Consent category "rtps" has been replaced by "document-services" at several occurrences. | Erratum, consent category had been generalised from rtp to documents before already, but some replacements had been overseen. |

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## 5.2 Changes from Version 2.1 to Version 2.2

The following changes have been applied in version 2.2 relative to version 2.1:

| Section | Change | Reason |
|---|---|---|
| 3.4.1, 3.5.1, 3.7.1 | Added new “signature” ASPSP-SCA-Approach | Adapting to new framework specifications |
| 3.6.1 | Added the IBAN check service and the possible consent types for this service. | Addition of the consent type for the IBAN check service as a specific user parameters Access |
| 3.6.1 | Renaming the access right “psuParameters” to “userParameters” | Adapting to framework changes |
| 4 | Updated References | To be in line with the framwork documentation |

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# Bank Of Israel

# Open Banking IL

## Implementation Guidelines

נספח א'11 להוראת ניהול בנקאי תקין 368

Version 2.0

27 August 2026

THE Berlin GROUP

A EUROPEAN STANDARDS INITIATIVE

# openFinance API Framewok

# XS2A API as PSD2 Interface

# Implementation Guidelines

Version 2.4

31 October 2025

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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by so called Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an "access to account interface" (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework is now extended to extended services and developed into a Version 2 API family. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client's bank for KYC processes.

**BOI remarks:** In Israel, all financial information services that are subject to access obligations under the Financial Information Services Law, and under Proper Conduct

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of Banking Business Directive No. 368, must be provided in accordance with the relevant certificate specified in the Directive and in compliance with the requirements set out in both the Law and Directive 368.

The term "API Client" is defined in Directive 368 as a Third-Party Provider (TPP), which may be either a Payment Initiation Service Provider (PISP) or an Account Information Service Provider (AISP).

**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to "asset broker" and "asset holder" resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as "API provider".

The following account access methods are covered by this framework:

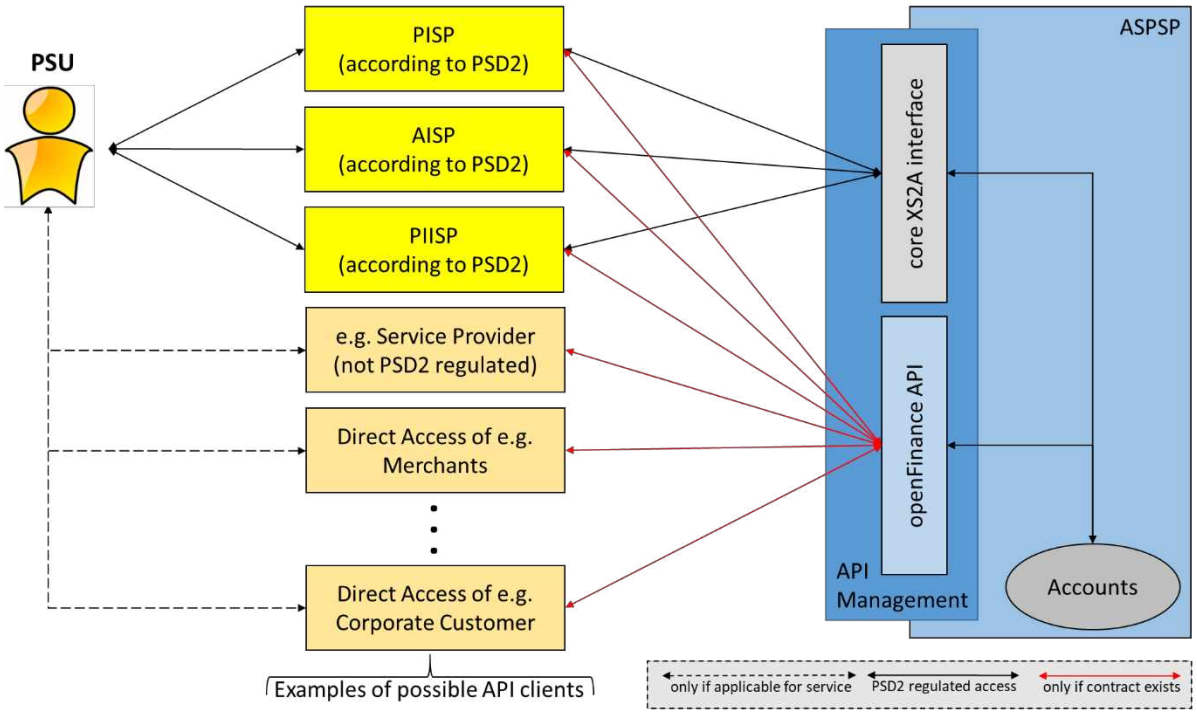


Figure 1: Core XS2A interface and openFinance API

## 1.2 Core Compliance Services: XS2A API within the openFinance API Framework

The openFinance API Framework as displayed above can of course still be restricted to an **XS2A API** which is fulfilling core PSD2 compliant services accessible for all related and licensed TPPs, while sharing new architecture items and/or data modelling with the full openFinance API Framework.

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This document covers the service definitions for the PSD2 compliance related part of the openFinance API Framework. Please note that this document is using securitiy measures and protocol functions as defined in the framework document [oFA PFSM]. This applies specifically to the usage of header parameters as defined in the framework documentation. This document also uses complex data structures and code lists in JSON syntax as defined in [oFA DaD].

### 1.3 Document Structure

This document specifies the core XS2A API Services within the openFinance API Framework in detail. Section 2 introduces an overview on the access methods available at the XS2A API. The details for the three service types as defined in [PSD2] are then described in the following sections:

- Section 3 introduces the Payment Initiation Services,
- Section 4 introduces the Account Information Services
- Section 5 introduces the Confirmation of Funds Services.

### 1.4 Document History

| Version | Change/Note | Approved |
|---|---|---|
| Draft 2.0 | Final Draft for public market consultation | 5 April 2023 |
| 2.0 | Published as compliance services | 5 October 2023 |
| 2.1 | Adaptation to openFinance API Framework Release 2.1 | 31 July 2024 |
| 2.2 | Added timestamps for standing orders for startDate and endDate for instant payments<br><br>Added an optional endpoint for retrieving the extended status of a JSON based bulk payment, in analogy to pain.002 formats<br><br>Several errata and clarificatinos added | 24 January 2025 |
| 2.3 | Added new attribute cardBrand in the query parameters of Read Transaction List and Read Card Account Transaction List | 10.March.2025 |
| 2.4 | Adaption of changes in other openFinance API Framework documentation references | 31 October 2025 |

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| Version | Change/Note | Approved |
|---|---|---|
| | Review of References in Section 6. | |

Note: A detailed change log is contained in Section 7.

**Remark for Future**: Please note that the Berlin Group openFinance API Framework is still under constant development. Technical issues, which are already in discussion within the Berlin Group openFinance working structure are mentioned in this document by "Remark for Future" to make the reader aware of upcoming potential changes.

---

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# 2 Application Layer: Guiding Principles

## 2.1 API Access Methods

The following tables gives an overview on the HTTP access methods supported by the API endpoints and by resources created through this API.

### Conditions in the following tables

It is further defined, whether this method support is mandated for the ASPSP by this specification or whether it is an optional feature for the ASPSP. Please note that this condition is given relative to the parent node of the path, i.e. the condition e.g. on a method on /v2/payments/{payment-product}/{paymentId} applies only if the endpoint /v2/payments/{payment-product} is supported at all.

**NOTE:**All methods submitted by a TPP, which are addressing dynamically created resources in this API, may only apply to resources which have been created by the same TPP before.

### Examples

Please further note, that sections are referred in the Description's column. These sections provide example for all related access methods.

### 2.1.1 Payments Endpoints

**BOI remarks**: These Payment Endpoints are not relevant for the Israeli market at this stage. The implementation of Payment Endpoints will be according to version 1.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| payments/{payment-product} | POST | Mandatory | Create a payment initiation resource addressable under {paymentId} with all data relevant for the corresponding payment product. This is the first step in the API to initiate the related payment.<br><br>Section 3.4.1 and 3.4.2 |
| payments/{payment-product}/{paymentId} | GET | Mandatory | Read the details of an initiated payment.<br><br>Section 3.7 |
| payments/{payment-product}/{paymentId}/status | GET | Mandatory | Read the transaction status of the payment |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| | | | Section 3.5 |
| bulk-payments/{payment-product} | POST | Optional | Create a bulk payment initiation resource addressable under {paymentId} with all data relevant for the corresponding payment product. This is the first step in the API to initiate the related bulk payment.<br><br>Section 3.4.3 |
| bulk-payments/{payment-product}/{paymentId} | GET | Mandatory | Read the details of an initiated bulk payment.<br><br>Section 3.7 |
| bulk-payments/{payment-product}/{paymentId}/status | GET | Mandatory | Read the transaction status of the bulk payment<br><br>Section 3.5 |
| bulk-payments/{payment-product}/{paymentId}/extended-status | GET | Optional | Read the extended transaction status of the bulk payment. The response contains an array with status information for every rejected transaction.<br><br>This is an analog structure to pain.002 for JSON based bulk payments.<br><br>Section 3.6 |
| periodic-payments/{payment-product} | POST | Optional | Create a standing order initiation resource for recurrent i.e. periodic payments addressable under {paymentId} with all data relevant for the corresponding payment product and the execution of the standing order. This is the first step in the API to initiate the related recurring/periodic payment.<br><br>Section 3.4.4 |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| periodic-payments/{payment-product}/{paymentId} | GET | Mandatory | Read the details of an initiated standing order for recurring/periodic payments.<br><br>Section 3.7 |
| periodic-payments/{payment-product}/{paymentId}/status | GET | Mandatory | Read the transaction status of the standing order for recurring/periodic payments.<br><br>Section 3.5 |
| {payment-service}/{payment-product}/{paymentId} | DELETE | Optional | Cancels the addressed payment with resource identification paymentId if applicable to the payment-service, payment-product and received in product related timelines (e.g. before end of business day for scheduled payments of the last business day before the scheduled execution day).<br><br>The response to this DELETE command will tell the TPP whether the<br>• access method was rejected<br>• access method was successful, or<br>• access method is generally applicable, but further authorisation processes are needed.<br><br>Section 3.8 |

**NOTE:** Access methods on authorisation related sub-endpoints for payment initiation are not described in this overview, e.g. the access methods for the endpoint v2/payments/{payment-product}/{paymentId/authorisations. Please refer to the related sections in [oFA PFSM] for more details on SCA and authorisation related access methods or to the related OpenAPI file.

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### 2.1.2 Accounts Endpoint

**BOI remarks**: These Account Endpoints are relevant only for merchant's accounts manageged by acquirers, according to sections 24.2.19-24.2.20 and 36.19-36.20 in ordinance 368.

Please note that Transactions endpoint which described here are not relevant for acquirers. They will implement section 4 in the Implementation Guidelines of Extended Account Information Services.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| accounts | GET | Mandatory | Read all identifiers of the accounts, to which an account access has been granted to through the /consents endpoint by the PSU. In addition, relevant information about the accounts and hyperlinks to corresponding account information resources are provided if a related consent has been already granted.<br><br>**Remark:** Note that the standard offers the option of an ASPSPto grant an access to the account list of all current accounts of a PSU. In this case, this endpoint will deliver the the list of all addressable current accounts of the PSU at this ASPSP.<br><br>Section 4.4.1 |
| accounts?withBalance | GET | Optional | Read the identifiers of the payment account addressed implicitly by the related consent together with booking balance information, depending on the consent granted<br><br>Section 4.4.1 |
| accounts/{account-id} | GET | Mandatory | Give detailed information about the addressed account.<br><br>Section 4.4.2 |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| accounts/{account-id}?withBalance | GET | Optional | Give detailed information about the addressed account together with balance information<br><br>Section 4.4.2 |
| accounts/{account-id}/balances | GET | Mandatory | Give detailed balance information about the addressed account<br><br>Section 4.4.3 |
| accounts/{account-id}/transactions | GET | Mandatory<br><br>**BOI remarks**: not relevant for acquirers | Read transaction lists of a given account. For a given account, additional parameters are e.g. the attributes "dateFrom" and "dateTo". The ASPSP might add balance information, if transaction lists without balances are not supported.<br><br>Section 4.4.4 |
| accounts/{account-id}/transactions?withBalance | GET | Optional | Read transaction lists of a given account, depending on the steering parameter "bookingStatus" together with balances.<br><br>Section 4.4.4 |
| accounts/{account-id}/transactions/{transactionId} | GET | Optional | Read transaction details of an addressed transaction.<br><br>Section 4.4.5 |

**NOTE:** All access methods on the v2/accounts API need a technical consent mechanisms first as specified in [oFA-CO] for the endpoints v2/consents/account-access.

**Remark:** Note that the {account-id} parameters are resource identifications and thus can be tokenised by the ASPSP such that the actual account numbers like IBANs or PANs are not part of the path definitions of the API for data protection reasons. This tokenisation is managed by the ASPSP. It is highly recommended by this specification to use UUIDs for the resource identfications.

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### 2.1.3 Card-accounts Endpoint

**BOI remarks**: These Card Accounts Endpoints not relevant for the Israeli market at this stage. The implementation of Card Accounts Endpoints will be according to version 1.

This endpoint delivers credit card account related account information, where the account is used to reconcile credit card transactions with the PSU. This endpoint is not directly related to credit cards as such, but the financial account behind the related cards.

**Remark**: The access methods to card accounts are less detailed compared to access methods to accounts due to the reduced functionality compared to generic payment accounts.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| card-accounts | GET | Optional | Read all identifiers of the card accounts, to which an account access has been granted to through the /consents endpoint by the PSU. In addition, relevant information about the card accounts and hyperlinks to corresponding account information resources are provided if a related consent has been already granted.<br><br>Section 4.5.1 |
| card-accounts/{account-id} | GET | Optional | Give detailed information about the addressed card account.<br><br>Section 4.5.2<br><br>**Remark for Future**: This endpoint might be made mandatory for future versions of the specification. |
| card-accounts/{account-id}/balances | GET | Optional | Give detailed balance information about the addressed card account.<br><br>Section 4.5.3<br><br>**Remark for Future**: This endpoint might be made mandatory for future versions of the specification. |
| card-accounts/{account-id}/transactions | GET | Mandatory | Read transaction lists related to a given card account. For a given card account, additional parameters are |


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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| | | | e.g. the attributes "dateFrom" and "dateTo".<br><br>Section 4.5.4 |

**NOTE:** All access methods on the v2/card-accounts API need a technical consent mechanisms first as specified in [oFA-CO] for the endpoint v2/consents/account-access.

**Remark:** Note that the {card-account-id} parameters are resource identifications and thus aretokenised by the ASPSP such that the actual card account or card number like IBANs or PANs are not part of the path definitions of the API for data protection reasons. This tokenisation is managed by the ASPSP. It is highly recommended by this specification to use UUIDs for the resource identfications.

### 2.1.4 Funds-Confirmations Endpoint

**BOI remarks:**

Confirmation of Funds is not supported in the Israeli market.

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| funds-confirmations | POST | Mandatory | Checks whrther a specific amount is available at point of time of the request on an account linked to a given tuple card issuer (TPP)/card number, or addressed by IBAN and TPP respectively.<br><br>Section 5.2 |

**NOTE:** The access to the v2/funds-confirmations endpoint needs a consent between ASPSP and PSU. This consent might be managed in a bank branch or via the online channels. In addition, this consent mechanism can be offered as an extended service via the v2/consents/funds-confirmations endpoints as specified in [oFA-CO]. In this case, the TPP needs to use the related consent token to access the v2/funds-confirmations endpoint.

## 2.2 Multicurrency Accounts Specifics for Compliance Services

The concept of a multicurrency account is introduced in [oFA PFSM].

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**Remark:** The multi-currency account product is in use in some markets in Europe, e.g. in Online-Banking products within the Belgium market. The support of this functionality in the XS2A API is only applicable in these markets.

**BOI remarks**: The multi-currency account product support is mandatory .

IBAN with no currency attribute as part of a consent means request for all currencies connected to the account at any given time as long as the consent is valid.

## 2.3 Status Information

### 2.3.1 Status Information for PIS

**BOI remarks**: not relevant for the Israeli market at this stage. The implementation of Status Information for PIS will be according to version 1.

The backend systems of ASPSPs are supporting for payments a transaction status, which is defined in the ISO20022 and is addressed in this specification as the data element "transactionStatus". ASPSPs will deliver this status within all response messages after a payment initiation resource has been established and if no error occurs.

The transaction status of a payment initiation is changing during the initiation process, depending on the results of sub-steps like format checks, SCA checks, PSU related profile checks, funds availability checks or depending on the start of backend clearing processes. At the end of a payment process, the transaction status in the ASPSPs backend is either “RJCT”, which stands for "Rejected", or “ACSC", which stands for "AcceptedSettlementCompleted” where complete is here referring to the debtor account. For instant payments, the additional transaction status "ACCC", which stands for "AcceptedSettlementCompleted" regarding the creditor account might be used in addition. Depending on the booking process of the ASPSP, the risk of the actual payment, the financial account status of the PSU account or the initiation date and time, the latter status might be reached after some period and after the payment initiation process as such has been finalised. These later transaction statuses do not need to be reflected in the XS2A interface which is only providing the status information immediately after the initiation of the payment.

A typical end status within a successful PIS process for a batch booking process is therefore

- "ACTC" which stands for “AcceptedTechnicalCorrect”, where the PSU authentication, syntactical and semantical (product) checks had been successful,
- "ACWC" which stands for "AcceptedWithChanges", where the PSU authentication, syntactical and semantical (product) checks had been successful and the ASPSP is informing the PISP that some changes have been applied to the payment initiation, e.g. on the requested execution date,

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- "ACCP“, which stands for "AcceptedCustomerProfile”, where in addition the financial risk profile of the PSU has been checked positively, or
- "ACFC“, which stands for "AcceptedFundsChecked”, where in addition to the customer profile the funds availability has been checked positively.

Realtime booking processes for batch payments might result for the time period of the payment initiation in

- "ACSP", which stands for “AcceptedSettlementInProcess”, where the settlement routine regarding the debtor account of the payment has already been initiated.
- "ACSC", which stands for “AcceptedSettlementCompleted”, indicating that the money has been booked already from the debtor account.

For instant payments, the final backend status "ACCC", which stands for "AcceptedSettlementCompleted" regarding the creditor account, will normally be reported at the end of the payment initiation process.

For payments which need more than one PSU to authorise the transaction, an additional status code as analogon to "ACTC" is introduced:

- "PACT", which stands for "PartiallyAcceptedTechnicalCorrect", indicating that some authorisations have been applied successfully, but more authorisations are need to process the transaction.

In bulk payment initiation, ASPSPs might choose either to process the bulk only partially and reject some of the contained payments. This results in

- "PART", which stands for "PartiallyAccepted", indicating that all mandated authorisations have been applied, but not all payment have been transformed due to other reasons.

**Funds Availability**

For ASPSP, which are not booking the money directly from the account, this specification provides the optional data element

"fundsAvailable": true/false

to be used together with the codes "ACTC", "ACWC" and "ACCP" in a GET Status Response Message early in the process chain to indicate that a funds check has been processed with the indicated result. This is the same data element as used in the confirmation of funds request and might be used by the ASPSP to inform the PISP about the funds availability, following requirements from [EBA-RTS].

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Even if the funds check has been positive, the payment might be rejected later during the batch booking phase due to other bookings on the account. In case of no funds available, the payment might not be rejected yet due to the practice of the ASPSP in online channels, that it will wait for liquidity for a certain period.

**Example 1: Batch booking bank, no profile checks but funds available positive**

```
{"transactionStatus": "ACTC",
 "fundsAvailable": true}
```

**Example 2: Batch booking bank, profile check positive, no funds available, no rejection yet**

```
{"transactionStatus": "ACCP",
 "fundsAvailable": false}
```

The ASPSP might also use the status "PDNG", which stands for “Pending” to inform the TPP about the fact, that the next status of the payment has not been reached yet.

In addition, the ASPSP will inform the TPP about the status of the technical SCA process for a payment initiation within the GET SCA Status Response Message. For this status reporting the data element “scaStatus” is used.

**Future dated payments and periodic payments**

Future dated payments and periodic payments are both payment types which are not directly executed after initiation. For both types of payments, ASPSPs might have a reduced or no check on customer profile or funds availability due to the fact that the actual payments are performed later. The end status during the payment initiation process then is "ACTC" or "ACCP" depending on the ASPSPs procedures in its online channels. The fundsAvailable data element might be contained in addition, in case a funds availability check has been performed during payment initiation.

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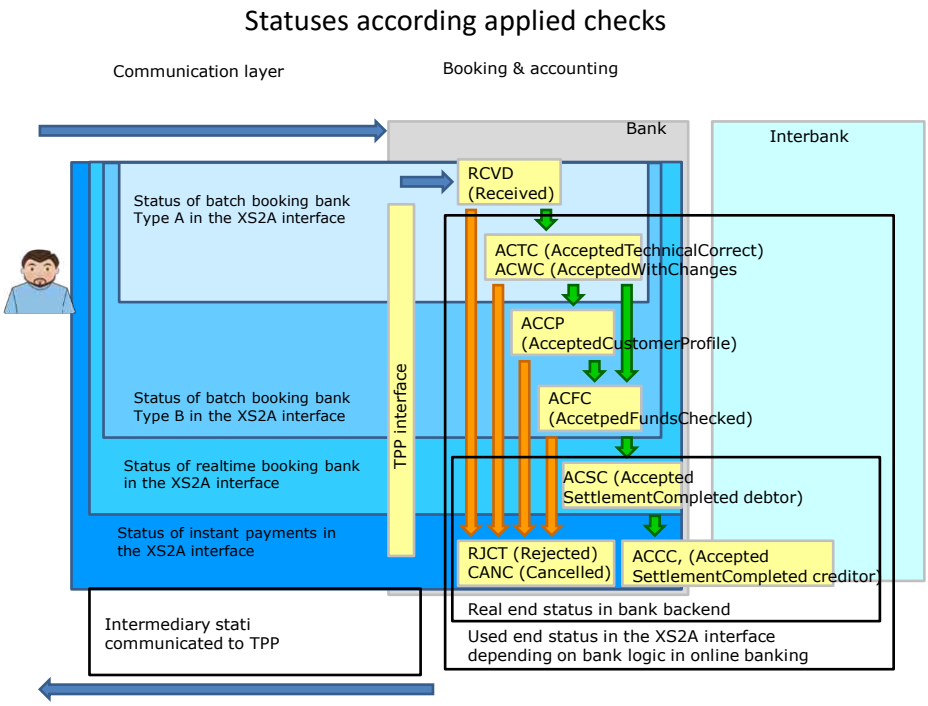
### Status Model Overview

The following picture gives an overview on the transaction status:




### Status of cancelled Payments

After a successful cancellation of a payment initiation, the corresponding transaction status transforms to "CANC" for cancelled. This transaction status will be returned as long as the cancelled payment initiation resource is addressable.

### Status of partially authorised payments within a multilevel SCA process

Payment initiations which are at least authorised by one PSU, but which are not yet finally authorised by all applicable PSU will be transformed into the status "PATC" for "PartiallyAcceptedTechnicalCorrect".

### 2.3.2 Status Information for the AIS within the Establish Consent Process

**BOI remarks**: The Status Imformation for AIS are relevant only for merchant's accounts manageged by acquirers.

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As described above, the TPP needs a technical consent token for accessing account related information. The lifecycle of these tokens and related status information is specified in [oFA-CO].

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# 3 Payment Initiation Service

**BOI remarks**: these service is not relevant for the Israeli market at this stage. The implementation of Payment Endpoints will be according to version 1.

**Remark**: The API design differs across the various SCA approaches (Embedded, Redirect, OAuth2 or Decoupled, cp.[oFA-OR-Com] ), but most between the Embedded SCA Approach and the others, since the Embedded SCA Approach demands the support of the full SCA complexity within the API itself. For that reason, all data or processes, which are needed for the Embedded SCA Approach only, are shown with a light blue background, to increase the readability of the specification.

## 3.1 Payment Initiation Flows

The payment initiation flow depends heavily on the SCA approach implemented by the ASPSP. The most complex flow is the flow for the Embedded SCA Approach, which further differs on whether there are various authentication methods available for the PSU. In the following, the different API flows are provided as an overview for these different scenarios.

> **Remark:** The flows do not always cover all variances or complexities of the implementation and are exemplary flows.

### 3.1.1 Redirect SCA Approach: Explicit Start of the Authorisation Process

If the ASPSP supports the Redirect SCA Approach, the message flow within the payment initiation service is simple. The Payment Initiation Request is followed by an explicit request of the TPP to start the authorisation. This is followed by a redirection to the ASPSP SCA

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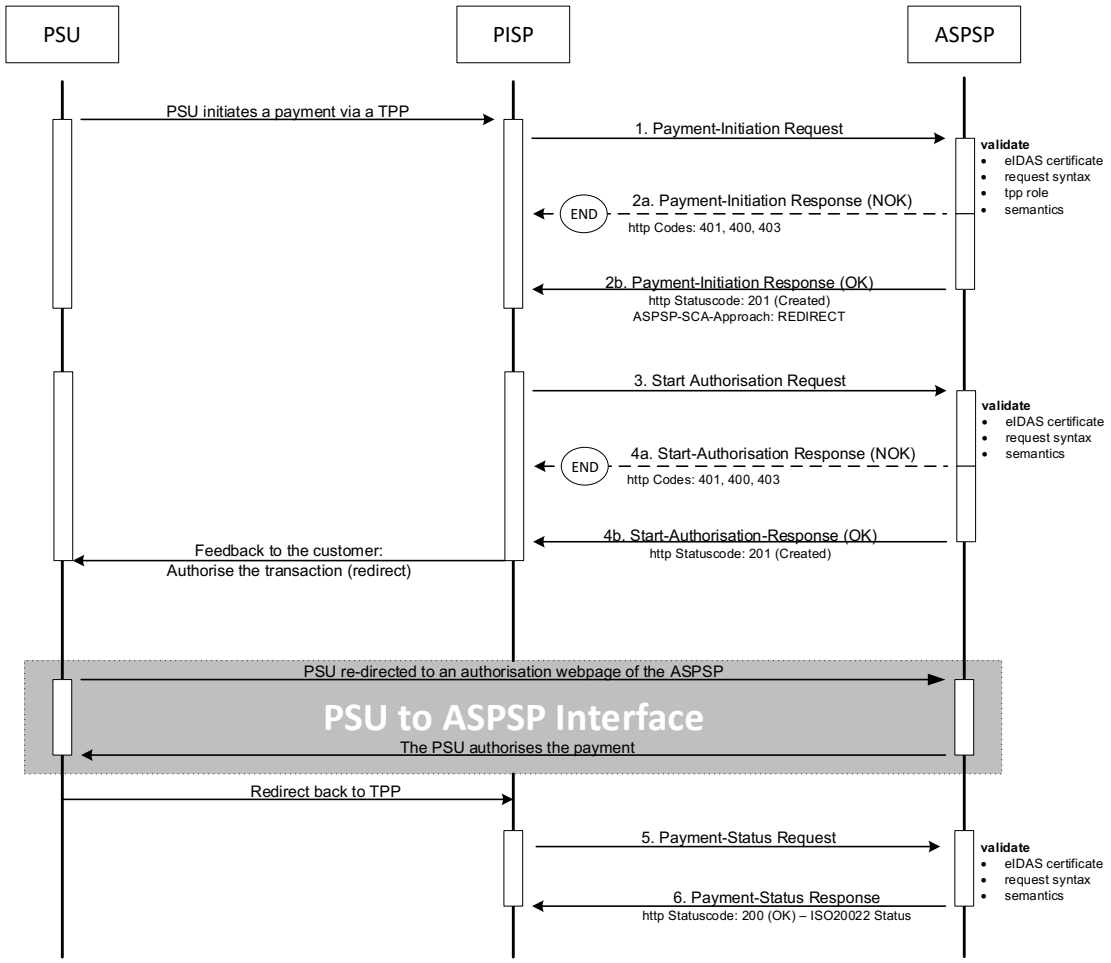
authorisation site. A status request might be requested by the TPP after the session is re-redirected to the TPP's system.




### 3.1.2 Redirect SCA Approach: Explicit Start of the Authorisation Process with Confirmation Code

In addition to the scenario above, an authorisation confirmation request might be requested by the ASPSP from the TPP after the session is re-redirected to the TPP's system and after the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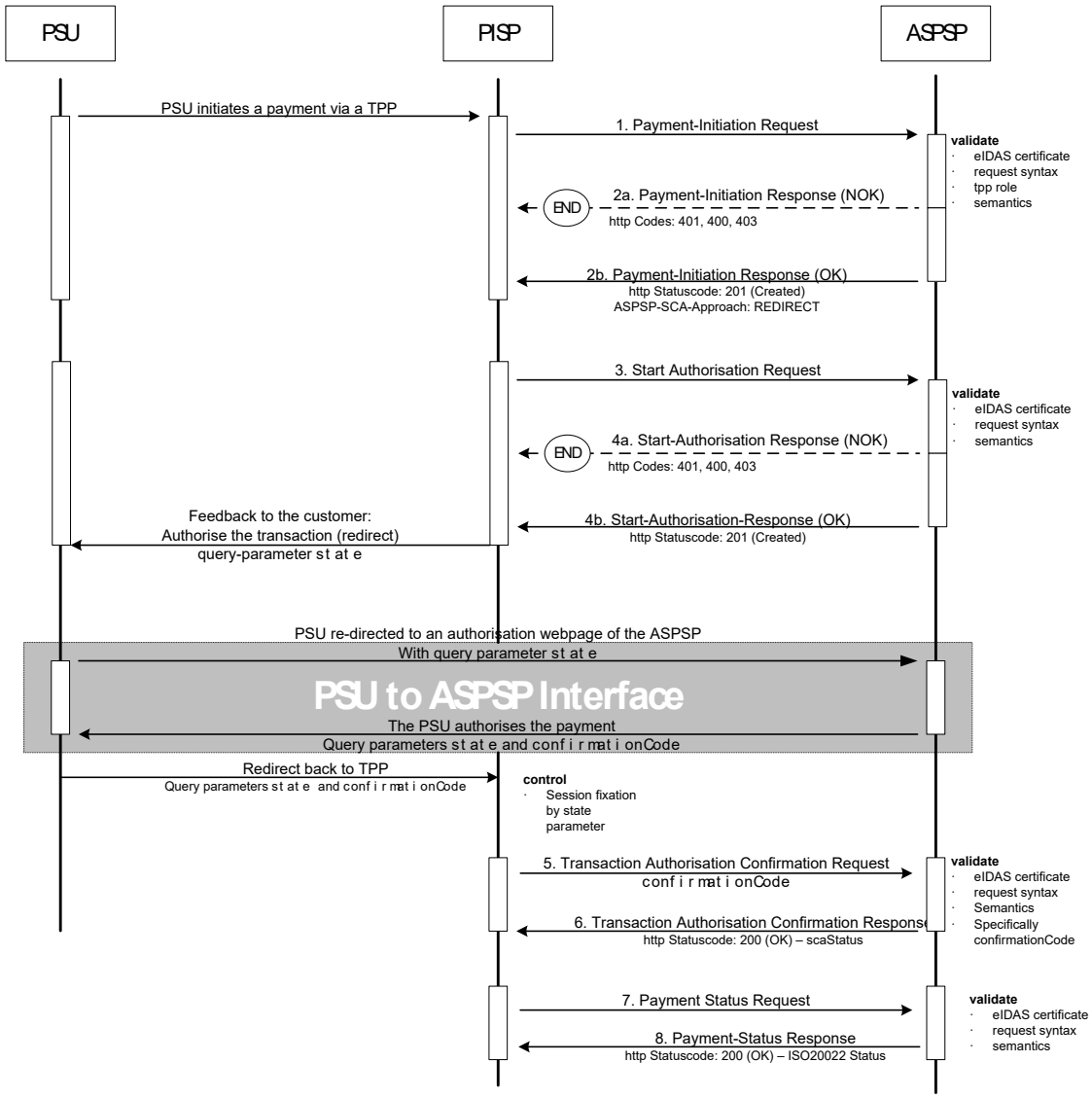
TPP's control on session fixation. In the end, a payment status request might be needed by the TPP to control the exact status of the payment initiation.




### 3.1.3 Redirect SCA Approach: Implicit Start of the Authorisation Process

ASPSPs might start the authorisation process implicitly in case of no additional data is needed from the TPP. This optimisation process results in the following flow (which is exactly the Redirect SCA Approach flow from the version 1.0 and 1.1 of the Implementation Guideline before authorisation sub-resources have been established). In this case, the redirection of the PSU browser session happens directly after the Payment Initiation Response. In addition an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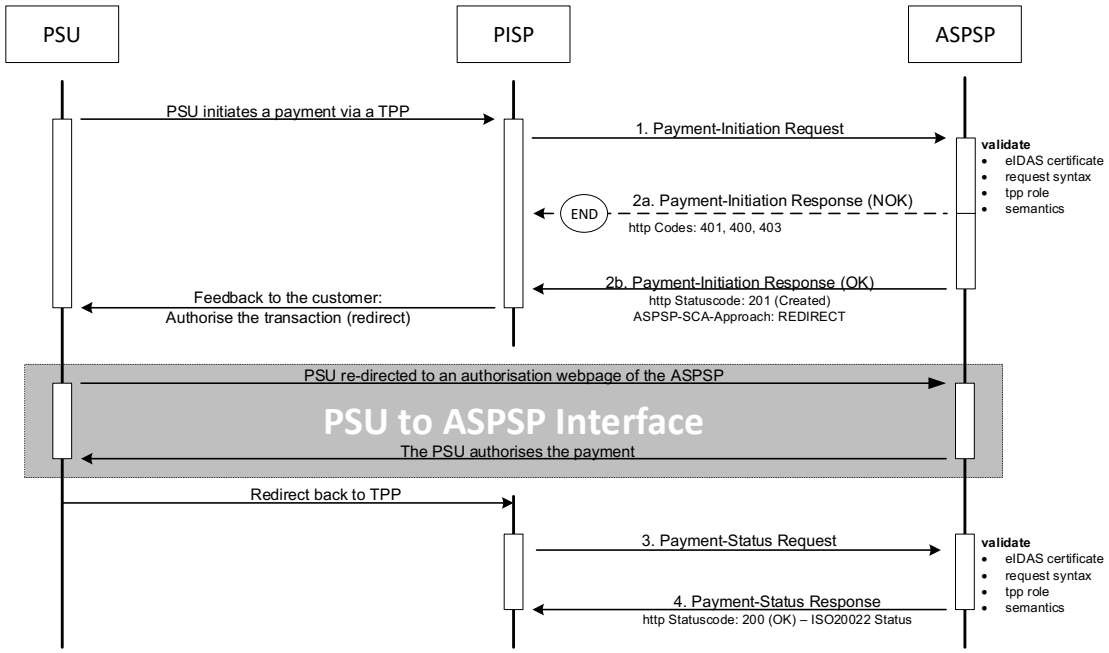
SCA status request can be sent by the TPP to follow the SCA process (not shown in the diagram).





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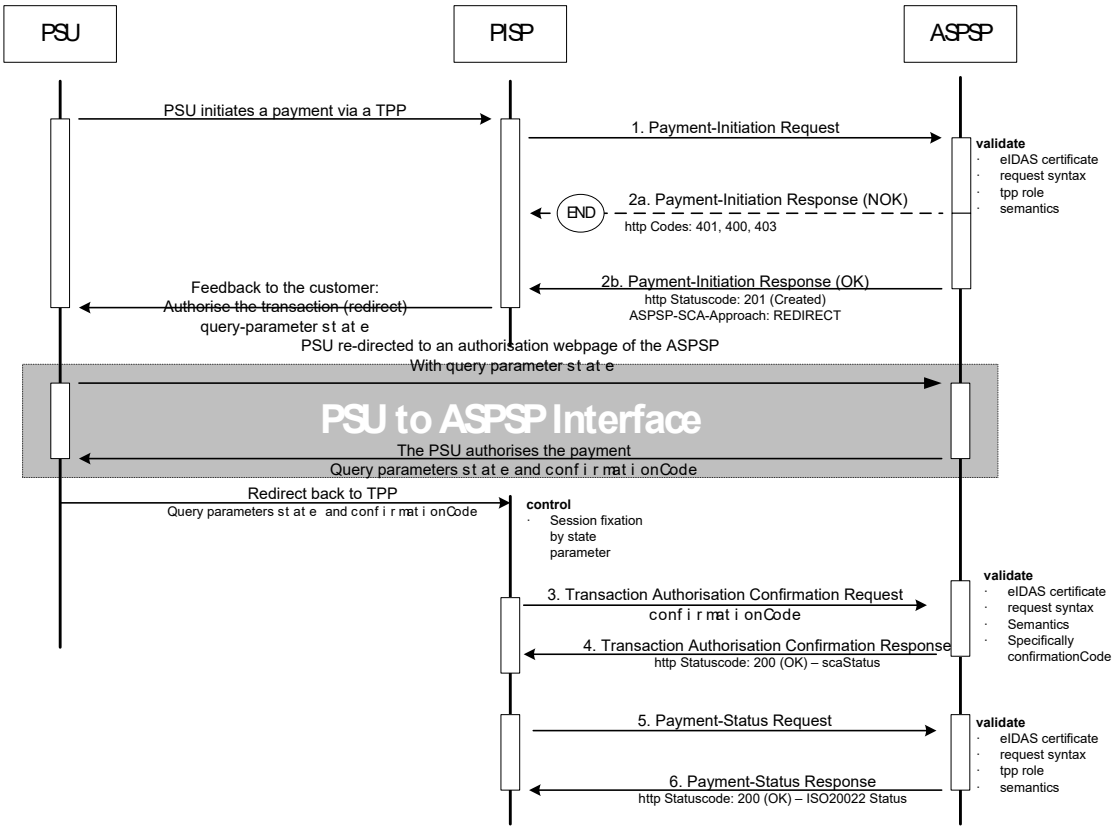
### 3.1.4 Redirect SCA Approach: Implicit Start of the Authorisation Process with Confirmation Code

In addition to the scenario above, an authorisation confirmation request might be requested by the ASPSP from the TPP after the session is re-redirected to the TPP's system and after the TPP's control on session fixation. In the end, a payment status request might be needed by the TPP to control the exact status of the payment initiation.




### 3.1.5 OAuth2 SCA Approach: Implicit Start of the Authorisation Process

If the ASPSP supports the OAuth2 SCA Approach, the flow is very similar to the Redirect SCA Approach with implicit start of the Authorisation Process. Instead of redirecting the PSU directly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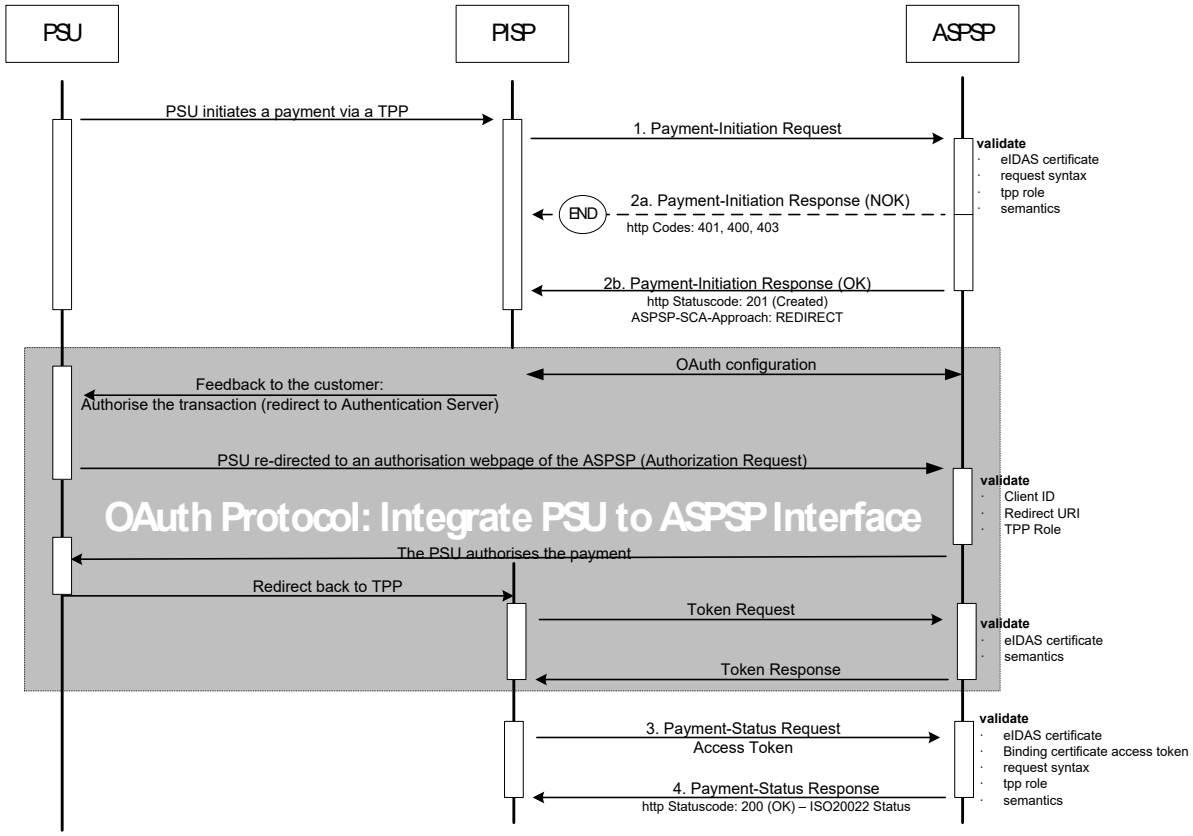
to an authentication server, the OAuth2 protocol is used for the transaction authorisation process.

**Remark:** The OAuth2 SCA Approach with explicit start of the Authorisation Process is treated analogously.




### 3.1.6 OAuth2 SCA Approach: Implicit Start of the Authorisation Process with Confirmation Code

In addition to the scenario above, an authorisation confirmation request might be requested by the ASPSP from the TPP after the session is re-redirected to the TPP's system and after the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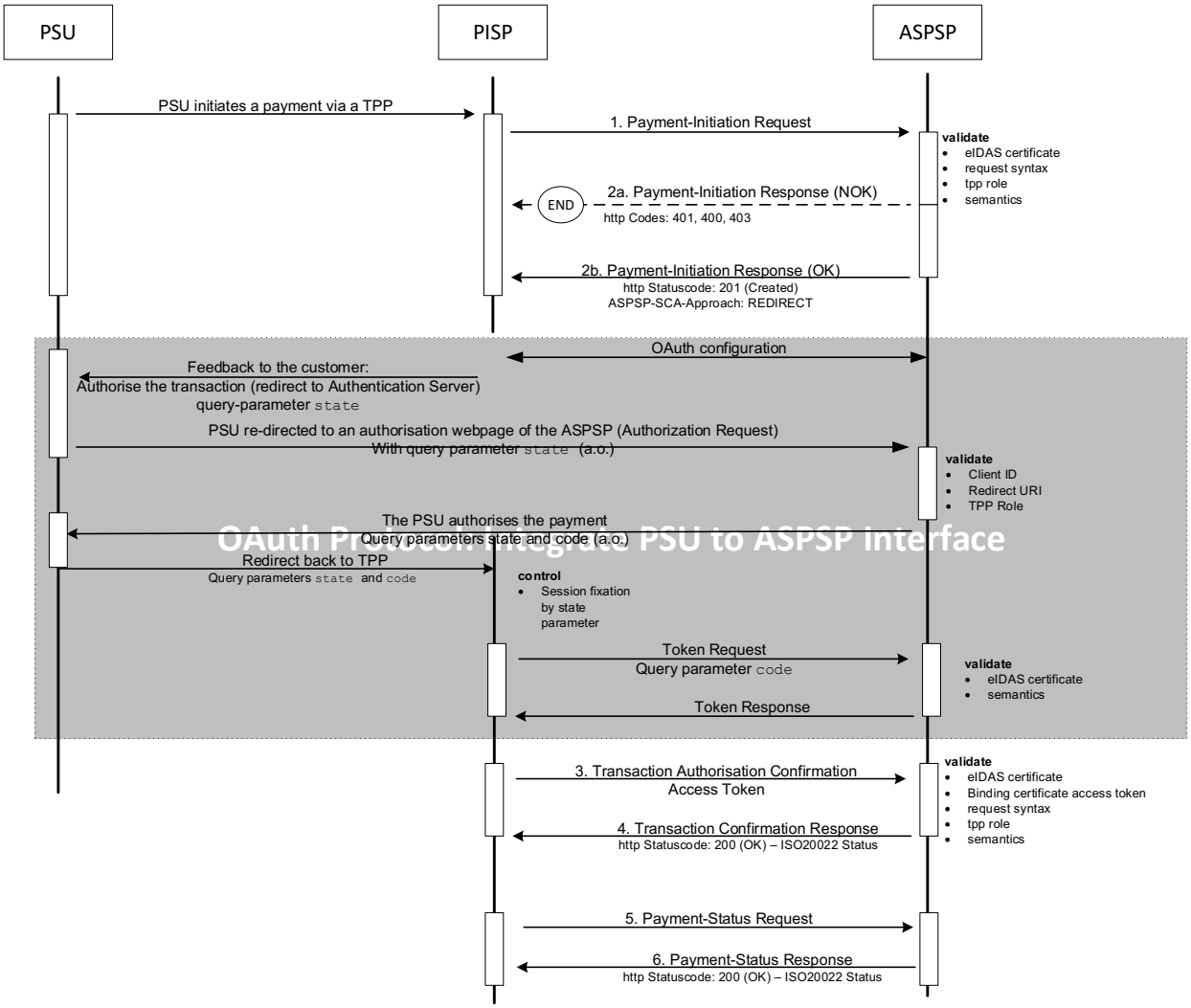
TPP's control on session fixation. In the end, a payment status request might be needed by the TPP to control the exact status of the payment initiation.

**Remark:** The OAuth2 SCA Approach with explicit start of the Authorisation Process and with transaction confirmation step is treated analogously.




It is further recommended for ASPSPs and TPPs in this case to follow the Security Best Practice definitions as defined in [OA-SecTop]. This reference will also be added in the next version of the Implementation Guidelines.

### 3.1.7 Decoupled SCA Approach: Implicit Start of the Authorisation Process

The transaction flow in the Decoupled SCA Approach is similar to the Redirect SCA Approach. The difference is that the ASPSP is asking the PSU to authorise the payment e.g. via a dedicated mobile app, or any other application or device which is independent from the online banking frontend. The ASPSP is asking the TPP to inform the PSU about this authentication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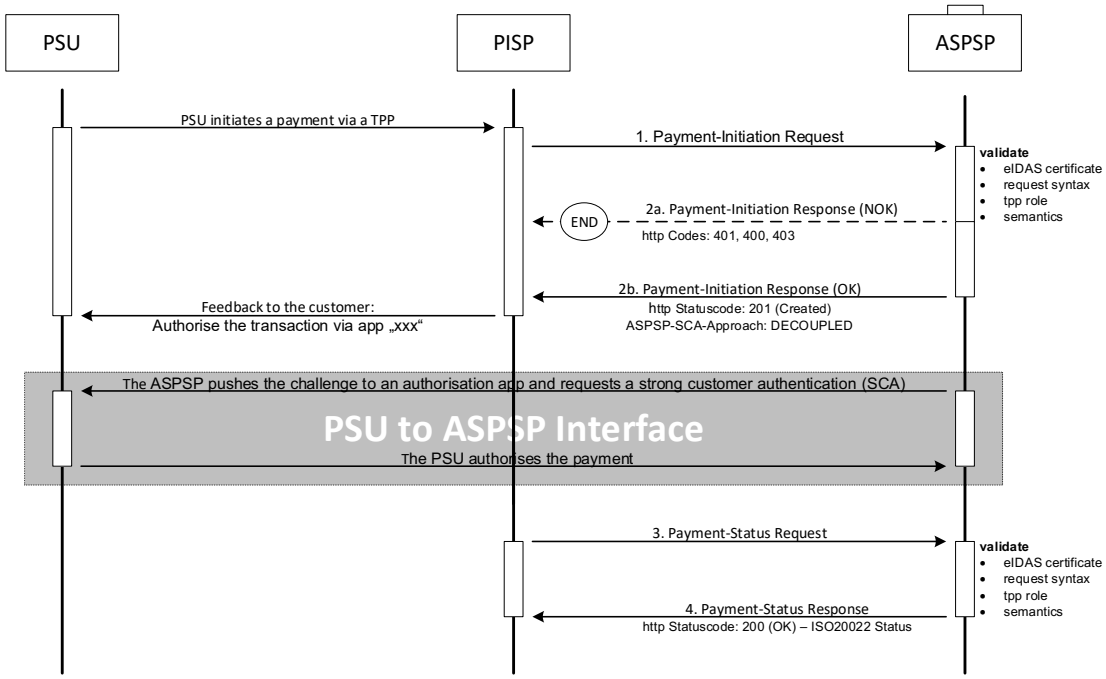
by sending a corresponding PSU Message like "Please use your xxx App to authorise the payment".

After the SCA having been processed between ASPSP and PSU, the TPP then needs to ask for the result of the transaction. In the following, a flow with an implicit start of the authorisation process is shown:




### 3.1.8 Embedded SCA Approach without SCA method (e.g. Creditor in Exemption List)

In the following, several exemplary flows are shown, where the ASPSP has chosen to process the SCA methods through the PISP – ASPSP interface. In any case, the PSU normally will need to authenticate himself with a first factor, before any account or SCA method details will be available to the PISP. So even in case where the Payment Initiation is accepted without an SCA method due e.g. to an exemption list, the PSU is asked via the PISP to provide the PSU Identification and e.g. a password or an OTP. The later exemplary flows then will show

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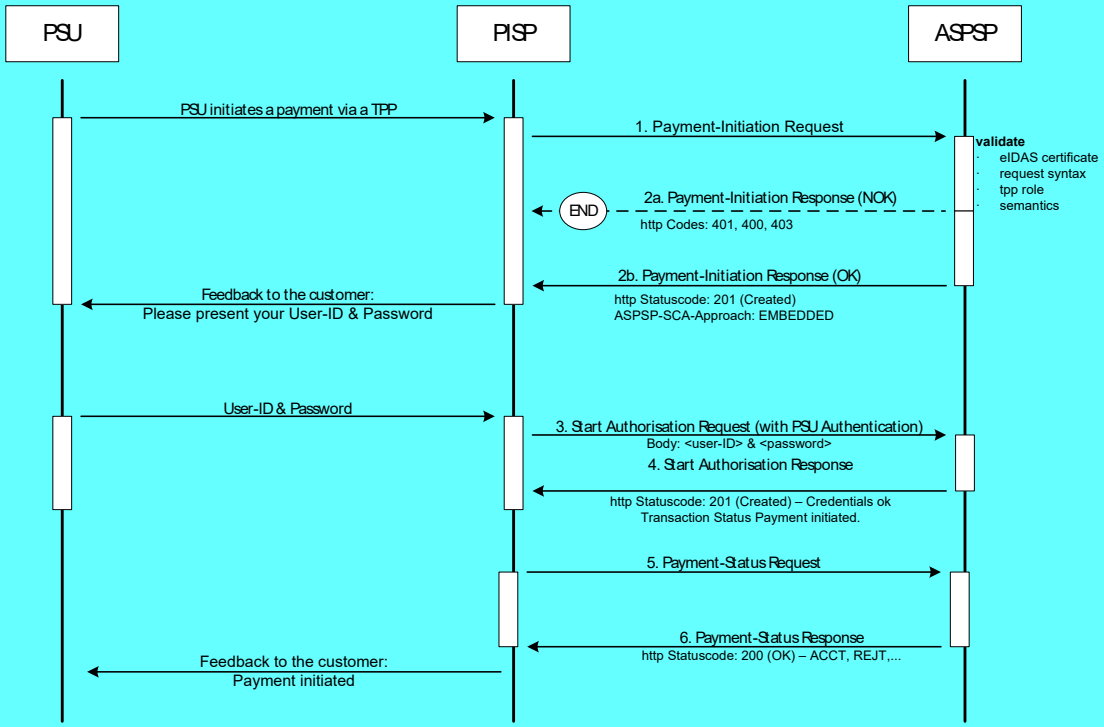
scenarios, where complexities like SCA processing and choosing an SCA method will be added.

**Remark:** In case where OAuth2 is requested by the ASPSP as a pre-step for PSU authentication, the sequence of the PSU authentication with the first authentication factor is omitted. This applies also for all examples for the Embedded SCA Approach.





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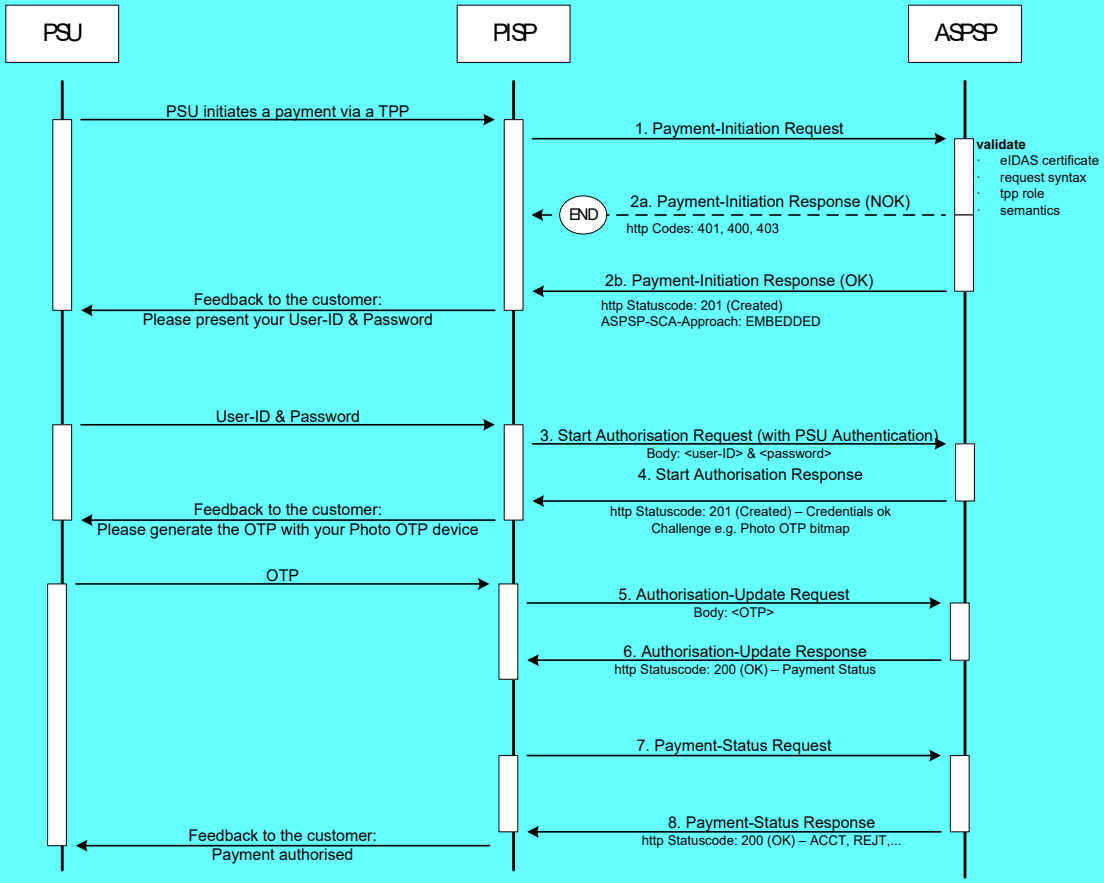
### 3.1.9 Embedded SCA Approach with only one SCA method available

In case where only one SCA method is available, the "Authorise Transaction Request" is added to the flow, where the TPP is transmitting the authentication data of the customer, e.g. an OTP with included dynamic linking to the transaction details.




### 3.1.10 Embedded SCA Approach with Selection of an SCA method

In the following flow, there is a selection of an SCA method added in case of the ASPSP supporting several SCA methods for the corresponding PSU. The ASPSP transmits first the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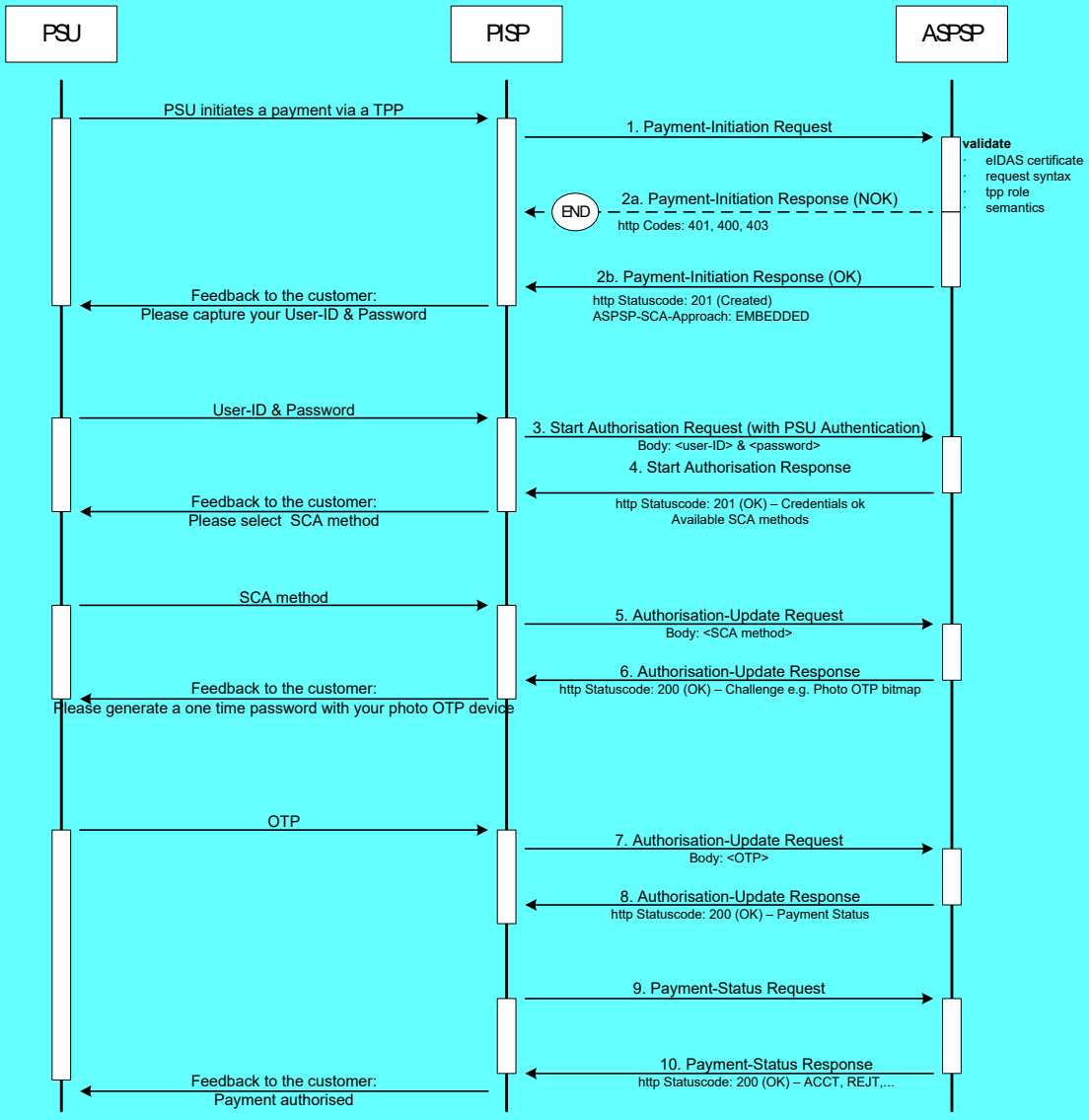
available methods to the PISP. The PISP might filter them, if not all authentication methods can be technically supported. The available methods then are presented to the PSU for choice.




### 3.1.11 Combination of Flows due to mixed SCA Approaches

If an ASPSP supports for a PSU at least one decoupled SCA method and at the same time at least one SCA method that is not decoupled, then the above flows might be mixed as follows, since the ASPSP then needs to start the process with the assumption of one specific SCA approach to offer all available SCA methods to the PSU.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In case the ASPSP is starting the payment initiation flow with a redirect the PSU can choose on the authentication site of the ASPSP the decoupled authentication method. This is then transparent for the TPP and has no influence on the flows defined above.

In case the ASPSP is starting the payment initiation flow with the Embedded SCA Approach the ASPSP will provide a list of available SCA methods to the PSU via the TPP. If the PSU chooses an authentication method which requires the Decoupled SCA Approach, then the ASPSP is branching into the transaction flow for the Decoupled Approach as shown above: The ASPSP will return the corresponding HTTP header ASPSP-SCA-Approach with value "DECOUPLED" and the current status of the payment initiation, e.g. "ACTC" for correct technical checks but will return no hyperlink for further action other than the "self" and "status" hyperlink. The next request of the TPP then needs to be the GET Status Request to get the final status of the transaction after having processed the SCA method.

In case the ASPSP needs to decide between the Decoupled and the Redirect SCA approach, the ASPSP also might first offer the SCA methods available to the PSU and then branch after the selection of the PSU into the Decoupled or Redirect SCA Approach.

### 3.1.12 Multilevel SCA Approach: Example for the Redirect SCA Approach

The multilevel SCA Approach supports the authorisation of a payment by several users, e.g. in a 4 eyes principle authorisation. Multilevel SCA are always handled with Explicit start of the

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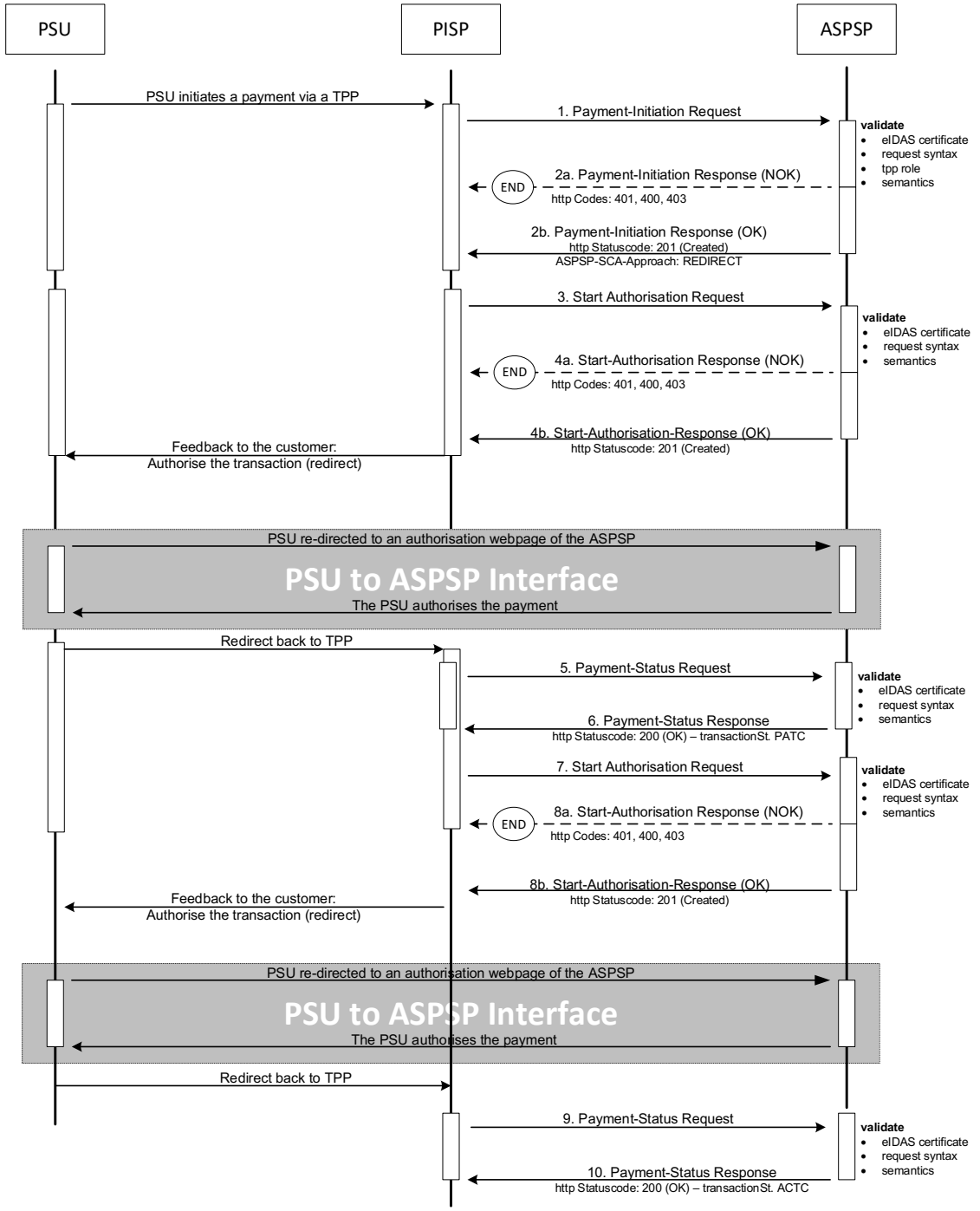
several Authorisation Mechanisms. In the following the flow for a 4 eyes principle authorisation is shown, where both SCA are performed by redirect.




**Remark:** This flow is not depending on the SCA Approach. Multilevel SCA transactions are performed by using n times the Start Authorisation Request for n times SCA, where the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corresponding SCA flow is replacing the Redirect SCA flow above. These SCA processes could also be performed simultaneously.

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## 3.2 Data Overview Payment Initiation Service

The following table defines the technical description of the abstract data model as defined in [oFA-OR-Com]or the Payment Initiation service. The columns give an overview on the API protocols as follows:

- The "Data element" column is using the abstract data elements following [oFA-OR-Com] to deliver the connection to rules and role definitions in this document.
- The "Attribute encoding" is giving the actual encoding definition within the XS2A API as defined in this document.
- The "Location" columns define, where the corresponding data elements are transported as HTTP parameters on path, header or body level, resp. are taken from eIDAS certificates. For HTTP Parameters, the "path" subsumes host, port and API basepath.

  **Remark:** Please note that website authentication certificate related data elements are not elements of the actual API call. They are indicated here, since they are mandated in the backend processing and might be transported from the API endpoint internally to the backend on the application layer. Please note, that in difference to this, the certificate data for the electronic seal can be transported within a dedicated HTTP header field.
- The "Usage" column gives an overview on the usage of data elements in the different services and API Calls. Within [oFA-OR-Com], the XS2A calls are described as abstract API calls. These calls will be technically realised as HTTPS POST, PUT and GET commands. The calls are divided into the following calls for Payment Initiation:
  - The Initiation Request which shall be the first API Call for every transaction within the corresponding XS2A service Payment Initiation. This call generates the corresponding resource within the Payment Initiation Service. The Payment Initiation can address a single payment, bulk payments and recurring payments. The latter are implemented as an initiation of a standing order.
  - The Update Data Call is a call, where the TPP needs to add PSU related data, which is requested in the return of the first call. This call might be repeated.
  - The Authorisation Request is only used in an Embedded SCA Approach to authorise the transaction in case a second factor authentication is needed.
  - The Status Request is used e.g. in cases, where the SCA control is taken over by the ASPSP and the TPP needs later information about the outcome.

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The following usage of abbreviations in the Location and Usage columns is defined, cp. also [oFA-OR-Com] for details.

- x: This data element is transported on the corresponding level.
- m: Mandatory
- o: Optional for the TPP to use
- c: Conditional. The condition is described in the addressed API Calls, condition defined by the ASPSP

The following table does not only define requirements on request messages but also requirements on data elements for the response messages. These requirements only apply to positive responses (i.e. HTTP response code 2xx). The specification of negative responses and error related communications is service independent and is thus provided already on framework level in [oFA PFSM]. For example, in the case of the Payment Initiation Response Message with HTTP response code 4xx or 5xx, no payment initiation resource has been created and therefore no resource related information can be returned.

**Remark:** The more technical functions like GET …/{paymentId} and GET …/{authorisationId} and the Cancellation Request are not covered by this table.

| **Data element** | **Attribute encoding** | **Location** | | | | | **Usage** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query P. | Header | Body | Certificate[2] | Init Req. | Init Resp. | Canc. Req. | Canc.Resp | Stat. Req. | Stat. Resp |
| TPP Registration Number | | | | | | x | m | | m | | m | |
| TPP Name | | | | | | x | m | | m | | m | |
| TPP Roles | | | | | | x | m | | m | | m | |
| TPP National Competent Authority | | | | | | x | m | | m | | m | |
| Request Identification | X-Request-ID | | | x | | | m | m | m | m | m | m |

[2] This refers to the certificate for website authentication.

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| Data element | Attribute encoding | Location | | | | | Usage | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query P. | Header | Body | Certificate[2] | Init Req. | Init Resp. | Canc. Req. | Canc.Resp | Stat. Req. | Stat. Resp |
| Resource ID (received from the ASPSP server) | paymentId | | | | x | | | m | | | | |
| Resource ID[3]<br>(used in follow up processes by the API Client) | | x | | | | | | | m | | m | |
| Transaction Fees | transactionFees | | | | x | | | o | | | | |
| Transaction Fee Indicator | transactionFeeIndicator | | | | x | | | o | | | | |
| Access Token (from optional OAuth2) | Authorization | | | x | | | c | | c | | c | |
| Further signature related data | Digest | | | x | | | c | | c | | c | |
| API Client Electronic Signature | x-jws-signature | | | x | | | c | | c | | c | |
| Transaction Status | transactionStatus | | | | x | | | m | | m | | m |
| Funds Availability Flag | fundsAvailable | | | | x | | | | | | | c |
| PSU Message Information | psuMessage | | | | x | | | o | | o | | o |
| API Client Message Information | apiClientMessages | | | | x | | | o | | o | | o |
| PSU Identification | PSU-ID | | | x | | | c | | o | | | |
| PSU Identification Type | PSU-ID-Type | | | x | | | c | | o | | | |

[3] Please note that the Resource ID is transported in the path after the generation of the payment initiation resource. This is then a path parameter without an explicit encoding of the attribute name.


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| Data element | Attribute encoding | Location | | | | | Usage | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query P. | Header | Body | Certificate[2] | Init Req. | Init Resp. | Canc. Req. | Canc.Resp | Stat. Req. | Stat. Resp |
| Corporate Identification | PSU-Corporate-ID | | | x | | | c | | o | | c | |
| Corporate ID Type | PSU-Corporate-ID-Type | | | x | | | c | | o | | c | |
| Available SCA Methods | scaMethods | | | | x | | | c | | c | | |
| SCA Challenge Data | challengeData | | | | x | | | c | | c | | |
| IP Address PSU | PSU-IP-Address | | | x | | | m | | o | | o | |
| IP Port PSU | PSU-IP-Port | | | x | | | o | | o | | o | |
| PSU User Agent | PSU-User-Agent[4] | | | x | | | o | | o | | o | |
| GEO Information | PSU-Geo-Location | | | x | | | o | | o | | o | |
| Redirect URL ASPSP | _links.scaRedirect | | | | x | | | c | | c | | |
| ASPSP-SCA-Approach | ASPSP-SCA-Approach | | | x | | | | c | | c | | |
| Further PSU related Information | PSU-Accept | | | x | | | o | | o | | o | |
| | PSU-Accept-Charset | | | x | | | o | | o | | o | |
| | PSU-Accept-Encoding | | | x | | | o | | o | | o | |
| | PSU-Accept-Language | | | x | | | o | | o | | o | |
| | PSU-Http-Method | | | x | | | o | | o | | o | |
| | PSU-Device-ID | | | x | | | o | | o | | o | |
| SCA Approach Preference | Client-SCA-Approach-Preference | | | x | | | o | | o | | | |

[4] This field transports key information for risk management like browser type or PSU device operating system. The forwarding of further HTTP header fields might be supported in future versions of the specification to transport other device related information.

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| Data element | Attribute encoding | Location | | | | | Usage | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Path | Query P. | Header | Body | Certificate[2] | Init Req. | Init Resp. | Canc. Req. | Canc.Resp | Stat. Req. | Stat. Resp |
| Redirect URI TPP[5] | Client-Redirect-URI | | | x | | | c | | o | | | |
| | Client-Nok-Redirect-URI | | | x | | | o | | o | | | |
| Authorisation Preference | Client-Explicit-Authorisation-Preferred | | | x | | | o | | o | | | |
| Rejection Preference | Client-Rejection-NoFunds-Preferred | | | x | | | o | | | | | |
| Client Notification URI | Client-Notification-URI | | | x | | | o | | o | | | |
| Client Notfication Content Preference | Client-Notification-Content-Preferred | | | x | | | o | | o | | | |
| Client Brand Information | Client-Brand-Logging-Information | | | x | | | o | | o | | | |
| Payment Product | payment-product | x | | | | | m | | | | | |

The XS2A Interface calls which represent the messages defined in [oFA-OR-Com] will be defined in the following sections.

### 3.3 Payment Initiation Specifics for Multi-currency Accounts

The payment data contained in the request body can also address sub-accounts which are provided in specific currencies, cp. definition of multi-currency accounts in Section 2.2. This is independent of the coding in JSON or XML.

### 3.4 Payment Initiation Request

#### 3.4.1 Payment Initiation with JSON encoding of the Payment Instruction

**Call**

```
POST /v2/payments/{payment-product}
```

[5] This redirect link must be contained, if the Client-Redirect-Preferred flag is contained and equals "true" or if the "Client-Redirect-Preferred" flag is not used.

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Creates a payment initiation request at the ASPSP.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT). The default list of products supported in this standard is:<br>• sepa-credit-transfers<br>• instant-sepa-credit-transfers<br>• target-2-payments<br>• cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

### Query Parameters

No Query Parameter

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | application/json |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party.<br>This is the unique ID of TPP for the payment initiation regarding PSD2 article 47 and EBA RTS article 29. |
| Authorization | String | Conditional | Bearer Token. Is contained only, if an OAuth2 based authentication was performed in a pre-step |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | or an OAuth2 based SCA was performed in a preceding AIS service in the same session. |
| Consent-ID | String | Optional | This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation. The access attribute in this case needs to contain the "paymentInitiations" access right for the related account. |
| PSU-IP-Address | String | Mandatory | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.<br><br>If not available, the TPP shall use the IP Address used by the TPP when submitting this request. |
| Client-Rejection-NoFunds-Preferred | Boolean | Optional | If it equals "true" then the TPP prefers a rejection of the payment initiation in case the ASPSP is providing an integrated confirmation of funds request an the result of this is that not sufficient funds are available.<br><br>If it equals "false" then the TPP prefers that the ASPSP is dealing with the payment initiation like in the ASPSPs online channel, potentially waiting for a certain time period for funds to arrive to initiate the payment.<br><br>This parameter may be ignored by the ASPSP. |

**Remark:** Note that a reference of the payment to payer/payee following [PSD2], Article 46 (b), will be handled on application layer with the data attributes related to end2end identification and remittance information.

**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA PFSM] or in the related Open API files. These parameters apply to all Transaction Initiation Requests, i.e. transactions, which need an authorisation within the openFinance API Framework and are left out here to achieve a better readablilty.

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### Request Body

The payment data to be transported in the request body is dependent on the chosen API endpoint. Some standard definitions related to the above mentioned standard products defined in [oFA PFSM] and domestic formats are defined in [oFA DomDef]. Further definitions might be given community or ASPSP specific. ASPSP or community definitions shall reuse standard attribute names.

### Response Code

The HTTP response code equals 201.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Location | String | Mandatory | Location of the created resource (if created) |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | Payment transaction status, cp. Section 2.3.1. |
| paymentId | Max70Text | Mandatory | resource identification of the generated payment initiation resource. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fee relevant for the underlying payments. This field includes the entry of the currencyConversionFees if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |
| transactionFee Indicator | Boolean | Optional | If equals true, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU.<br><br>If equals false, the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees.<br><br>If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| scaMethods | Array of Authentication Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWith AuthenticationMethodSelection" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenSca Method | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified e.g. with the first relevant factor or alternatively an |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element "chosenScaMethod" if challenge data is needed for SCA.<br><br>In rare cases this attribute is also used in the context of the "startAuthorisationWithPsuAuthentication" or "startAuthorisactionWithEncryptedPsuAuthentication" link. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in [oFA PFSM] for all Transaction Initiation Response messages. These links will also be contained in the related Open API files.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU |
| apiClientMessages | Array of Client Message Information | Optional | Messages to the API Client on operational issues. |

## Example

### *Request*

```
POST https://api.testbank.com/psd2/v2/payments/sepa-credit-transfers
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address:         192.168.8.78
PSU-GEO-Location:       GEO:52.506931;13.144558
```

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```
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:02:37 GMT

{
   "debtorAccount": {"iban": "DE40100100103307118608"},
   "instructedAmount": {"currency": "EUR", "amount": "123.50"},
   "creditorAccount": {"iban": "DE02100100109307118603"},
   "creditor": {"name": "Merchant123"},
   "remittanceInformationUnstructured": ["Ref Number Merchant"]
}
```

### *Response in case of a redirect with an implicitly created authorisation sub-resource*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:02:42 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
Content-Type:           application/json

{
  "transactionStatus": "RCVD",
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "_links": {
        "scaRedirect": {"href": "https://www.testbank.com/asdfasdfasdf"},
        "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"},
        "status": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/status"},
        "scaStatus": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
  }
}
```

### *Same example in case where an explicit authorisation start is needed*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:02:42 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
```

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```
Content-Type:           application/json

{
  "transactionStatus": "RCVD",
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "_links": {
        "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"},
        "status": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/status"},
        "startAuthorisation": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations"}
  }
}
```

### *Response in case of an OAuth2 SCA approach with implicitly creating an authorisation sub-resource*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     REDIRECT
Date:                   Sun, 06 Aug 2017 15:02:42 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
Content-Type:           application/json

{
  "transactionStatus": "RCVD",
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "_links": {
        "scaOAuth": {"href": "https://www.testbank.com/oauth/.well-
known/oauth-authorization-server"},
        "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"},
        "status": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/status"},
        "scaStatus": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/authorisations/3d9a81b3-
a47d-4130-9999-a9c0ff861100"}
  }
}
```

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### *Response in case of the decoupled approach with explicit start of authorisation needed (will be done with the update PSU identification function)*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     DECOUPLED
Date:                   Sun, 06 Aug 2017 15:03:47 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
Content-Type:           application/json

{
  "transactionStatus": "RCVD",
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "_links": {
     "startAuthorisationWithPsuIdentification": {"href":
"/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/authorisations"},
     "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"}
    }
}
```

### *Response in case of the signature approach with explicit start of authorisation needed (will be done with the update PSU identification function)*

```
HTTP/1.x 201 Created
X-Request-ID:                 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:           SIGNATURE
Body-Sig-Profile-Accepted:    JAdES_JS
Date:                         Sun, 06 Aug 2017 15:03:47 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
Content-Type:                 application/json

{
  "transactionStatus": "RCVD",
  "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
  "_links": {
     "startAuthorisationWithPsuIdentification": {"href":
"/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/authorisations"},
     "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"}
```

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```
    }
}
```

### *Response in case of the embedded approach with explicit start of authorisation*

```
HTTP/1.x 201 Created
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach:     EMBEDDED
Date:                   Sun, 06 Aug 2017 15:03:47 GMT
Location:               https://www.testbank.com/psd2/v2/payments/sepa-
credit-transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100
Content-Type:           application/json

{
    "transactionStatus": "RCVD",
    "paymentId": "3d9a81b3-a47d-4130-8765-a9c0ff861100",
    "_links": {
        "startAuthorisationWithPsuAuthentication": {"href":
"/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-a47d-4130-8765-
a9c0ff861100/authorisations"},
         "self": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100"}
              }
}
```

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### 3.4.2 Payment Initiation with pain.001 XML message as Payment Instruction

#### Call

```
POST /v2/payments/{payment-product}
```

Creates a payment initiation request at the ASPSP.

**Remark:** The underlying pain.001 structure which is transported in the content body of this request may only contain one payment. In cases of the initiation of bulk payments, the endpoint defined in Section 3.4.3.2 shall be used.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product, e.g. SCT. The default list of products supported in this standard is:<br>• pain.001-sepa-credit-transfers<br>• pain.001-instant-sepa-credit-transfers<br>• pain.001-target-2-payments<br>• pain.001-cross-border-credit-transfers<br>Further products might be published by the ASPSP within its XS2A documentation.<br>**Remark**: For all SEPA Credit Transfer based endpoints which accept XML encoding, the XML pain.001 schemes provided by EPC[6] are supported by the ASPSP as a minimum for the body content. Further XML schemes might be supported by some communities.<br>**Remark**: For cross-border and target-2 payments only community wide pain.001 schemes do exist, cp. [oFA PFSM]. |

#### Query Parameters

The same query parameter definition as in Section 3.4.1 applies.

[6] Compare https://www.europeanpaymentscouncil.eu/what for all related payment initiation schema definitions.


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### Request Header

The same header as in Section 3.4.1, only the content type indicates XML encoding ("application/xml").

### Request Body

A pain.001 structure corresponding to the chosen payment product, see above on XML schema support.

### Response

The same response as in Section 3.4.1.

### Example

#### *Request*

```
POST https://api.testbank.com/psd2/v2/payments/pain.001-sepa-credit-
transfers
Content-Type:           application/xml
X-Request-ID:           "123e4567-e89b-12d3-a456-426655440000"
PSU-IP-Address:         "192.168.8.78"
PSU-User-Agent:         "Chrome_v12"

<Document xmlns="urn:iso:std:iso:20022:tech:xsd:pain.001.001.03">
  <CstmrCdtTrfInitn>
    <GrpHdr>
      <MsgId>MIPI-123456789RI-123456789</MsgId>
      <CreDtTm>2017-02-14T20:23:34.000Z</CreDtTm>
      <NbOfTxs>1</NbOfTxs>
      <CtrlSum>123</CtrlSum>
      <InitgPty>
        <Nm>PaymentInitiator</Nm>
        <Id><OrgId><Othr><Id>DE10000000012</Id>
          <SchmeNm><Prptry>PISP</Prptry></SchmeNm></Othr></OrgId></Id>
      </InitgPty>
    </GrpHdr>
    <PmtInf>
      <PmtInfId>BIPI-123456789RI-123456789</PmtInfId>
      <PmtMtd>TRF</PmtMtd>
      <NbOfTxs>1</NbOfTxs>
      <CtrlSum>123</CtrlSum>
      <PmtTpInf><SvcLvl><Cd>SEPA</Cd></SvcLvl></PmtTpInf>
      <ReqdExctnDt>2017-02-15</ReqdExctnDt>
      <Dbtr><Nm>PSU Name</Nm></Dbtr>
      <DbtrAcct><Id><IBAN>DE87200500001234567890</IBAN></Id></DbtrAcct>
```


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```
      <ChrgBr>SLEV</ChrgBr>
      <CdtTrfTxInf>
        <PmtId><EndToEndId>RI-123456789</EndToEndId></PmtId>
        <Amt><InstdAmt Ccy="EUR">123</InstdAmt></Amt>
        <Cdtr><Nm>Merchant123</Nm></Cdtr>
        <CdtrAcct><Id><IBAN> DE23100120020123456789</IBAN></Id></CdtrAcct>
        <RmtInf><Ustrd>Ref Number Merchant-123456</Ustrd></RmtInf>
      </CdtTrfTxInf>
    </PmtInf>
  </CstmrCdtTrfInitn>
</Document>
```

**Response**

See the example responses in JSON encoding in Section 3.4.1

### 3.4.3 Payment Initiation for Bulk Payments

This function supports the upload of bulk payments. This function is an **optional** function of the ASPSP in the XS2A interface. It can be offered by the ASPSP in JSON or XML modelling of the payment data, i.e. the body content.

#### 3.4.3.1 Bulk Payment Initiation with JSON encoding of the Payment Instruction

**Call**

```
POST /v2/bulk-payments/{payment-product}
```

Creates a bulk payment initiation request at the ASPSP.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint for bulk payments e.g. for a bulk SEPA Credit Transfers (SCT). These endpoints are optional. Some default names are:<br>• sepa-credit-transfers<br>• instant-sepa-credit-transfers<br>• target-2-payments<br>• cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/endpoints will be supported. |


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| Attribute | Type | Description |
|---|---|---|
| | | For definitions of basic non euro generic products see [oFA DomDef]..<br><br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

**Query Parameters**

The same query parameter definition as in Section 3.4.1 applies.

**Request Headers**

The same HTTP header definition as in Section 3.4.1 applies.

**Request Body**

The body definition with the JSON based SEPA bulk payments and other bulk payment formats are contained in [oFA PFSM].

**Response**

The responses definition is analogous to the initiation of single payments, cp. Section 3.4.1.

**Remark:** Please note that the optional batchBookingPreferred flag shall be ignored by the ASPSP if batch booking is not supported.

**Recommendations:**

- If the bulk entry contains transactions without a reference, which are rejected, then the whole bulk should be rejected.
- ASPSPs might make the usage of instructionIds or UETR mandatory for bulk initiations.

#### 3.4.3.2 Bulk Payment Initiation with XML encoding of the Payment Instruction

**BOI remarks**: not supported.

**Call**

```
POST /v2/bulk-payments/{payment-product}
```

Creates a bulk payment initiation request at the ASPSP.

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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint for bulk payments e.g. for a bulk SEPA Credit Transfers (SCT). These endpoints are optional. Some default names are:<br>• pain.001-sepa-credit-transfers<br>• pain.001-instant-sepa-credit-transfers<br>• pain.001-proprietary-credit-transfers<br>The ASPSP will publish which of the payment products/endpoints will be supported.<br>**Remark**: For all SEPA Credit Transfer based endpoints which accept XML encoding, the XML pain.001 schemes provided by EPC[7] are supported by the ASPSP as a minimum for the body content. Further XML schemes might be supported by some communities.<br>**Remark**: Payment Initiations might be further restricted by the ASPSP on size or on multiplicity of entries. This could be e.g. a restriction on the usage of one ordering party or/and one debtor account.<br>**Remark**: For proprietary payments, only community wide pain.001 schemes do exist, cp [oFA PFSM]. |

### Query Parameters

The same query parameter definition as in Section 3.4.2 applies.

### Request Headers

The same HTTP header definition as in Section 3.4.2 applies

[7] Compare https://www.europeanpaymentscouncil.eu/what-we-do for all related payment initiation schema definitions.


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**Request Body**

A pain.001 structure corresponding to the chosen payment product, see above on XML schema support.

**Response**

The responses definition is analogous to the initiation of single XML based payments, cp Section 3.4.2.

### 3.4.4 Initiation for Standing Orders for Recurring/Periodic Payments

The recurring payments initiation function will be covered in this specification as a specific standing order initiation: The TPP can submit a recurring payment initiation where the starting date, frequency and conditionally an end date is provided. Once authorised by the PSU, the payment then will be executed by the ASPSP, if possible, following this "standing order" as submitted by the TPP. No further TPP action is needed. This payment is called a periodic payment in this context to differentiate the payment from recurring payment types, where third parties are initiating the same amount of money e.g. payees for using credit card transactions or direct debits for recurring payments of goods or services. These latter types of payment initiations are not part of this interface.

#### 3.4.4.1 Standing Orders for Recurring/Periodic Payments in JSON encoding

**Call**

```
POST /v2/periodic-payments/{payment-product}
```

**Path Parameters**

The same path parameter to determine the underlying payment type of the recurring payment as in Section 3.4.1 applies.

**Query Parameters**

The same query parameter definition as in Section 3.4.1 applies.

**Request Header**

For this initiation the same header as in Section 3.4.1 is used.

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### Request Body

First, any tag of the underlying payment product as defined in [oFA PFSM] can be used. In addition the following tags are used:

| Tag | Type | Usage | Description |
|---|---|---|---|
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| executionRule | String | Optional | "following" or "preceding" supported as values. This data attribute defines the behavior when recurring payment dates falls on a weekend or bank holiday. The payment is then executed either the "preceding" or "following" working day.<br><br>ASPSP might reject the request due to the communicated value, if rules in Online-Banking are not supporting this execution rule. |
| endDate | ISODate | Optional | The last applicable day of execution<br><br>If not given, it is an infinite standing order. |
| frequency | Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| dayOfExecution | Max2Text | Conditional | "31" is ultimo.<br><br>The format is following the regular expression \d{1,2}.<br>Example: The first day is addressed by "1".<br><br>The date is referring to the time zone of the ASPSP. |
| monthsOfExecution | Array of Max2Text | Conditional | The format is following the regular expression \d{1,2}. The array is restricted to 11 entries. The values contained In the array entries shall all |

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| Tag | Type | Usage | Description |
|---|---|---|---|
| | | | be different and the maximum value of one entry is 12.<br><br>This attribute is contained if and only if the frequency equals "MonthlyVariable".<br><br>Example: An execution on January, April and October each year is addressed by ["1". "4", "10"]. |

### Response

The formats of the Payment Initiation Response resp. the subsequent transaction authorisation process for standing orders with JSON based payment data equals the corresponding Payment Initiation Response resp. the subsequent transaction authorisation process for a single payment containing JSON based payment data.

> **Remark**: Please note that for the payment initiation of standing orders, the ASPSP will always mandate an SCA with dynamic linking, exemptions are not permitted.

### Example

#### *Request for Variant 1 with full JSON encoding*

```
POST https://www.testbank.com/psd2/v2/periodic-payments/sepa-credit-
transfers
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address:         192.168.8.78
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:02:37 GMT
{

 "debtorAccount": {"iban": "DE40100100103307118608"},
 "instructedAmount": {"currency": "EUR", "amount": "123"},
 "creditor": {"name": "Merchant123"},
 "creditorAccount": {"iban": "DE23100120020123456789"},
 "remittanceInformationUnstructured": ["Ref Number Abonnement"],
 "startDate": "2018-03-01",
 "executionRule": "preceding",
 "frequency": "Monthly",
```


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```
 "dayOfExecution": "1"
}
```

#### 3.4.4.2 Payment Initiation for Standing Orders with XML based payment data

The standing order management data will be JSON based in the XS2A API also if the related payment data is based on XML syntax. For this reason, the Payment Initiation Request for standing orders is defined as an HTTP multipart message in this case.

**Call**

```
POST /v2/periodic-payments/{payment-product}
```

**Path Parameters**

The same path parameter to determine the underlying payment type of the recurring payment as in Section 3.4.2 applies.

**Query Parameters**

The same query parameter and HTTP header definition as in Section 3.4.1 applies.

**Request Header**

The same header definitions as in Section 3.4.1 are used with the exception of the Content-Type Header. Here the following requirement applies:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | multipart/form-data; boundary=AaaBbbCcc recommended |

**Remark**: The ASPSP shall also accept other boundaries chosen by the API Client.

**Request Body, Part 1**

The first part of the body contains first a sub-header section as defined by the following table:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Disposition | String | Mandatory | form-data; name="xml_sct" |
| Content-Type | String | Mandatory | application/xml |

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The first part content of the body is defined as for the Payment Initiation Request for a single request in an XML (pain.001) based format, cp. Section 3.4.2.

**Request Body, Part 2**

The second part of the body contains first a sub-header section as defined by the following table:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Disposition | String | Mandatory | form-data; name="json_standingorderType" |
| Content-Type | String | Mandatory | application/json |

The second part content of the body is defined as follows:

| Tag | Type | Usage | Description |
|---|---|---|---|
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| executionRule | String | Optional | "following" or "preceding" supported as values. This data attribute defines the behavior when recurring payment dates falls on a weekend or bank holiday. The payment is then executed either the "preceding" or "following" working day.ASPSP might reject the request due to the communicated value, if rules in Online-Banking are not supporting this execution rule. |
| endDate | ISODate | Optional | The last applicable day of execution<br><br>If not given, it is an infinite standing order. |
| frequency | Frequency Code | Mandatory | Frequency of the recurring payment resulting from this standing order. |
| dayOfExecution | Max2Text | Conditional | "31" is ultimo |
| monthsOfExecution | Array of Max2Text | Conditional | The format is following the regular expression \d{1,2}. The array is restricted to 11 entries. The values contained In the |

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| Tag | Type | Usage | Description |
|---|---|---|---|
| | | | array entries shall all be different and the maximum value of one entry is 12.<br><br>This attribute is contained if and only if the frequency equals "MonthlyVariable".<br><br>Example: An execution on January, April and October each year is addressed by ["1". "4", "10"]. |

### Response

The formats of the Payment Initiation Response resp. the subsequent transaction authorisation process for standing orders with XML based payment data equals the corresponding Payment Initiation Response resp. the subsequent transaction authorisation process for a single payment containing XML based payment data.

### Example

### Request with JSON Order Execution Information and XML Payment Information

```
POST https://www.testbank.com/psd2/v2/periodic-payments/sepa-credit-
transfers
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address:         192.168.8.78
PSU-GEO-Location:       GEO:52.506931;13.144558
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Sun, 06 Aug 2017 15:02:37 GMT
Content-Type: multipart/form-data; boundary=AaaBbbCcc
--AaaBbbCcc
Content-Disposition: form-data; name="xml_sct"
Content-Type: application/xml
<Document xmlns="urn:iso:std:iso:20022:tech:xsd:pain.001.001.03">
  <CstmrCdtTrfInitn>
    <GrpHdr>
      <MsgId>MIPI-123456789RI-123456789</MsgId>
      <CreDtTm>2017-02-14T20:23:34.000Z</CreDtTm>
      <NbOfTxs>1</NbOfTxs>
      <CtrlSum>123</CtrlSum>
      <InitgPty>
        <Nm>PaymentInitiator</Nm>
        <Id><OrgId><Othr><Id>DE10000000012</Id>
```


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```
                <SchmeNm><Prptry>PISP</Prptry></SchmeNm></Othr></OrgId></Id>
      </InitgPty>
    </GrpHdr>
    <PmtInf>
      <PmtInfId>BIPI-123456789RI-123456789</PmtInfId>
      <PmtMtd>TRF</PmtMtd>
      <NbOfTxs>1</NbOfTxs>
      <CtrlSum>123</CtrlSum>
      <PmtTpInf><SvcLvl><Cd>SEPA</Cd></SvcLvl></PmtTpInf>
      <ReqdExctnDt>2017-02-15</ReqdExctnDt>
      <Dbtr><Nm>PSU Name</Nm></Dbtr>
      <DbtrAcct><Id><IBAN>DE87200500001234567890</IBAN></Id></DbtrAcct>
      <ChrgBr>SLEV</ChrgBr>
      <CdtTrfTxInf>
        <PmtId><EndToEndId>RI-123456789</EndToEndId></PmtId>
        <Amt><InstdAmt Ccy="EUR">123</InstdAmt></Amt>
        <Cdtr><Nm>Merchant123</Nm></Cdtr>
        <CdtrAcct><Id><IBAN>DE23100120020123456789</IBAN></Id></CdtrAcct>
        <RmtInf><Ustrd>Ref Number Merchant-123456</Ustrd></RmtInf>
      </CdtTrfTxInf>
    </PmtInf>
  </CstmrCdtTrfInitn>
</Document>
--AaaBbbCcc
Content-Disposition: form-data; name="json_standingordermanagement"
Content-Type: application/json
{"startDate": "2018-03-01",
 "frequency": "Monthly",
 "executionRule": "preceding",
 "dayOfExecution": "01"
}
--AaaBbbCcc--
```

## 3.5 Get Transaction Status Request

### Call

```
GET /v2/{payment-service}/{payment-product}/{paymentId}/status
```

Can check the status of a payment initiation.


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### Path Parameter

| Attribute | Type | Description |
|---|---|---|
| payment-service | String | The possible values are “payments”, “bulk-payments” and “periodic-payments” |
| payment-product | String | The payment product, under which the payment under paymentId has been initiated.<br><br>It shall be checked by the ASPSP, if the payment-product is matching the payment initiation addressed by paymentId. |
| paymentId | String | Resource Identification of the related payment. |

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current PIS transaction. |
| Accept | String | Optional | The TPP can indicate the formats of status reports supported together with a prioritisation following the HTTP header definition.<br><br>The formats supported by this specification are<br><br>• xml<br>• JSON<br><br>If only one format is supported by the TPP, which is not supported by the ASPSP this can lead to a rejection of the request. |

### Query Parameters

No specific query parameters defined.

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### Request Body

No request body.

### Response Code

The HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body in Case of JSON based endpoint

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | In case where the Payment Initiation Request was JSON encoded as defined in Section 3.4.1, the status is returned in this JSON based encoding.<br>**Remark:** If the PSU does not complete a required SCA within the required timeframe the payment resource's status must be set to "RJCT". Particularly, if a multi-level-SCA is required and the number of successful SCAs during the required timeframe is insufficient, the status must also be set to "RJCT". |
| reasonCode | Status Reason Code | {Or - Optional | Additional information on the reason for e.g. rejecting the request |
| reasonProprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request.<br>**Remark:** If an ISO Code is available it should be used instead of Proprietary Reasons. Further restrictions could be defined by API Access Schemes. |
| fundsAvailable | Boolean | Conditional | This data element is contained, if supported by the ASPSP, if a funds check has been performed and if the transactionStatus is "ACTC", "ACWC" or "ACCP". |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fee relevant in case of an |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | underlying payment initiation service. This field includes the entry of the currencyConversionFees if applicable. |
| currencyConversion Fees | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer, in case of an underlying payment initiation service. |
| estimatedTotalAmount | Amount | Optional | The amount which is estimated to be debted from the debtor account in case of an underlying payment initiation service.<br><br>**Note:** This amount includes fees. |
| estimatedInterbank SettlementAmount | Amount | Optional | The estimated amount to be transferred to the payee in case of an underlying payment initiation service. |
| psuMessage | Max500Text | Optional | For single payment, EndToEndId must be transferred in this field.If it doesn't exist, NA must be displayed |
| ownerNames | Array of Account Owner | Optional | List of owner names.<br><br>Should only be delivered after successful SCA. Could be restricted to the current PSU by the ASPSP. |
| _links | Links | Optional | Should refer to next steps if a potential situation blocking the finalisation of the payment can be resolved via the interface e.g. for re-submission of credentials. |
| apiClientMessages | Array of API Client Message Information | Optional | Messages to the TPP on operational issues. |

**NOTE**: If a payment initiation was rejected for "banking" reasons, e.g. insufficient funds or limits, the "reasonCode" or "reasonProprietary" attribute will offer more information about the rejection reason. Please note, that some related proprietary message used before in

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version1.3.x of the NextGenPSD2 API have been removed from the standard to mandate "reasonCode" support by ASPSPs under certain conditions.

**Response Body in Case of (SEPA-)XML based endpoint**

If the Payment Initiation Request is encoded in XML, cp. Section 3.4.2, then the status might be returned by the ASPSP as a pain.002 structure or as JSON structure as defined above. The ASPSP can choose in this case one of the two status formats or offer both. In case of an XML format, the chosen XML schema of the Status Request is following the XML schema definitions of the original pain.001 schema.

**Note:** .If several pain.002 files are available for the addressed pain.001 message, several pain.002 files might be transported in the response body. The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header. In all cases, the Content-Type header shall be adapted accordingly.

**Example**

***Example for JSON based endpoint***

***Request***

```
GET https://api.testbank.com/psd2/v2/payments/3d9a81b3-a47d-4130-8765-
a9c0ff861100/status
Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:07 GMT
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
Content-Type:           application/json

{
  "transactionStatus": "ACCP",
  "fundsAvailable": true
}
```

***Example for XML based endpoint***

***Request***

```
GET https://api.testbank.com/psd2/v2/payments/pain.001-sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/status
Accept:                 application/xml, application/json;q=0.9
```


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```
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:07 GMT
```

### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
Content-Type:           application/xml

<Document xmlns="urn:iso:std:iso:20022:tech:xsd:pain.002.001.03">
..<CstmrPmtStsRpt>
….<GrpHdr>
……<MsgId>457245725672568972690 6</MsgId>
......<CreDtTm>2017-02-14T20:24:56.021Z</CreDtTm>
......<DbtrAgt><FinInstnId><BIC>ABCDDEFF</BIC></FinInstnId></DbtrAgt>
......<CdtrAgt><FinInstnId><BIC>DCBADEFF</BIC></FinInstnId></CdtrAgt>
....</GrpHdr>
....<OrgnlGrpInfAndSts>
......<OrgnlMsgId>MIPI-123456789RI-123456789</OrgnlMsgId>
......<OrgnlMsgNmId>pain.001.001.03</OrgnlMsgNmId>
......<OrgnlCreDtTm>2017-02-14T20:23:34.000Z</OrgnlCreDtTm>
......<OrgnlNbOfTxs>1</OrgnlNbOfTxs>
......<OrgnlCtrlSum>123</OrgnlCtrlSum>
......<GrpSts>ACCT</GrpSts>
....</OrgnlGrpInfAndSts>
....<OrgnlPmtInfAndSts>
......<OrgnlPmtInfId>BIPI-123456789RI-123456789</OrgnlPmtInfId>
......<OrgnlNbOfTxs>1</OrgnlNbOfTxs>
......<OrgnlCtrlSum>123</OrgnlCtrlSum>
......<PmtInfSts>ACCT</PmtInfSts>
....</OrgnlPmtInfAndSts>
..</CstmrPmtStsRpt>
</Document>
```

## 3.6 Get Bulk Extended Status Request

### Call

```
GET /v2/bulk-payments/{payment-product}/{paymentId}/extended-status
```

Can check the overall status of a bulk payment initiation together with reporting rejected transactions.

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**Path Parameter**

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The payment product, under which the payment under paymentId has been initiated. The standardised payment products covered for this service are<br><br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- crossborder-payments<br><br>**NOTE**: This report is not supported for XML based bulk payments. |
| paymentId | String | Resource Identification of the related bulk payment. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current PIS transaction. |

**Query Parameters**

No specific query parameters defined.

**Request Body**

No request body.

**Response Code**

The HTTP response code equals 200.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| groupStatus | Group Status | Mandatory | This is the bulk status as defined in the related bulk status endpoint. |
| reasonCode | Status Reason Code | {Or - Optional | Additional information on the reason for e.g. rejecting the request |
| reasonProprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request.<br><br>Remark: If an ISO Code is available it should be used instead of Proprietary Reasons. Further restrictions could be defined by API Access Schemes. |
| fundsAvailable | Boolean | Conditional | This data element is contained, if supported by the ASPSP, if a funds check has been performed and if the transactionStatus is "ACTC", "ACWC" or "ACCP". |
| originalTransaction InformationAndStatus | Array of Original Transaction Information And Status | Conditional | Provides information on the original transactions to which the status report message refers and which have been rejected. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fee relevant in case of an underlying payment initiation service. This field includes the entry of the |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | currencyConversionFees if applicable. |
| currencyConversionFees | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer, in case of an underlying payment initiation service. |
| estimatedTotalAmount | Amount | Optional | The amount which is estimated to be debted from the debtor account in case of an underlying payment initiation service.<br><br>Note: This amount includes fees. |
| estimatedInterbankSettlementAmount | Amount | Optional | The estimated amount to be transferred to the payee in case of an underlying payment initiation service. |
| psuMessage | Max500Text | Optional | |
| ownerNames | Array of Account Owner | Optional | List of owner names.<br><br>Should only be delivered after successful SCA. Could be restricted to the current PSU by the ASPSP. |
| _links | Links | Optional | Should refer to next steps if a potential situation blocking the finalisation of the payment can be resolved via the interface e.g. for re-submission of credentials. |
| apiClientMessages | Array of API Client Message Information | Optional | Messages to the TPP on operational issues. |

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### Example

#### *Request*

```
GET https://api.testbank.com/psd2/v2/bulk-payments/sepa-credit-transfers/
3d9a81b3-a47d-4130-8765-a9c0ff861100/extended-status
Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:07 GMT
```

#### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:04:08 GMT
Content-Type:           application/json

{
  "groupStatus": "PART",
  "originalTransactionInformationAndStatus": [
    {
      "originalUetr": "de2da6c9-18be-48d4-8053-867ed90a316a",
      "transactionStatus": "RJCT"
    },
    {
      "originalUetr": "de2da6c9-18be-48d4-8053-867ed90a317a",
      "transactionStatus": "RJCT"
    }
  ]
}
```

## 3.7 Get Payment Request

```
GET /v2/{payment-service}/{payment-product}/{paymentId}
```

Returns the content of a payment object.

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-service | String | The possible values are “payments”, “bulk-payments” and “periodic-payments” |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The payment product, under which the payment under paymentId has been initiated. |
| paymentId | String | ID of the corresponding payment initiation object as returned by an Payment Initiation Request |

**Query Parameters**

No specific query parameter.

**Request Headers**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current PIS transaction. |

**Request Body**

No request body.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Code**

The HTTP response code equals 200.

**Response Body**

The response body is dependent on the parameter {payment-service}. It contains the view of the ASPSP on the addressed payment resource.

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For JSON based {payment-services}, the payment resources may contain e.g. in addition the transaction status data element.

**Note:** In addition, the payment resource may contain the debtorName field even if it was not provided by the TPP. This enables the ASPSP to transport the account owner name to the PISP in case where the regulatory need is provided and if not provided by other means like the List of Addressable Accounts Service or general AIS services for AISPs.

**Note:** According to item 40 of [EBA-OP2] the payment resource shall contain the debtorAccount after the payment has been initiated successfully, even if it was not provided by the TPP within the initial call.

For XML based {payment-services}, the pain.001 objects are returned. In case of a submitted standing order where the payment information has been submitted in a pain.001 format, the resource content is returned in a multipart message as the submission.

In all cases, the data element entries can be different from the submission entries, if the ASPSP has reformatted the content, e.g. the requested execution dates or character sets in the unstructured remittance information.

## 3.8 Payment Cancellation Request

### Call

```
DELETE /v2/{payment-service}/{payment-product}/{paymentId}
```

It initiates the cancellation of a payment. Depending on the payment-service, the payment-product and the ASPSP's implementation, this TPP call might be sufficient to cancel a payment. If an authorisation of the payment cancellation is mandated by the ASPSP, a corresponding hyperlink will be contained in the response message. These two cases will be separated also in using different 2xx HTTP response codes.

### Path Parameter

| Attribute | Type | Description |
|---|---|---|
| payment-service | String | The possible values are “payments”, “bulk-payments” and “periodic-payments” |
| payment-product | String | The payment product, under which the payment under paymentId has been initiated. |

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| Attribute | Type | Description |
|---|---|---|
| | | It shall be checked by the ASPSP, if the payment-product is matching the payment initiation addressed by paymentId. |
| paymentId | String | Resource Identification of the related payment. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the current PIS transaction or in a preceding AIS service in the same session, if no such OAuth2 SCA approach was chosen in the current PIS transaction. |

**NOTE:** The data overview in Section 3.2 defines more request headers, like for PSU identification, PSU environment information, SCA Approach or explicit authorisation preferences of the TPP as well as redirect information. These parameters are described in detail in [oFA PFSM] or in the related Open API files. These parameters apply to all transactions, which (potentially) need an authorisation within the openFinance API Framework and are left out here to achieve a better readablilty.

**Query Parameters**

No specific query parameters defined.

**Request Body**

No request body.

**Response Code**

If the DELETE is sufficient for cancelling the payment: HTTP response code 204.

If the DELETE is not sufficient for cancelling the payment since an authorisation of the cancellation by the PSU is needed: HTTP response code 202.

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**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

In case of HTTP code 204, no response body is used.

In case of HTTP code 202, the following body is used:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionStatus | Transaction Status | Mandatory | Transaction Status of the payment resource |
| scaMethods | Array of Authentication Objects | Conditional | This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWith AuthenticationMethodsSelection" contained in the response body.<br><br>These methods shall be presented towards the PSU for selection by the TPP. |
| chosenSca Method | Authentication Object | Conditional | This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified e.g. with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected. |
| challengeData | Challenge | Conditional | It is contained in addition to the data element "chosenScaMethod" if challenge data is needed for SCA. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | In rare cases this attribute is also used in the context of the "startAuthorisationWithPsuAuthentication" or "startAuthorisactionWithEncryptedPsuAuthentication" link. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in [oFA PFSM] for all Transaction Initiation Response messages or response message for other requests which need authorisation. These links will also be contained in the related Open API files.<br><br>**Remark**: All links can be relative or full links, to be decided by the ASPSP. |

**NOTE:** The opening of all related authorisation links in the response also allows implicit authorisation for DELETE processes in difference to earlier versions of these specifications.

***Example in case the DELETE process as such is already sufficient for cancelling the payment***

***Request***

```
DELETE https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100

Content-Type            application/json
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7769
Date                    Sun, 13 Aug 2017 17:05:37 GMT
```

***Response***

```
HTTP/1.x 204
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7769
Date:                   Sun, 13 Aug 2017 17:05:38 GMT
```


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### *Example in case an authorisation of the cancellation is needed by the PSU*

### *Request*

### *Request*

```
DELETE https://api.testbank.com/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100

Content-Type            application/json
X-Request-ID            99391c7e-ad88-49ec-a2ad-99ddcb1f7769
Date                    Sun, 13 Aug 2017 17:05:37 GMT
```

### *Response*

```
HTTP/1.x 202
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7769
Date:                   Sun, 13 Aug 2017 17:05:38 GMT
{"transactionStatus": "ACTC",
"_links": {
        "self": {"href": "/psd2/v2/payments/sepa-credit-transfers/3d9a81b3-
a47d-4130-8765-a9c0ff861100"},
        "status": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/status"},
        "startAuthorisation": {"href": "/psd2/v2/payments/sepa-credit-
transfers/3d9a81b3-a47d-4130-8765-a9c0ff861100/cancellation-
authorisations"}
  }
}
```

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# 4 Account Information Service

**BOI remarks**: These Account Endpoints are relevant only for merchant's accounts manageged by acquirers, according to sections 24.2.19-24.2.20 and 36.19-36.20 in ordinance 368.

Please note that Transactions endpoint which described here are not relevant for acquirers. They will implement section 4 in the Implementation Guidelines of Extended Account Information Services.

Also, the Card Accounts Endpoints not relevant for the Israeli market at this stage.

## Supported Sub-Services

This specification foresees different types of account information services:

- Transaction lists for a given account with transactions with booking status booked or pending including balances if applicable,

  **BOI remarks:** see remarks in section 4.

- List of standing orders of a given account, reported as transactions with booking status information,

  **BOI remarks:** see remarks in section 4.

- Balances of a given account,
- A list of addressable accounts,
- Account details of a given account or of the list of all accessible accounts relative to a granted consent, and
- Account details might include the account owner name, where specific requirements on the consent process might apply, see below.

Hereby the definition of the list of **addressable** and **accessible** accounts is as follows:

**Definition:** The list of **addressable** accounts of an ASPSP related to a PSU is the list of accounts of a PSU which are open for access through the XS2A API according to the definition of payment accounts provided by [PSD2].

**Definition:** The list of **accessible** accounts of an ASPSP related to a PSU's consent is the list of accounts, where the consent of the PSU has been granted to at least one of the defined account information types.

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**Note:** The Read Data Request for the list of addressable accounts and for account details of a given account is syntactically identical. The difference is only in the underlying consent resource, referred to through the HTTP header parameter "Consent-ID".

**Example:** An ASPSP is providing IBAN1 and IBAN2 to a PSU. The PSU has granted the TPP the consent to access transactions and balances of IBAN1 only. In this case, the addressable accounts are IBAN1 and IBAN2, the list of accessible accounts consists only of IBAN1.

**Establishing Consent and Reading Account Data**

Within this specification, the Account Information Service is separated in two phases:

- Establish Consent on Account Information as specified in detail in [oFA-CO].

  Within this phase of the Account Information Service, the PSU is giving the consent to the AISP on

  - the accounts accessible for the Account Information Service,
  - the type of Account Information Service to grant an access to (see list at the beginning of this section),
  - the multiplicity of the Account Information Service, i.e. a one-off or recurring access, and
  - in the latter case on the duration of the consent in days or the maximum offered by the ASPSP and optionally the frequency of a recurring request.

  This consent is then authorised by the PSU towards the ASPSP with an SCA as mandated by [EBA-RTS].

  The result of this process is a consent resource. A link to this resource is returned to the AISP within this process. The TPP can retrieve the consent object by submitting a GET method on this resource. This object contains a.o. the detailed access rights, the current validity and a Consent-ID token.

  **NOTE:** Please note that the Establish Consent on Account Information process as defined in [oFA-CO] technically allows to address accounts not covered by PSD2, e.g. loan accounts. Such a consent request will only be authorised within premium services of a related API Access Schemes and rejected in a PSD2 compliance solution.

- Read Account Data

  Within this phase, the AISP gets access to the account data as defined by the PSU's consent, see above. The Read Account Data Request is addressing the corresponding consent resource by using the above mentioned link to this resource.

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The Read Account Data Request will indicate

- the type of account data to be accessed,
- the identification of the addressed account, where applicable,
- whether a PSU has directly initiated the request real-time,
- whether balances should be delivered in addition where applicable,
- in case of transaction lists as Account Information type additionally
    - the addressed account identification and
    - the period of the transaction list
    - in addition optionally a delta-flag indicating the request for a delta-report relative to the last request with additional data.
    - the preferred formats of the transaction lists.

For the account access, the usual bank accounts and (credit) card accounts are separated on end-points, since the data is usually separated in the ASPSP backend.

In case of a one-off consent, the access might be denied if the AISP is requesting the data more than once or if the validity of the consent has been timed out, e.g. after 20 minutes of the finalisation of the consent mechanism, depending on the ASPSP implementation.

The read data access will be further denied in case where the type of Account Information Service does not comply with the consented service, or if the actual access is not matching the consented duration or frequency.

If the PSU's consent is given to access a list of accounts, the frequency of the access is checked by the ASPSP per account that has been accessed and per PSU that has given consent for the access.

### 4.1 Read Account Data Flow

The Read Account Data flow requires first the flow for establishing the related consent within the XS2A APIs. These flows are provided in [oFA-CO]. The actual Read Account Data flow

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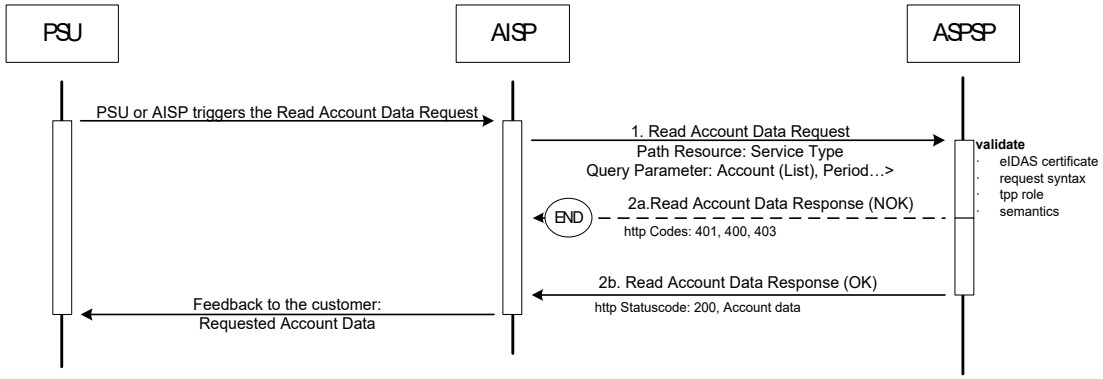
then is independent from the corresponding Consent Management flow. It is a simple Request/Response process as follows:





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## 4.2 Data Overview Account Information Service

The following table defines the technical description of the abstract data model as defined in [oFA-OR-Com]for the account information service. The columns give an overview on the API protocols as follows:

- The "Data element" column is using the abstract data elements following [oFA-OR-Com] to deliver the connection to rules and role definitions in this document.
- The "Attribute encoding" is giving the actual encoding definition within the XS2A API as defined in this document.
- The "Location" columns define, where the corresponding data elements are transported as HTTP parameters, resp. are taken from eIDAS certificates. For HTTP Parameters, the "path" subsumes host, port and API basepath.
- The "Usage" column gives an overview on the usage of data elements in the different API Calls. Within [oFA-OR-Com], the XS2A calls are described as abstract API calls. These calls will be technically realised as HTTP POST, PUT, DELETE and GET commands. The calls are divided into the following calls:
    - The Read Data Request is the request to retrieve Account Information data, which is addressed to different endpoints with different parameters.

**NOTE:** The account information service requires first a technical consent on account access confirmed by SCA of the PSU. This service is described in [oFA-CO].

The following usage of abbreviations in the Location and Usage columns is defined, cp. also [oFA-OR-Com] for details.

- x: This data element is transported on the corresponding level.
- m: Mandatory
- o: Optional for the TPP to use
- c: Conditional. The Condition is described in the API Calls, condition defined by the ASPSP

The following table does not only define requirements on request messages but also requirements on data elements for the response messages. Tese requirements only apply to positive responses (i.e. HTTP response code 2xx). In case of error, generic error information as defined in [oFA PFSM] is provided together with an HTTP response code 40x.

**Remark:** The more technical functions like GET …/{consentId} and GET …/{authorisationId} and the Cancellation Request are not provided in this overview but only covered in detail in the related Open API files.

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**BOI remarks**: This table content may not be up to date. The full requirements are in the IG body.

| Data element | Attribute encoding | Location | | | | | Usage | |
|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Read Data Req. | Read Data Resp |
| Provider Identification | | x | | | | | m | |
| TPP Registration Number | | | | | | x | m | |
| TPP Name | | | | | | x | m | |
| TPP Roles | | | | | | x | m | |
| TPP National Competent Authority | | | | | | x | m | |
| Request Identification | X-Request-ID | | | x | | | m | m |
| Consent ID[8] | Consent-ID | | | x | | | m | |
| Access Token (from optional OAuth2) | Authorization | | | x | | | c | |
| API Client Signing Electronic Signature | x-jws-signature | | | x | | | c | |
| Further signature related data | Digest | | | x | | | c | |
| PSU Message Information | psuMessage | | | | x | | | o |
| API Client Message Information | apiClientMessages | | | | x | | | o |

[8] The related token is retrieved by processes defined in [oFA-CO]. Please note that the syntax in the Consent API is consentId since the attribute is transported on body level there.


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| Data element | Attribute encoding | Location | | | | | Usage | |
|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Read Data Req. | Read Data Resp |
| IP Address PSU | PSU-IP-Address | | | x | | | c | |
| PSU IP Port | PSU-IP-Port | | | x | | | o | |
| Further PSU related Information | PSU-Accept | | | x | | | o | |
| | PSU-Accept-Charset | | | x | | | o | |
| | PSU-Accept-Encoding | | | x | | | o | |
| | PSU-Accept-Language | | | x | | | o | |
| | PSU-Http-Method | | | x | | | o | |
| | PSU-Device-ID | | | x | | | o | |
| PSU User Agent | PSU-User-Agent | | | x | | | o | |
| GEO Information | PSU-Geo-Location | | | x | | | o | |
| PSU Account | accountId | x | | | | | c | |
| PSU Account | account | | | | x | | | m |
| Date From | dateFrom | | x | | | | c | |
| Date To | dateTo | | x | | | | c | |
| Transaction From | entryReferenceFrom | | x | | | | o | |
| Booking Status | bookingStatus | | x | | | | o | |
| Delta Indicator | deltaList | | x | | | | o | |
| With Balance Flag | withBalance | | x | | | | o | |
| PSU Account List | Array of accountDetails | | | | x | | | c |
| PSU Account Details | accountDetails | | | | x | | | c |

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| Data element | Attribute encoding | Location | | | | | Usage | |
|---|---|---|---|---|---|---|---|---|
| | | Path | Query Param. | Header | Body | Certificate | Read Data Req. | Read Data Resp |
| Balances | balances | | | | x | | | c |
| Transactions | transactions | | | | x | | | c |
| PSU Card Account Details | accountDetails | | | | x | | | c |
| Card Transactions | cardTransactions | | | | x | | | c |

**PSU IP Address/Port and Further PSU related Information**

The above table addresses several PSU related context data. These data, its importance and its usage are defined in detail in [oFA PFSM]. They are not mentioned anymore in the following detailed definitions for matter of better readability, as long as the usage is not mandated.

### 4.3 Multi-currency Account Specifics for Account Information

The methods on multicurrency accounts for account information differ in the inter-face due to the fact, that a collection of accounts is addressed. In the following the differences are described on abstract level. Of course, the sub-accounts can also be addressed as dedicated accounts by adding the sub account currency explicitly. This case is not further mentioned specifically.

**Multicurrency Accounts in Reading Accounts or Account Details**

The ASPSP will decide in its implementation whether to grant data access to a multicurrency account on aggregation level, on aggregation and sub-account level, or only on sub-account level.

**Multicurrency Accounts in Reading Balances on Aggregation Level**

The consequence for this function is that an array of balances of all sub-accounts are returned, if a multicurrency account is addressed on aggregation level. The currency of the respective sub-account is implicitly provided as the currency of the balanceAmount element within the balance, cp Section 4.4.3 for an example.

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### Multicurrency Accounts in Reading Transactions on Aggregation Level

The consequence for this function is that the list of transactions will contain all transactions of all sub-accounts, if a multicurrency account is addressed on aggregation level. In this case the payment transactions contained in the report may have different transaction currencies, see Section 4.4.4 for an example.

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## 4.4 Read Account Data Requests

The following sections define reading access on current accounts.

### 4.4.1 Read Account List

#### Call

```
GET /v2/accounts {query-parameters}
```

Reads a list of current accounts, with balances where required. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the stored consent addressed by consentId, respectively the OAuth2 access token.

**Note:** If the consent is granted only to show the list of addressable accounts, much less details are displayed about the accounts. Specifically hyperlinks to balances or transaction endpoint should not be delivered then.

**Note:** If the details returned in this call with the access rights "accountDetails", "balances", "transactions" or "ais" are not sufficient, then more details can be retrieved by addressing the /accounts/{account-id} endpoint, cp. Section 4.4.2.

#### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| withBalance | Boolean | Optional | If contained, this function reads the list of accessible payment accounts including the booking balance, if granted by the PSU in the related consent and available by the ASPSP. This parameter might be ignored by the ASPSP. |

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Consent-ID | Max70Text | Mandatory | resulting from the "Establish Consent on Account Information" performed via this API before. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | if and only if this request was actively initiated by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

**Request Body**

No request body

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accounts | Array of Account Details | Mandatory | In case, no account is accessible, the ASPSP shall return an empty array.As this is also considered a positive response, the Response code must still be 200. |

**Example**

***Response body (Example 1)***

Response in case of an example, where the consent has been given on two different IBANs

```
{"accounts":
   [
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
       "iban": "DE23100100101234567 89",
       "currency": "EUR",
```


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```
       "product": "Girokonto",
       "cashAccountType": "CACC",
       "name": "Main Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"}}
      },
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81e",
       "iban": "DE23100100101234567888",
       "currency": "USD",
       "product": "Foreign Currency Account",
       "cashAccountType": "CACC",
       "name": "US Dollar Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/balances" }}
       }
]}
```


### *Response body (Example 2)*

Response in case of an example where consent on transactions and balances has been given to a multicurrency account which has two sub-accounts with currencies EUR and USD, and where the ASPSP is giving the data access only on sub-account level:


```
{"accounts":
   [
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
       "iban": "DE23100100101234567888",
       "currency": "EUR",
       "product": "Girokonto",
       "cashAccountType": "CACC",
       "name": "Main Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"}}
      },
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81e",
       "iban": "DE23100100101234567888",
       "currency": "USD",
       "product": "Foreign Currency Account ",
       "cashAccountType": "CACC",
```



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```
       "name": "US Dollar Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/transactions"} }
       }
]}
```


### *Response body (Example 3)*

Response in case of an example where consent on balances and transactions has been given to a multicurrency account which has two sub-accounts with currencies EUR and USD and where the ASPSP is giving the data access on aggregation level and on sub-account level:


```
{"accounts":
   [
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
       "iban": "DE23100100101234567888",
       "currency": "XXX",
       "product": "Multi currency account",
       "cashAccountType": "CACC",
       "name": "Aggregation Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e333/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e333/transactions"}}
      },
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80e",
       "iban": "DE23100100101234567888",
       "currency": "EUR",
       "product": "Girokonto",
       "cashAccountType": "CACC",
       "name": "Main Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80e/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80e/transactions"}}
      },
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81d",
       "iban": "DE23100100101234567888",
       "currency": "USD",
       "product": "Fremdwährungskonto",
       "cashAccountType": "CACC",
```



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```
       "name": "US Dollar Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81d/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81d/transactions"} }
       }
]}
```


### 4.4.2 Read Account Details

**Call**

```
GET /v2/accounts/{account-id} {query-parameters}
```

Reads details about a current account, with balances where required. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed details of this account depends then on the stored consent addressed by consentId, respectively the OAuth2 access token.

**Remark**: This account-id can be a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Account List" call, cp. Section 4.4.1 or from the related consent resource.

**NOTE:** The account-id can represent a multicurrency account. In this case the currency code is set to "XXX".

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| withBalance | Boolean | Optional | If contained, this function reads the details of the addressed account including the booking balance, if |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | granted by the PSU's consent and if supported by ASPSP. This data element might be ignored by the ASPSP. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Consent-ID | Max70Text | Mandatory | |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

**Request Body**

No request body

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Details | Mandatory | |

### Example

#### *Response body for a regular account*

```
 {"account":
      {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
       "iban": "FR7612345987650123456789014",
       "currency": "EUR",
       "ownerName": "Heike Mustermann",
       "product": "Girokonto",
       "cashAccountType": "CACC",
       "name": "Main Account",
       "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"}}
        }
}
```

#### *Response body for a multi-currency account*

```
 {"account":
   {"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
     "iban": "FR7612345987650123456789014",
     "currency": "XXX",
     "ownerName": "Heike Mustermann",
     "product": "Multicurrency Account",
     "cashAccountType": "CACC",
     "name": "Aggregation Account",
     "_links": {
            "balances": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
            "transactions": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"}}
      }
}
```

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### 4.4.3 Read Balance

#### Call

```
GET /v2/accounts/{account-id}/balances
```

Reads balance data from a given current account addressed by "account-id".

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

#### Query Parameters

No specific query parameters.

#### Response Code

HTTP Response Code equals 200.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

### Request Body

No request body.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| balances | Array of Balance | Mandatory | A list of balances regarding this account, e.g. the current balance, the last booked balance. |

### Example

#### *Response body (Example 1)*

Response in case of a regular account.

```
{
  "account": {"iban": "FR7612345987650123456789014"},
  "balances":
      [{"balanceAmount": {"currency": "EUR", "amount": "500.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2017-10-25"
       },
       {"balanceAmount": {"currency": "EUR","amount": "900.00"},
```


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```
        "balanceType": "expected",
        "lastChangeDateTime": "2017-10-25T15:30:35.035Z"
       }]
}
```


***Response body (Example 2)***

Response in case of a multicurrency account with one account in EUR, one in USD, where the ASPSP has delivered a link to the balance endpoint relative to the aggregated multicurrency account (aggregation level)


```
{
  "balances":
      [{"balanceAmount": {"currency": "EUR", "amount": "500.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2017-10-25"
       },
       {"balanceAmount": {"currency": "EUR", "amount": "900.00"},
        "balanceType": "expected",
        "lastChangeDateTime": "2017-10-25T15:30:35.035Z"
       },
       {"balanceAmount": {"currency": "USD", "amount": "350.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2017-10-25"
       },
       {"balanceAmount": {"currency": "USD", "amount": "350.00"},
        "balanceType": "expected",
        "lastChangeDateTime": "2017-10-24T14:30:21Z"
           }]
}
```


***Response body (Example 3)***

Response in case of a regular account where the corresponding balances in the online channel is reported independently from account statements with fixed dates, i.e. always displaying running balance for current time.


```
{
   "balances": [
      {
       "balanceAmount": {"currency": "EUR", "amount": "1000.00"},
       "balanceType": "interimBooked"
         },
      {
         "balanceAmount": {"currency": "EUR", "amount": "300.00"},
         "balanceType": "interimAvailable"
```



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```
      },
      {
         "balanceAmount": {"currency": "EUR", "amount": "5300.00"},
         "balanceType": "interimAvailable",
         "creditLimitIncluded": true
      }
   ]
}
```


### 4.4.4 Read Transaction List

**BOI remarks**: Please note that Transactions endpoint which described here are not relevant for acquirers. They will implement section 4 in the Implementation Guidelines of Extended Account Information Services.

**Call**

```
GET /v2/accounts/{account-id}/transactions {query-parameters}
```

Reads account transaction data from a given account addressed by "account-id". This can be either booked or pending transactions or a list of standing orders as further transactional information.

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header. In case of returning camt.05x formats, several camt.05x files might be contained in one response. Some ASPSPS e.g. separate camt.05x files per booking day – in analogy to the same provision in online channels.

**Note:** In case of using pagination, the call on the given pagination links follows the same requirements as for this call, just exchanging the path itself by the pagination path.

**Remark:** Please note that all path parameters might be already given in detail implicitly by the response of the "Read Account List" call within the _links subfield.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | String | This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | access is required and if bookingStatus does not equal "information". Might be ignored if a delta function is used or if bookingStatus equals "information".<br><br>For booked transactions, the relevant date is the booking date. For pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP.<br><br>If the bookingStatus equals "all", this date might be ignored for all transactions referred to by bookingStatus "information".<br><br>In case of exception from the minimum value the response will be only for the minimum period |
| dateTo | ISODate | Optional | End date (inclusive the data dateTo) of the transaction list, default is "today" if not given. Might be ignored if a delta function is used.<br><br>For booked transactions, the relevant date is the booking date. For pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP.<br><br>If the bookingStatus equals "all", this date might be ignored for all transactions referred to by bookingStatus "information". |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| entryReferenceFrom | Max35Text | Optional if supported by API provider | This data attribute is indicating that the AISP is in favour to get all transactions after the transaction with entryReference identification entryReferenceFrom alternatively to the above defined period. This is an implementation of a delta access.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |
| bookingStatus | Max35Text | Mandatory | Permitted codes are "booked", "pending", "both", "information" and "all".<br><br>"booked" shall be supported by the ASPSP.<br><br>To support the "pending" feature is conditional for the ASPSP. It is mandated if the ASPSP online channels provide pending transactions to the PSU. Error code if not supported.<br><br>To support the "both" feature is optional for the ASPSP, Error code if not supported. If supported, "both" means to request lists of transactions of bookingStatus either "pending" or "booked".<br><br>To support the "information" feature is optional for the ASPSP. Currently the booking status “information” only covers |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | standing orders. Error code if not supported.<br><br>To support the "all" feature is optional for the ASPSP, Error code if not supported. If supported, "all" means to request lists of transaction of any bookingStatus ("pending", "booked" or "information"). |
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the AISP is in favour to get all transactions after the last report access for this PSU on the addressed account. This is another implementation of a delta access-report.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| withBalance | Boolean | Optional | If contained, this function reads the list of transactions including the booking balance, if granted by the PSU in the related consent and available by the ASPSP. This parameter might be ignored by the ASPSP. |
| cardBrand | Max35Text | Optional, if supported by the ASPSP | This attribute filters transactions according to their corresponding brand. |

**NOTE:** In case of bookingStatus equals "information", the query parameters dateFrom, dateTo, withBalance deltaList and entryReferenceFrom will be ignored and have no effect on the result.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | Max70Text | Mandatory | |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| Accept | String | Optional | The TPP can indicate the formats of account reports supported together with a priorisation following the HTTP header definition.<br><br>The formats supported by this specification are<br><br>• xml<br>• JSON<br>• text |

**Remark:** The Berlin Group intends to apply for vnd-entries within the "accept" attribute for camt.05x and MT94x formats to scope with different account report formats available for the PSU e.g. in a corporate context. These values will be added to this specification as soon as available. This will then lead to expressions like /application/vnd.BerlinGroup.camt.053+xml etc. The TPP then could e.g. say: "I prefer camt.054, but take camt.053 if this is not available." This solution is recommended as a best practice until it is fully specified. In this example this would deliver the following accept header expression:

```
Accept: /application/vnd.BerlinGroup.camt.054+xml;q=0.9,
/application/vnd.BerlinGroup.camt.053+xml;q=0.8
```

In addition, these best practices allow to differentiate technical sub versions of camt, i.e. it could be stated that "I prefer camt.054.001.08 (the new sub version), but take (the older sub version) camt.054.001.02 if this is not available." This is to supports ASPSPs in migrating the technical camt formats.

```
Accept: /application/vnd.BerlinGroup.camt.054.001.08+xml;q=0.9,
/application/vnd.BerlinGroup.camt.054.001.02+xml;q=0.8
```

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### Request Body

No request body.

### Response Code

HTTP Response Code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | Possible values are:<br>• application/json<br>• application/xml<br>• text/plain |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

In case the ASPSP returns a **camt.05x** XML structure, the response body consists of either a camt.052 or camt.053 format. The camt.052 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request. In addition the ASPSP might offer camt.054x structure e.g. in a corporate setting.

In case the ASPSP returns **a MT94x** content, the response body consists of an MT940 or MT942 format in a text structure. The MT942 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request.

A JSON response is defined as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| transactions | Account Report | Optional | JSON based account report.<br><br>This account report contains transactions resulting from the query parameters. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Note: It is recommended to provide remittance information attributes already here and not only in transaction details as specified in Section4.4.5. Such an implementation avoids too frequent usage of transaction details by API Clients. |
| balances | Array of Balance | Optional | A list of balances regarding this account, which might be restricted to the current balance. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"download": a link to a resource, where the transaction list might be downloaded from in case where transaction lists have a huge size.<br><br>**Remark:** This feature shall only be used where camt-data is requested which has a huge size. |

### Examples for AIS for booked and pending transactions

#### *Request*

```
GET https://api.testbank.com/psd2/v2/accounts/3dc3d5b3-7023-4848-9853-
f5400a64e80f/transactions?dateFrom=2017-07-01&dateTo=2017-07-
30&bookingStatus=both
Accept: application/json, text/plain;q=0.9, application/xml;q=0.8
Consent-ID: 123cons456
```

#### *Response (Example 1)*

Response in JSON format for an access on a regular account

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{"account": {"iban": "DE23100100101234567888" },
"transactions":
   {"booked":
     [{
```


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```
        "transactionId": "1234567",
        "creditor": {"name": "John Miles"},
        "creditorAccount": {"iban": "DE67100100101306118605"},
        "transactionAmount": {"currency": "EUR", "amount": "-256.67"},
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": ["Example 1"]
       },{
        "transactionId": "1234568",
        "debtor": {"name": "Paul Simpson"},
        "debtorAccount": {"iban": "NL76RABO0359400371"},
        "transactionAmount": {"currency": "EUR", "amount": "343.01"},
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": ["Example 2"]
       }],
    "pending":
      [{
        "transactionId": "1234569",
        "creditor": {"name": "Claude Renault"},
        "creditorAccount": {"iban": "FR7612345987650123456789014"},
        "transactionAmount": {"currency": "EUR", "amount": "-100.03"},
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": ["Example 3"]
       }],
    "_links":
       {"account": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-9853-
f5400a64e80f"}}
    }
}
```


### *Response (Example 2)*

Response in case of huge data amount as a download.


```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "_links": {"download": {"href": "www.test-
api.com/xs2a/v2/accounts/12345678999/transactions/download/"}}
}
```



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### *Response (Example 3)*

Response in JSON format for an access on a multicurrency account on aggregation level

```
HTTP/1.x 200 OK
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{"account": {"iban": "DE40100100103307118608"},
 "transactions":
   {"booked":
     [{
       "transactionId": "1234567",
       "creditor": {"name": "John Miles"},
       "creditorAccount": {"iban": "DE67100100101306118605"},
       "transactionAmount": {"currency": "EUR", "amount": "-256.67"},
       "bookingDate": "2017-10-25",
       "valueDate": "2017-10-26",
       "remittanceInformationUnstructured": ["Example 1"]
      },{
       "transactionId": "1234568",
       "debtor": {"name": "Paul Simpson"},
       "debtorAccount": {"iban": "NL76RABO0359400371"},
       "transactionAmount": {"currency": "EUR", "amount": "343.01"},
       "bookingDate": "2017-10-25",
       "valueDate": "2017-10-26",
       "remittanceInformationUnstructured": ["Example 2"]
      },{
       "transactionId": "1234569",
       "debtor": {"name": "Pepe Martin"},
       "debtorAccount": {"iban": "SE9412309876543211234567"},
       "transactionAmount": {"currency": "USD", "amount": "100"},
       "bookingDate": "2017-10-25",
       "valueDate": "2017-10-26",
       "remittanceInformationUnstructured": ["Example 3"]
      }],
   "pending":
     [{
       "transactionId": "1234570",
       "creditor": {"name": "Claude Renault"},
       "creditorAccount": {"iban": "FR7612345987650123456789014"},
       "transactionAmount": {"currency": "EUR", "amount": "-100.03"},
       "valueDate": "2017-10-26",
       "remittanceInformationUnstructured": ["Example 4"]
      }],
```

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```
   "_links":
      {"account": {"href": "/psd2/v2/accounts/3dc3d5b3-7023-4848-9853-
f5400a64e80f"}}
   }
}
```


### Examples for AIS for standing orders

#### *Request*


```
GET https://api.testbank.com/psd2/v2/accounts/3dc3d5b3-7023-4848-9853-
f5400a64e80f/transactions? bookingStatus=information
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:45 GMT
Accept:                 application/json
Consent-ID:             123cons456
```


#### *Response*

Response in JSON format for a list of standing orders


```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{"account": {"iban": "DE23100100101234567888" },
 "transactions":
   {"information":
     [{
       "creditor": {"name": "John Miles"},
       "creditorAccount": {"iban": "DE67100100101306118605"},
       "transactionAmount": {"currency": "EUR", "amount": "256.67"},
       "remittanceInformationUnstructured": ["Example 1"],
       "bankTransactionCode": "PMNT-ICDT-STDO",
       "additionalInformationStructured":
         {"standingOrderDetails":
           {"startDate": "2018-03-01",
            "endDate": "2020-06-31",
            "executionRule": "preceding",
            "frequency": "Monthly",
            "dayOfExecution": "24"
      }]
    }
}
```



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### 4.4.5 Read Transaction Details

**BOI remarks**: Please note that Transactions endpoint which described here are not relevant for acquirers. They will implement section 4 in the Implementation Guidelines of Extended Account Information Services.

#### Call

```
GET /v2/accounts/{account-id}/transactions/{transactionId}
```

Reads transaction details from a given transaction addressed by “transactionId” on a given account addressed by "account-id". This call is only available on transactions as reported in a JSON format.

**Remark:** Please note that all path parameters might be already given implicitly by the corresponding entry of the response of the "Read Transaction List" call within the _links subfield.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| account-id | String | This identification is denoting the addressed account, where the transaction has been performed. |
| transactionId | String | This identification is given by the attribute transactionId of the corresponding entry of a transaction list. |

#### Query Parameters

No Query Parameters

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

**Request Body**

No request body.

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| Content-Type | String | Mandatory | Possible values are:<br>• application/json |
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionsDetails | Transactions | Optional | |

**Example**

**Request**

```
GET https://api.testbank.com/psd2/v2/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/transactions/1234567
```


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```
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:46 GMT
Consent-ID:             123cons456
```

### Response

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{"transactionsDetails":
   {
       "transactionId": "1234567",
       "creditor": {"name": "John Miles"},
       "creditorAccount": {"iban": "DE67100100101306118605"},
       "mandateId": "Mandate-2018-04-20-1234",
       "transactionAmount": {"currency": "EUR", "amount": "-256.67"},
       "bookingDate": "2017-10-25",
       "valueDate": "2017-10-26",
       "remittanceInformationUnstructured": ["Example 1"],
       "bankTransactionCode": "PMNT-RDDT-ESDD",
   }
}
```

**Remark**: As shown by this example, a very typical additional details of a transaction is a SEPA Mandate ID.

## 4.5 Read Card Account Data Requests

**BOI remarks**: These Card Accounts Endpoints not relevant for the Israeli market at this stage. The implementation of Card Accounts Endpoints will be according to version 1.

### 4.5.1 Read Card Account List

### Call

```
GET /v2/card-accounts
```

Reads a list of card reconciliation accounts with additional information, e.g. balance information. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of card reconciliation accounts depends then on the PSU ID and the stored consent addressed by consentId, respectively the OAuth2 access token.

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### Query Parameters

No query parameter supported.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | Resulting from the "Establish Consent on Account InformationTransaction" performed via this API before. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

### Request Body

No request body

### Response Code

HTTP Response Code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardAccounts | Array of Card | Mandatory | In case, no card-account is accessible, the ASPSP shall return an empty array. As this is also |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | Account Details | | considered a positive response, the Response Code must still be 200. |

### Example

#### *Response body*

```
{
  "cardAccounts": [
    {
      "resourceId": "3d9a81b3-a47d-4130-8765-a9c0ff861b99",
      "maskedPan": "525412******3241",
      "currency": "EUR",
      "name": "Main",
      "product": "Basic Credit",
      "status": "enabled",
      "creditLimit": { "currency": "EUR", "amount": "15000" },
      "balances": [
        {
          "balanceType": "interimBooked",
          "balanceAmount": { "currency": "EUR", "amount": "14355.78" }
        },{
          "balanceType": "nonInvoiced",
          "balanceAmount": { "currency": "EUR", "amount": "4175.86" }
        }
      ],
      "_links": {
        "transactions": {
          "href": "/psd2/v2/card-accounts/3d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions"
        }
      }
    }
  ]
}
```

## 4.5.2 Read Card Account Details

### Call

```
GET /v2/card-accounts/{account-id}
```


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Reads details about a card reconciliation account. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed details of this account depends then on the stored consent addressed by consentId, respectively the OAuth2 access token.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | String | This identification is denoting the addressed card account. The account-id is retrieved by using a "Read Card Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | Identification of the access consent as granted by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

**Request Body**

No request body

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### Response Code

HTTP Response Code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardAccount | Card Account Details | Mandatory | |

### Example


```
{
  "cardAccount":
    {
      "resourceId": "3d9a81b3-a47d-4130-8765-a9c0ff861b99",
      "maskedPan": "525412******3241",
      "currency": "EUR",
      "debitAccounting": true,
      "ownerName": "Heike Mustermann",
      "name": "Main",
      "product": "Basic Credit",
      "status": "enabled",
      "creditLimit": { "currency": "EUR", "amount": "15000" },
      "balances": [
        {
          "balanceType": "interimBooked",
          "balanceAmount": { "currency": "EUR", "amount": "14355.78" }
        },{
          "balanceType": "nonInvoiced",
          "balanceAmount": { "currency": "EUR", "amount": "4175.86" }
        }
      ],
      "_links": {
        "transactions": {
```



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```
          "href": "/psd2/v2/card-accounts/3d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions"
        }
      }
    }
}
```


### 4.5.3 Read Card Account Balance

#### Call

```
GET /v2/card-accounts/{account-id}/balances
```

Reads balance data from a given card reconciliation account addressed by "account-id".

**Remark**: This account-id can be a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Card Account List" call, cp. Section 4.5.1 or from the related consent resource.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| account-id | String | This identification is denoting the addressed card account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

#### Query Parameters

No specific query parameters.

#### Response Code

HTTP Response Code equals 200.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | Identification of the corresponding consent as granted by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

### Request Body

No request body.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardAccount | Account Reference | Mandatory | Identifier of the addressed card account. |
| debitAccounting | Boolean | Optional | If true, the amounts of debits on the reports are quoted positive with the related consequence for balances.<br><br>If false, the amount of debits on the reports are quoted negative. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| balances | Array of Balance | Mandatory | A list of balances regarding this card account, e.g. the current balance, the last booked balance. |

**Example**

```
{
  "cardAccount": {"maskedPan": "525412******3241"},
  "debitAccounting": true,
  "balances": [
    {
      "balanceAmount": { "currency": "EUR", "amount": "14355.78"},
      "balanceType": "interimBooked"
    },{
      "balanceAmount": { "currency": "EUR", "amount": "4175.86"},
      "balanceType": "nonInvoiced",
    }
  ]
}
```

### 4.5.4 Read Card Account Transaction List

**Call**

```
GET /v2/card-accounts/{account-id}/transactions {query-parameters}
```

Reads account data from a given card reconciliation account addressed by "account-id".

**Remark**: This account-id is a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Card Account List" call, cp. Section 4.5.1.

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header.

**Remark:** Please note that all path parmetersmight be already given implicitly by the response of the "Read Card Account List" call within the _links subfield.

**Path Parameters**

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| Attribute | Type | Description |
|---|---|---|
| account-id | String | This identification is denoting the addressed card reconcilitation account. The account-id is retrieved by using a "Read Card Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required |
| dateTo | ISODate | Optional | End date (inclusive the data dateTo) of the transaction list, default is "today" if not given. |
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |
| bookingStatus | String | Mandatory | Permitted codes are "booked", "pending" and "both"<br><br>"booked" shall be supported by the ASPSP.<br><br>To support the "pending" and "both" feature is optional for the ASPSP, Error code if not supported in the online banking frontend |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the AISP is in favour to get all transactions after the last report access for this PSU on the addressed account.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported. |
| cardBrand | Max35Text | Optional, if supported by the ASPSP | This attribute filters transactions according to their corresponding brand. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | String | Mandatory | Identification of the consent for this access as granted by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

**Request Body**

No request body.

**Response Code**

HTTP Response Code equals 200.

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardAccount | Account Reference | Mandatory | Identifier of the addressed card reconliation account. |
| debitAccounting | Boolean | Optional | If true, the amounts of debits on the reports are quoted positive with the related consequence for balances.<br><br>If false, the amount of debits on the reports are quoted negative. |
| cardTransactions | Card Account Report | Optional | JSON based account report. |
| balances | Array of Balance | Optional | A list of balances regarding this account, which might be restricted to the current balance. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"download": a link to a resource, where the transaction list might be downloaded from in case where transaction lists have a huge size. |

### Example

```
GET https://api.testbank.com/psd2/v2/card-accounts/3d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions?dateFrom=2017-10-01&dateTo= 2017-10-30
Accept: application/json, text/plain;q=0.9, application/xml;q=0.8
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Consent-ID:             123cons456
```

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### *Response (Example 1)*

Response in JSON format for an access on a regular account

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{ "cardAccount": { "maskedPan": "525412******3241"},
  "debitAccounting": true,
  "cardTransactions": {
    "booked": [
      {
        "cardTransactionId": "201710020036959",
        "transactionAmount": { "currency": "EUR", "amount": "256.67" },
        "transactionDate": "2017-10-25",
        "bookingDate": "2017-10-26",
        "originalAmount": { "currency": "SEK", "amount": "2499" },
        "cardAcceptorAddress": {
          "townName": "STOCKHOLM",
          "country": "SE"
        },
        "maskedPan": "525412******3241",
        "proprietaryBankTransactionCode": "PURCHASE",
        "invoiced": false,
        "transactionDetails": "WIFIMARKET.SE"
      }, {
        "cardTransactionId": "201710020091863",
        "transactionAmount": { "currency": "EUR", "amount": "10.72" },
        "transactionDate": "2017-10-25",
        "bookingDate": "2017-10-26",
        "originalAmount": { "currency": "SEK", "amount": "99" },
        "cardAcceptorAddress": {
          "townName": "STOCKHOLM",
          "country": "SE"
        },
        "maskedPan": "525412******8999",
        "proprietaryBankTransactionCode": "PURCHASE",
        "invoiced": false,
        "transactionDetails": "ICA SUPERMARKET SKOGHA"
      }
    ],
    "pending": [ ],
    "_links": {
      "cardAccount": {
```


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```
        "href": "/psd2/v2/card-accounts/3d9a81b3-a47d-4130-8765-
a9c0ff861b99"
       }
     }
   }
}
```



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# 5 Confirmation of Funds Service

**BOI remarks:** This service is not supported in the Israeli market.

## 5.1 Overview Confirmation of Funds Service

The following table defines the technical description of the abstract data model as defined [oFA-OR-Com] for the three PSD2 services. The columns give an overview on the API protocols as follows:

- The "Data element" column is using the abstract data elements following [oFA-OR-Com] to deliver the connection to rules and role definitions in this document.
- The "Attribute encoding" is giving the actual encoding definition within the XS2A API as defined in this document.
- The "Location" columns define, where the corresponding data elements are transported as HTTP parameters, resp. are taken from eIDAS certificates. For HTTP Parameters, the "path" subsumes host, port and API basepath.
- The "Usage" column gives an overview on the usage of data elements in the different services and API Calls. Within [oFA-OR-Com], the XS2A calls are described as abstract API calls. These calls will be technically realised as HTTP POST command. The calls are divided into the following calls:
    - Confirmation Request, which is the only API Call for every transaction within the Confirmation of Funds service.

The following table does not only define requirements on request messages but also requirements on data elements for the response messages. These requirements only apply to positive responses (i.e. HTTP response code 2xx). Error handling is a generic framework feature and is specified in [oFA PFSM].

The following usage of abbreviations in the Location and Usage columns is defined, cp. also [oFA-OR-Com] for details.

- x: This data element is transported on the corresponding level.
- m: Mandatory
- o: Optional for the TPP to use
- c: Conditional. The Condition is described in the API Calls, condition defined by the ASPSP

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| Data element | Attribute encoding | Location | | | | Usage | |
|---|---|---|---|---|---|---|---|
| | | Path | Header | Body | Certificate | Conf. Req. | Conf Resp. |
| Provider Identification | | x | | | | m | |
| TPP Registration Number | | | | | x | m | |
| TPP Name | | | | | x | m | |
| TPP Role | | | | | x | m | |
| TPP National Competent Authority | | | | | x | m | |
| Request Identification | X-Request-ID | | x | | | m | m |
| Consent ID | Consent-ID | | x | | | c | |
| Further signature related data | Digest | | x | | | c | |
| API Client Electronic Signature | x-jws-signature | | x | | | c | |
| API Client Message Information | apiClientMessages | | | x | | | o |
| Card Number | cardNumber | | | x | | o | |
| Account Number | account | | | x | | m | |
| Name Payee | payee | | | x | | o | |
| Transaction Amount | instructedAmount | | | x | | m | |

## 5.2 Confirmation of Funds Request

### Call

```
POST /v2/funds-confirmations
```

Creates a confirmation of funds request at the ASPSP.

### Query Parameter

No specific query parameter.

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### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| Authorization | String | Optional | This field might be used in case where a consent was agreed between ASPSP and PSU through an OAuth2 based protocol, facilitated by the TPP. |
| Consent-ID | String | Conditional | Shall be provided if the consent of the PSU has been provided through the consent process for fundsconfirmations as defined in [oFA-CO].<br><br>Otherwise not used. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cardNumber | Max35Text | Optional | Card Number of the card issued by the PIISP. Should be delivered if available. |
| account | Account Reference | Mandatory | PSU's account number. |
| payee | Max70Text | Optional | The merchant where the card is accepted as an information to the PSU. |
| instructedAmount | Amount | Mandatory | Transaction amount to be checked within the funds check mechanism. |

### Response Code

The HTTP response code equals 200.

### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

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### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fundsAvailable | Boolean | Mandatory | Equals true if sufficient funds are available at the time of the request, false otherwise. |

The following rules will apply in interpreting the Confirmation of Funds Request for multicurrency accounts:

The additional card number might support the choice of the sub-account.

If no card number, but the PSU account identifier is contained: check on default account registered by customer.

If no card number but the PSU and the account identifier with currency is contained: check the availability of funds on the corresponding sub-account.

If card number and the PSU account identifier is contained: check on sub-account addressed by card, if the addressed card is registered with one of the sub-accounts.

If the card number is not registered for any of the sub-accounts, or if the card number is registered for a different sub-account the card number might be ignored.

### Example

```
POST https://api.testbank.com/psd2/v2/funds-confirmations
Content-Type:           application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:02:37 GMT

{  "cardNumber": "12345678901234",
   "account": {"iban": "DE23100120020123456789"},
   "instructedAmount": {"currency": "EUR", "amount": "123"}
}
```

### Response Body

```
{"fundsAvailable": true}
```


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[oFA-CO] openFinance API Framework, Consent API for V2, Implementation Guidelines, Version 2.2, 31 October 2025

[oFA DaD] openFinance API Framework, Data Dictionary for V2.x, Version 2.3, 31 October 2025

[oFA DomDef] openFinance API Framework, Domestic AIS/PIS Definitions for Version 2.x, current version

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[ETSI PSD2] ETSI TS 119 495 V1.1.2; Electronic Signatures and Infrastructures (ESI); Sector Specific Requirements; Qualified Certificate Profiles and TSP Policy Requirements under the payment services Directive (EU) 2015/2366

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[OA-SecTop] OAuth 2.0 Security Best Current Practice draft-ietf-oauth-security-topics-13, Lodderstedt et al., 8 July 2019, https://tools.ietf.org/html/draft-ietf-oauth-security-topics-13

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# 7 Annex A: Change Log

## 7.1 Changes from Version 2.0 to Version 2.1

The following changes have been applied in version 2.1 relative to version 2.0:

| Section | Change | Reason |
|---|---|---|
| All Sections | The attribute consentId and paymentId have been restricted to max70Text, where not yet applied. | General approach for resource identifications. |
| All Sections | Some query parameters have been restricted to Max35Text | General approach for query parameters of type "string". |
| 3.2 | Rename TPP-SCA-Preference to Client-SCA-Preference.<br><br>Rename TPP-Explicit-Authorisation-Preferred to Client-Explicit-Authorisation-Preferred<br><br>Rename TPP-Rejection-NoFunds-Preferred to Client-Rejection-NoFunds-Preferred | Make these parameters also usable for direct access models for corporates. Prepare the API Framework better for corporate direct access. |
| 3.4.1 | Rename TPP-Rejection-NoFunds-Preferred to Client-Rejection-NoFunds-Preferred | Make these parameters also usable for direct access models for corporates. Prepare the API Framework better for corporate direct access. |
| 4.4.4, 4.5.4 | A pagination query parameter for transaction reports has been added for premium services. | CR115 |

## 7.1 Changes from Version 2.1 to Version 2.2

The following changes have been applied in version 2.2 relative to version 2.1:

| Section | Change | Reason |
|---|---|---|
| 2.1.1 | Added an access method in the overview to retrieve the extended status of a bulk payment in JSON format | CR118 |

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| Section | Change | Reason |
|---|---|---|
| 3.4.3.1 | Added (optional) timestamps for startDate and endDate in standing orders for recurring instant payments. | CR123 |
| 3.4.3.2 | Added a recommendation for rejecting bulk payment initiations with missing transaction identifiers on entry level. | Clarification |
| 3.6 | Added an optional endpoint to retrieve an extended status in JSON format for bulk payments, in analogy to pain.002 formats | CR118 |
| 4.5.4 | corrected the attribute townName in examples for card account transaction lists. | Erratum |
| Several sections | Clarified that "card accounts" are referring to "card reconciliation accounts". | Clarification |
| 6 | Updated some references, specifically the data dictionary to be considered. This will lead to material changes in th API definitiions. | Updated openFinance API Framework |

## 7.2 Changes from Version 2.2 to Version 2.3

The following changes have been applied in version 2.3 relative to version 2.2:

| Section | Change | Reason |
|---|---|---|
| 3.5 | A remark has been added how to deal with the situation that several pain.002 messages are returned. | Clarification |
| 4.4.4 and 4.5.4 | Attribute cardBrand is added in the query parameters of Read Transaction List of Read Accound Data Request. And in Read Card Account Transaction List of Read Card Account Data Requests. | CR125 |

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## 7.3 Changes from Version 2.3 to Version 2.4

The following changes have been applied in version 2.3 relative to version 2.4:

| Section | Change | Reason |
|---|---|---|
| 6 | Updated some references, specifically the protocol function and security measures which contain a section on payment formats in the new version to be considered. This will lead to material changes in th API definitiions. | Clarification |

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# Bank of Israel

# Open Banking IL

## Implementation Guidelines

נספח א'12 להוראת ניהול בנקאי תקין 368

Version 2.0

27 August 2026

THE Berlin GROUP

A EUROPEAN STANDARDS INITIATIVE

# openFinance API Framework

# Implementation Guidelines for Extended Services

## Extended Account Information Services

Version 2.2

17 April 2025

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  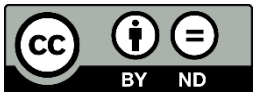

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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by so called Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an "access to account interface" (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework is now extended to premium services. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client's bank for KYC processes.

**BOI remarks:** In Israel, all financial information services that are subject to access obligations under the Financial Information Services Law, and under Proper Conduct of Banking Business Directive No. 368, must be provided in accordance with the relevant certificate specified in the Directive and in compliance with the requirements set out in both the Law and Directive 368.

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The term "API Client" is defined in Directive 368 as a Third-Party Provider (TPP), which may be either a Payment Initiation Service Provider (PISP) or an Account Information Service Provider (AISP).

**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to "asset broker" and "asset holder" resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as "API provider".

The following account access methods are covered by this framework:

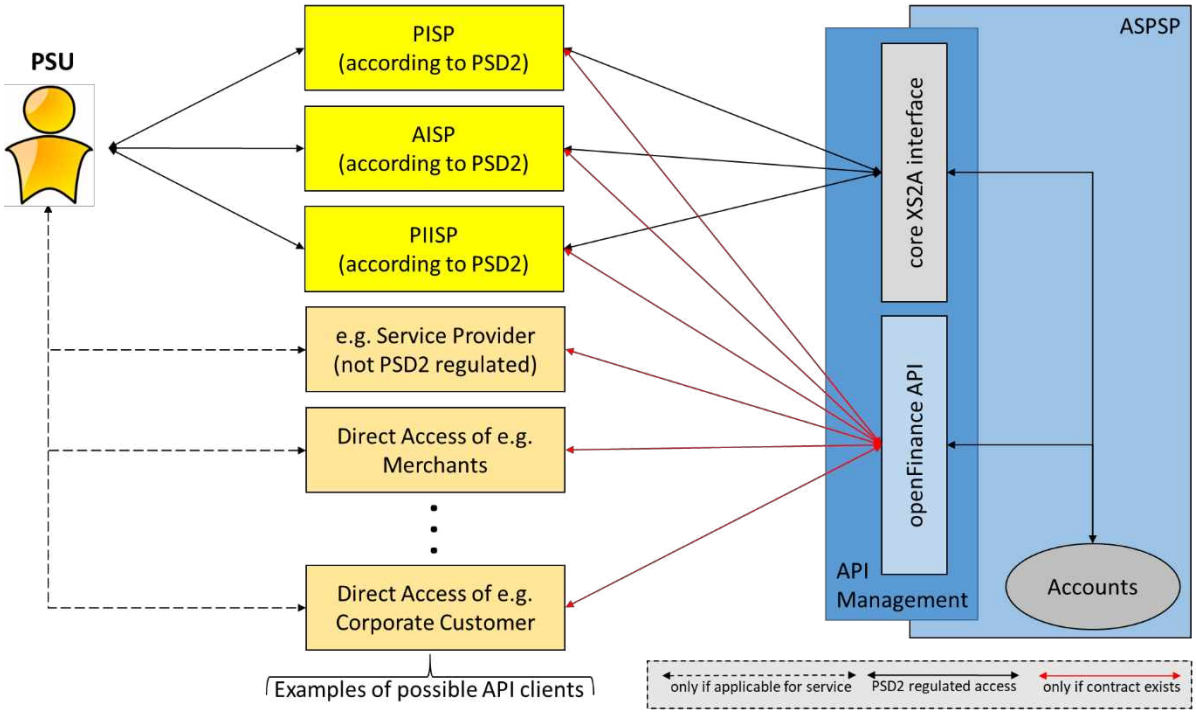


Figure 1: Core XS2A interface and openFinance API

The ASPSP may restrict the access to the services offered at its openFinance API and require dedicated onboarding. Details of the onboarding process are described in a dedicated implementation guidelines document [oFA-IG-ADM].

## 1.2 Extended Account Information Services

The core XS2A Interface as introduced above is already supporting Account Information Services (AIS) for **current accounts** and **card reconciliation accounts**. These services follow the functionality of online channels of the related ASPSP: Via the services, information on accounts, balances and transactions can be requested for the supported account types. Each request must refer to an underlying consent from the PSU that grants the TPP access to the requested information. Consent follows the process as described in [oFA-CO].

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For the envisaged Extended Services, the account information function of the openFinance API will go beyond account types defined by the core XS2A Interface. As new entities as a basis of information, the following are supported:

- account statements for current accounts
- single cards (in contrast to card reconciliation accounts)
- savings accounts
- loan accounts
- securities accounts.

**Note:** Even if introduced for TPP related scenarios, the related premium payment services and related technical endpoints could also be offered in a direct access scenario e.g. for corporates of an ASPSP to request information on their corresponding accounts / cards directly.

### 1.3 Document Structure

This document specifies the Extended Account Information Services in detail.

Section 3 is providing specific, but still abstract information on the application layer of this service like service API access methods or service specific error codes.

Section 4 defines the API for Extended Account Services in detail.

### 1.4 Document History

| Version | Change/Note | Approved |
|---|---|---|
| 2.0 | Initial version of extended AIS functions migrated from version 1.3.x.<br><br>The consent handling has been removed from the account related topics and been integrated in [oFA-CO]. Within the actual account endpoints, only very minor changes have been applied like the length restriction to certain strings like consentId to Max70Text in the context of restricting all resource ids in the API Framework to Max70Text. Also, a short chapter 12on operational rules have been added listing the few differences to the related operational rules of AIS in a PSD2 compliance context.<br><br>Further, all resource ids have been replaced by UUID format in examples, since this is the recommended best practice. | 2024-03-01 |
| 2.1 | Generic adaptions from openFinance API Framework version 2.1 as well as minor errata. | 2024-07-31 |

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| Version | Change/Note | Approved |
|---|---|---|
| 2.2 | Added new endpoints for retrieving account statements for both single account and all accounts accessed by the PSU.<br><br>In addition, some query parameters have been added for account statements and the account statements are enabled to transport more card transaction details than before in the related version of the data dictionary. | 17 April 2025 |

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# 2 Operational Rules

As a general approach, all service descriptions within version 2 of the openFinance Framework come as a triple of documents defining the service:

- An operational rules document, which explains the business processes and business requirements for the underlying service.
- An implementation guideline document, defining the essential API messaging and flows.
- A yaml file with all messaging details.

For details, see [oFA-GuideV2].

For the Extended Account Information Services, this approach is not fully followed through:

While the document at hand constitutes the implementation guidelines for the Extended Account Information Services and a corresponding yaml file is to be published, no dedicated operational rules document for the Extended Account Information Services will be published.

In general, the operational rules for the (compliance) Account Information Services as defined in [oFA-OR-Com] also apply to the Extended Account Information Services. In this chapter, deviations from these rules are defined in [oFA-OR-Com] are documented. Currently, the only difference to [oFA-OR-Com] is that restrictions to the validity of consents do not apply to the services defined in the document at hand.

**NOTE**: Please note that theoretically, the access for extended account information could be granted also to not regulated parties not being licensed by PSD2 as AISP, as long as no payment accounts are part of the related consent.

**BOI remarks**: Please note according to section 39 of directive 368, the access for extended account information could be granted also to not regulated parties.

**API Services supported for the Extended Account Information Services**

The current version of the Extended Account Information Services supports the following API services. Each Service Type represents access to account information to a particular category of accounts.

This document introduces the service types

- Extended Account Information Services to access account statements (XAIS-STAT),
- Extended Account Information Services to access information on single cards (XAIS-CRD),
- Extended Account Information Services to access information on savings accounts (XAIS-SAV),
- Extended Account Information Services to access information on loan accounts (XAIS-LOAN),
- Extended Account Information Services to access information on securities accounts (XAIS-SEC)

**BOI remarks**: at this stage the only service that is relevant for the Israeli market is Extended Account Information Services to access account statements (XAIS-STAT), and only for merchant's accounts managed by acquirers, according to sections 24.2.21 and 36.21 in ordinance 368.

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All the other services for the Israeli market are described in Version 1.

### Specifics of the /cards vs. /card-accounts endpoints

**BOI remarks**: These Card accounts Endpoints are not relevant for the Israeli market at this stage. The implementation of Card accounts Endpoints will be according to version 1.

The extended AIS for cards will define requests for an API Client to get information on one single card. However, in this context "single card" does not necessary refer to only one physical card. Specifically, if a card is renewed and its successor does have the same PAN as the first card, both of them will treated as one single card. There is (intentionally) no method to distinguish the two.

To specifically request information on one single card, a new "/cards" endpoint is defined. Access to the "/cards" endpoint works most regards analogously to access to a card-accounts endpoint with the exception, that the "/card" endpoint provides information on one single card instead of a card account, that might consist of more than one card. In addition, the /cards endpoint will deliver also information about monthly volumes of cards.

An important difference between the /card-accounts and the /cards endpoint is the underlying semantics of the balance type, see also Section 3.2.3. The balance for /card-accounts does not involve entries which are pending between card schemes and the ASPSP because it is the sole view of the card reconciliation account and has no view on the dedicated credit card processing system. The /cards endpoint takes all pending transactions into account

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# 3 Application Layer: Guiding Principles

## 3.1 Signing Messages at Application Layer

The same conditions on signing messages by the API Client as defined in [oFA-ProtSec] apply to all API endpoints and methods defined by this specification, cp. Section 4.

## 3.2 API Access Methods

The table in section 3.2.5, "Overview of Endpoints", gives an overview on the HTTP access methods supported by the API endpoints for the Extended Account Information Services.

### 3.2.1 Conditions in the following Table

Whether the support of a method is mandated for the ASPSP by this specification or whether it is an optional feature for the ASPSP, is denoted in column "Condition". The general notion is, that conditions are given relative to the parent node of the path. In the context of Extended Account Information Services, this is always equivalent to a "global" condition" in the sense that the condition applies depending on whether the corresponding Extended Account Information Service is supported by the ASPSP at all.

Please note that all methods called by an API Client, which are addressing dynamically created resources in this API, may only apply to resources, which have been created by the same API Client before.

### 3.2.2 Examples

Please note also, that table in section 3.2.5 contains a column "Description" with a reference to a section where the endpoint is described in more detail. These sections provide examples for all related access methods.

### 3.2.3 Interpretation and Support of Balance Types

**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Many (currently: all) Extended Account Information Services defined for non-current accounts support the transport of some kind of balance information for an account. What is understood as a "balance", strongly depends on the combination of the provided Balance Type (as defined in [oFA DaD]) and the service type as described above. The following table provides an Overview on which Balance Type codes are supported for which service type (related to an account type) and how they are to be interpreted in the context of that service type:

| Type | XAIS-CRD | XAIS-SAV | XAIS-LOAN | XAIS-SEC |
|---|---|---|---|---|
| closingBooked | Balance of the account at the end of the pre-agreed account reporting period. It is the sum of the opening booked balance at the beginning of the period and all entries booked to the account | As defined in [oFA DaD]. | As defined in [oFA DaD]. | Estimation based in the last fully finished trading date as interpreted by the ASPSP. |

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| Type | XAIS-CRD | XAIS-SAV | XAIS-LOAN | XAIS-SEC |
|---|---|---|---|---|
| | during the pre-agreed account reporting period.<br><br>For cards the account entries are booking entries from the card processor or invoices paid by the PSU. | | | |
| expected | Balance composed of booked entries and pending items known at the time of calculation, which projects the end of day balance if everything is booked on the account and no other entry is posted (as defined in [oFA DaD]). | As defined in [oFA DaD]. | As defined in [oFA DaD]. | Not supported. |
| openingBooked | Book balance of the account at the beginning of the account reporting period. It always equals the closing book balance from the previous report (as defined in [oFA DaD]). | As defined in [oFA DaD]. | As defined in [oFA DaD]. | Not supported. |
| interimAvailable | Available balance calculated in the course of the account 'servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis of booked credit and debit items during the calculation time/period specified (as defined in [oFA DaD]).<br><br>For cards, this is composed of<br>• invoiced, but not yet paid entries<br>• not yet invoiced but already booked entries | Not supported. | Not supported. | Intermediate estimation of the value. If a balance with type "interimAvailable" is used, it must indicate date and time of the evaluation in element referenceDateTime. |


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| Type | XAIS-CRD | XAIS-SAV | XAIS-LOAN | XAIS-SEC |
|---|---|---|---|---|
| | • pending items (not yet booked)<br><br>**Note:** The "interimAvaillable" balance where "creditLimitIncluded" equals true is the open to buy limit of the relevant card, while the "interimBooked" limit (next row) is referring to bookings between the card scheme and the bank, and the bank and the PSU respectively during the accounting period. | | | |
| interimBooked | Balance calculated in the course of the account servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis of booked credit and debit items during the calculation time/period specified (as defined in [oFA DaD]).<br><br>**Remark:** For cards, this time period consists of the accounting period of the related card, e.g. the interim booked items during a month. | As defined in [oFA DaD]. | As defined in [oFA DaD]. | Not supported. |
| forwardAvailable | Forward available balance of money that is at the disposal of the account owner on the date specified (as defined in [oFA DaD]). | Not supported. | Not supported. | Not supported. |
| nonInvoiced | Only for card accounts, to be defined yet (as defined in [oFA DaD]). | Not supported. | Not supported. | Not supported. |

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**Note**: Balance types are not applicable to the extended account information service (XAIS-STAT), since this service is a definition in addition to transaction reports e.g. for current accounts. The related balance types for current accounts are defined in e. g. [oFA-ComV2].

### 3.2.4 Examples for calculating the card balance types

**BOI remarks**: This section is not relevant for the Israeli market at this stage.

In the following, the above definitions for card balances are explained with examples due to the card specifics and the mapping of ISO20022 status codes defined above, which are not used today in ASPSP systems for cards.

**Balance type interimAvailable**

The following table give two examples on how the "interimAvailable" is calculated in case of "creditLimitIncluded" (true or false) in a setting, where

- Card 1 is associated with a partner card (Card 2),
- both cards have an individual limit and
- there is an additional "aggregated limit" applicable for both of them.

Please note that "debitAccounting" flag in all these cases equals `false`.

**Note:** The “interimAvaillable” balance where “creditLimitIncluded” equals true is the open to buy limit of the relevant card, while the "interimBooked" limit is referring to bookings between the card scheme and the bank, and the bank and the PSU respectively during the accounting period.

| **Aggregated Credit Limit** | **Credit Limit Card 1** | **Credit Limit Card 2** | **Spendings Card 1** | **Spendings Card 2** | **Interim Available Card 1 (Credit Limit included)** | **Interim Booked Card 1 (Credit Limit not included)** |
|---|---|---|---|---|---|---|
| 700 | 500 | 500 | 100 | 500 | 100 | -100 |
| 700 | 500 | 500 | 400 | 50 | 100 | -400 |

**Balance Types closingBooked and interimBooked for credit cards**

The "closingBooked" balance is the balance of the card at the end of an accounting period, i.e. at the end of the related invoicing period for credit cards. In case of the "debitAccounting" flag equals `false`, the example would be e.g.:

- closingBooked Balance at 31st July (end of invoicing period): -3456,12 Euro
- interimBooked Balance at 1st August (invoicing period not yet paid, new card transaction of 20 Euro): -3476,12 Euro
- interimBooked Balance at 2nd August (invoice had been paid): -20 Euro.


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**Balance Types closingBooked and interimAvailable for prepaid cards**

The "closingBooked" balance is the balance of the card at the end of an accounting period, i.e. at the end of the day for prepaid cards. In case of the "debitAccounting" flag equals `false`, the example would be e.g.:

- closingBooked Balance at 14 June 123,12 Euro
- interimAvailable Balance at 14 June, 1 pm. 103,12 Euro (20 Euro was used for shopping)
- closingBooked Balance at 15 June 103,12 Euro

### 3.2.5 Overview of Endpoints

| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| **Endpoint for XAIS-STAT** | | | |
| /accounts/{accountId}/statements | GET | Conditional<br><br>**BOI remarks**: Mandatory | Must be supported, if the ASPSP supports XAIS-STAT at all.<br><br>This specific endpoint provides the ability to retrieve the statement of a specified account. |
| /account-statements | GET | Conditional<br><br>**BOI remarks**: Mandatory | Must be supported, if the ASPSP supports XAIS-STAT at all.<br><br>In contrast to the previous endpoint, this endpoint retrieves all statements of all current accounts that the PSU has access to. |
| **Endpoints for XAIS-CRD**<br><br>**BOI remarks**: This section is not relevant for the Israeli market at this stage. | | | |
| /cards | GET | Conditional | Must be supported, if the ASPSP supports the XAIS-CRD at all.<br><br>Read the identifiers of the all cards (usually credit cards), to which an access has been granted to through the /consents endpoint by the PSU. In addition, relevant information about the cards and hyperlinks to corresponding card information resources are provided if a related consent has been already granted. |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| | | | See section 4.3.1. |
| /cards/{card-id} | GET | Mandatory | Read detailed information about the addressed card.<br><br>See section 4.3.2. |
| /cards/{card-id}/balances | GET | Mandatory | Read detailed balance information about the addressed card.<br><br>See section 4.3.3. |
| /cards/{card-id}/transactions | GET | Mandatory | Read the transaction list of the addressed card. For a given card, additional parameters are e.g. the attributes "dateFrom" and "dateTo".<br><br>See section 4.3.4. |
| **Endpoints for XAIS-SAV**<br><br>**BOI remarks**: This section is not relevant for the Israeli market at this stage. | | | |
| /savings | GET | Conditional | Must be supported, if the ASPSP supports XAIS-SAV at all.<br><br>Read the identifiers of all accounts of the XAIS-SAV, to which an account access has been granted to through consents that is referred to in the request.<br><br>See section 0. |
| /savings/{account-id} | GET | Mandatory | Give detailed information about the addressed account.<br><br>See section 4.4.2. |
| /savings/{account-id}/balances | GET | Mandatory | Give detailed balance information about the addressed account.<br><br>See section 4.4.3. |
| /savings/{account-id}/transactions | GET | Mandatory | Read the transaction list of the addressed account. For a given account, additional parameters are e.g. the attributes "dateFrom" and "dateTo". |

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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| | | | See section 4.4.4. |
| **Endpoints for XAIS-LOAN**<br><br>**BOI remarks**: This section is not relevant for the Israeli market at this stage. | | | |
| /loans | GET | Conditional | Must be supported, if the ASPSP supports XAIS-LOAN at all.<br><br>Read the identifiers of all accounts of the XAIS-LOAN, to which an account access has been granted to through consents that is referred to in the request.<br><br>See section 0. |
| /loans/{account-id} | GET | Mandatory | Give detailed information about the addressed account.<br><br>See section 4.5.2. |
| /loans/{account-id}/balances | GET | Mandatory | Give detailed balance information about the addressed account.<br><br>See section 4.5.3. |
| /loans/{account-id}/transactions | GET | Mandatory | Read the transaction list of the addressed account. For a given account, additional parameters are e.g. the attributes "dateFrom" and "dateTo".<br><br>See section 4.5.4. |
| **Endpoints for XAIS-SEC**<br><br>**BOI remarks**: This section is not relevant for the Israeli market at this stage. | | | |
| /securities-accounts | GET | Conditional | Must be supported, if the ASPSP supports XAIS-SEC at all.<br><br>Read the identifiers of all accounts of the XAIS-SEC, to which an account access has been granted to through consents that is referred to in the request. See section 0. |


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| Endpoints/Resources | Method | Condition | Description |
|---|---|---|---|
| /securities-accounts/{account-id} | GET | Mandatory | Give detailed information about the addressed account.<br><br>See section 4.6.2. |
| /securities-accounts/{account-id}/positions | GET | Mandatory | Read an overview of the positions contained in the addressed securities account.<br><br>See section 4.6.3. |
| /securities-accounts/{account-id}/transactions | GET | Mandatory | Read the transaction list of the addressed account. For a given account, additional parameters are e.g. the attributes "dateFrom" and "dateTo".<br><br>See section 4.6.4. |
| /securities-accounts/{account-id}/transactions/{transaction-id} | GET | Optional | Read transaction details of an addressed transaction on the addressed securities account.<br><br>See section 4.6.5. |
| /securities-accounts/{account-id}/orders | GET | Mandatory | Read the order lists of the addressed securities account.<br><br>See section 4.6.6. |
| /securities-accounts/{account-id}/orders/{order-id} | GET | Optional | Read order details of the addressed order.<br><br>See section 4.6.7. |

**NOTE:** All access methods on the Extended AIS API need a technical consent established through the mechanisms as specified in [oFA-CO] for the endpoints v2/consents/account-access.

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# 4 Extended Account Information

**NOTE:** The orange colour in this chapter is identifying paragraphs of the specification, where the Extended Account Information Service is deviating from the Core Account Information Services as defined in [oFA-ComV2].

## 4.1 Extended Read Account Data Flows

The Read Account Data Flow for all Extended Account Information Services is following exactly the flows of the Read Account Data Flow as defined in [oFA-ComV2].

Therefore, no specific API flows are described in the document at hand. The flows will be inherited the Read Account Data Flow in [oFA-ComV2].

## 4.2 Additional Endpoints for Account Statement (XAIS-STAT)

The following Endpoints provide the ability to retrieve the statement of a specified account as well as the statements corresponding to several accounts, which are accessible by the PSU.

This implementation is largely based on the statement format resulting from ISO20022 camt-05x messages. For the definitions in this section, attributes which are not supported yet in this release, but are generally available in ISO20022 are marked by grey colour.

The following new calls are defined:

### 4.2.1 Request

**Call**

```
GET /v2/accounts/{accountId}/statements
```

This call retrieves the statement related to the addressed account.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| accountId | Max70Text | This identification denotes the account, for which the statement is retrieved. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| fromDateTime | ISODateTime | Optional | Date and time at which the period of the account statement starts.<br><br>The ASPSP is not mandated to interpret the time fraction of the timestamp. In this case, the |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | validation would use only the presented date and provide statements accordingly.<br><br>If the API Client wants to retrieve the statements for the whole day, the value 00:00:00 shall be used as time fraction in the timestamp.<br><br>In case no starting period has been specified, the retrieved account statement shall contain the statement of the current period, where the chosen period is implementation specific.<br><br>Furthermore, the ASPSP may mandate the usage of this query parameter. |
| toDateTime | ISODateTime | Optional | Date and time at which the period of account statement ends.<br><br>The ASPSP is not mandated to interpret the time fraction of the timestamp. In this case, the validation would use only the presented date and provide statements accordingly.<br><br>If the API Client wants to retrieve the statements for the whole day, the value 24:00:00 shall be used as time fraction in the timestamp.<br><br>In case no ending period has been specified, the retrieved account statement shall contain the statement from the starting point of time till the date/time of the request. |
| cardBrand | Max35Text | Optional, if supported by the ASPSP | This attribute filters transactions according to their corresponding card brand. Only to be supported in a scenario, where this is used as |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | statements e.g. of card acquirers towards merchants. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. The X-Request-ID serves as an impotency key. |
| Consent-ID | Max70Text | Mandatory | Identification of the corresponding consent as granted by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

**Request Body**

No request body.

### 4.2.2 Response

**Response Code**

HTTP Response Code equals 200.

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**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| messageId | Max35Text | Mandatory | Point to point reference, as assigned by the sending party, to unambiguously identify the batch of transactions. |
| creationDateTime | ISODateTIme | Mandatory | Date and time at which the message was created. |
| messageRecipient | Party Identification | Optional | Party authorised by the account owner to receive information about movements on the account. |
| pageNumber | Integer | Optional | Page number. |
| lastPageIndicator | Boolean | Optional | Indicates the last page. |
| statement | Array of Statement | Mandatory | **Usage Rule:**<br><br>For /accounts/{account-id}/statements only a single statement element will be provided.<br><br>For /account-statements there will be one statement element for each account which is addressable by the PSU under the related consent. |

The overall structure of a JSON based statement is as follows:

- Statement (Array, one array element for every account)
  - Characteristics of the statement like pageNumber, account, balance and interest etc.
  - Entry (Array: List of legal booking entries)
    - Characteristics of the booking entry
    - Entry Details (additional information for every entry, in deviation to ISO20022 this is **not** an array.)
      - Batch: only contained if the entry is a batch
      - Transaction Details (Array, more than one element only if the entry is a batch)

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**NOTE**: The processing of multi-bulks within one booking is not supported.

### 4.2.3 Endpoint for all Accessed Accounts Statements

**Call**

```
GET /v2/account-statements
```

This call retrieves statements for all current accounts that the PSU has access to under the related PSU-ID and has provided consent.

**Note**: The structure of the account statement of several accounts is identical to the account statement of a dedicated account, since the account statement data structure always comes as an array of the actual statements per account.

**Path Parameters**

No Path Parameters

***All remaining Parameters are identical to the first call of retrieving a statement of a single specified account.***

### 4.2.4 Example

***Request***

```
GET https://api.testbank.com/v2/accounts/6d9a81b3-a47d-4130-8765-
a9c0ff861b99/statements?fromDateTime=2020-08-31T19:30:47+01:00

Accept:                 application/json
X-Request-ID:           99391c7e-a188-49ec-a2ad-99ddcb1f7756
Date:                   Sun, 31 Aug 2020 18:05:39 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-a188-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Sun, 31 Aug 2020 18:06:39 GMT

{
  "messageId": "27632364572",
  "creationDateTime": "2020-08-31T19:30:47+01:00",
  "messageRecipient": {
    "identification": {
      "organisationId": {
        "others": [ {
```


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```
          "identification": "Nachrichten-Empfänger"
        } ]
      }
    }
  },
  "pageNumber": "1",
  "lastPageIndicator": true,
  "statements": [ {
    "identification": "2736482736482",
    "electronicSequenceNumber": 101,
    "legalSequenceNumber": 32,
    "creationDateTime" : "2020-08-31T17:30:47+01:00",
    "account": {
      "iban": "DE62210500001234567890",
      "typeCode": "CACC",
      "currency": "EUR",
      "owner": {
        "name": "Name Kontoinhaber",
        "postalAddress" : {
          "streetName" : "Schlossallee",
          "postCode" : "53113",
          "townName" : "Bonn"
        }
      },
      "servicer": {
        "financialInstitutionId" : {
          "bicfi": "BANKDEFFXXX",
          "other": {
            "identification" : "DE123456789",
            "issuer": "UnsStId"
          }
        }
      }
    },
    "balance": [ {
      "typeCode": "PRCD",
      "amount": {
        "currency": "EUR",
        "amount": "1120.72"
      },
      "date": "2020-08-31"
    }, {
      "typeCode": "CLBD",
      "amount": {
        "currency": "EUR",
        "amount": "7994.04"
      },
      "date": "2020-08-31"
    } ],
```



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```
    "transactionSummary": [ {
      "totalEntries": {
        "numberOfEntries": "6",
        "sum": "-9,114.76"
     },
    "entry": [ {
      "entryReference" : "aaaaaa",
      "amount": {
        "currency": "EUR",
        "amount": "100.00"
      },
      "statusCode": "BOOK",
      "bookingDate": "2020-08-31T00:00:00Z",
      "valueDate": "2020-08-31T00:00:00Z",
      "accountServicerReference": "Bankreferenz",
      "bankTransactionCode": "PMNT-RCDT-ESCT",
      "bankTransactionCodeProprietary": "166",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "additionalEntryInformation": "SEPA GUTSCHRIFT",
      "entryDetails": [ {
        "transactionDetails": [ {
          "references": {
            "EndToEndId": "Ende-zu-Ende-Id des Ueberweisenden"
          },
          "amount": {
            "currency": "EUR",
            "amount": "100.00"
          },
          "bankTransactionCode": "PMNT-RCDT-ESCT",
          "bankTransactionCodeProprietary": "NTRF+166",
          "bankTransactionCodeProprietaryIssuer": "DK",
          "relatedParties": {
            "debtor": {
              "party": {
                "name": "Herr Überweisender"
              }
            },
            "debtorAccount": {
              "iban": "DE21500500001234567897"
            },
            "creditor": {
              "party": {
                "name": "Herr Kontoinhaber"
              }
            }
          },
          "relatedAgents": {
            "debtorAgent": {
              "financialInstitutionId": {
```




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```
                "bicfi": "SKUEDEFFXXX"
              }
            },
            "creditorAgent": {
              "financialInstitutionId": {
                "bicfi": "BANKDEFFXXX"
              }
            }
          },
          "purposeCode": "GDDS",
          "remittanceInformationUnstructured": [ "Rechnungsnr. 4711 vom
20.08.2020" ],
          "tax": {
            "creditor": {
              "taxId": "66682333666",
              "taxType": "Klasse A"
            },
            "method": "wages tax",
            "totalTaxableBaseAmount": "100.00",
            "totalTaxAmount": "12.00",
            "date": "2021-09-29",
           }
        } ]
      } ]
    }, {
      "entryReference": "bbbbbb",
      "amount": {
        "currency": "EUR",
        "amount": "200.00"
      },
      "statusCode": "BOOK",
      "bookingDate": "2020-08-31T00:00:00Z",
      "valueDate": "2020-08-31T00:00:00Z",
      "accountServicerReference": "Bankreferenz",
      "bankTransactionCode": "PMNT-ICDT-RRTN",
      "bankTransactionCodeProprietary": "159",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "additionalEntryInformation": "SEPA GUTSCHRIFT",
      "entryDetails": [ {
        "transactionDetails": [ {
          "references": {
            "EndToEndId": "Urspr. E2E-Id der Hintransaktion"
          },
          "amount": {
            "currency": "EUR",
            "amount": "200.00"
          },
          "bankTransactionCode": "PMNT-ICDT-RRTN",
          "bankTransactionCodeProprietary": "NRTI+159++901",
```



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```
          "bankTransactionCodeProprietaryIssuer": "DK",
          "relatedParties": {
            "debtor": {
              "party": {
                "name": "Herr Original-Ueberweisender"
              }
            },
            "debtorAccount": {
              "iban": "DE62210500001234567890"
            },
            "creditor": {
              "party": {
                "name": "Herr Original-Ueberweisungsempfänger"
              }
            },
            "creditorAccount": {
              "iban": "DE21500500001234567897"
            }
          },
          "relatedAgents": {
            "debtorAgent": {
              "financialInstitutionId": {
                "bicfi": "BANKDEFFXXX"
              }
            },
            "creditorAgent": {
              "financialInstitutionId": {
                "bicfi": "SKUEDEFFXXX"
              }
            }
          },
          "remittanceInformationUnstructured": [ "Angabe des urspruenglichen
Verwendungszweckes" ]
        } ]
      } ]
    }, {
      "entryReference": "cccccc",
      "amount": {
        "currency": "EUR",
        "amount": "-50.00"
      },
      "statusCode": "BOOK",
      "bookingDate": "2020-08-31T00:00:00Z",
      "valueDate": "2020-08-31T00:00:00Z",
      "accountServicerReference": "Bankreferenz",
      "bankTransactionCode": "PMNT-RDDT-ESDD",
      "bankTransactionCodeProprietary": "105",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "additionalEntryInformation": "SEPA LASTSCHRIFT",
```



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```
      "entryDetails": [ {
        "transactionDetails": [ {
          "references": {
            "EndToEndId": "E2E-Id vergeben vom Glaeubiger",
            "mandateId": "123Mandatsref45678"
          },
          "amount": {
            "currency": "EUR",
            "amount": "-50.00"
          },
          "bankTransactionCode": "PMNT-RDDT-ESDD",
          "bankTransactionCodeProprietary": "NDDT+105",
          "bankTransactionCodeProprietaryIssuer": "DK",
          "relatedParties": {
            "debtor": {
              "party": {
                "name": "Herr Zahlungspflichtiger"
              }
            },
            "debtorAccount": {
              "iban": "DE62210500001234567890"
            },
            "creditor": {
              "party": {
                "name": "Glaeubigerfirma",
                "identification": {
                  "privateId": {
                    "others": [ {
                      "identification": "Cdtr-Id des Glaeubigers"
                    } ]
                  }
                }
              }
            },
            "creditorAccount": {
              "iban": "DE21500500001234567897"
            }
          },
          "relatedAgents": {
            "debtorAgent": {
              "financialInstitutionId": {
                "bicfi": "BANKDEFFXXX"
              }
            },
            "creditorAgent": {
              "financialInstitutionId": {
                "bicfi": "SKUEDEFFXXX"
              }
            }
```



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```
          },
          "purposeCode": "PHON",
          "remittanceInformationUnstructured": [ "Telefonrechnung August
2020, Vertragsnummer 3536456345" ]
        } ]
      } ]
    }, {
      "entryReference": "dddddd",
      "amount": {
        "currency": "EUR",
        "amount": "-156.00"
      },
      "statusCode": "BOOK",
      "bookingDate": "2020-08-31T00:00:00Z",
      "valueDate": "2020-08-31T00:00:00Z",
      "accountServicerReference": "Bankreferenz",
      "bankTransactionCode": "PMNT-IDDT-UPDD",
      "bankTransactionCodeProprietary": "109",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "entryDetails": [ {
        "batch": {
          "numberOfTransactions": "2"
        },
        "transactionDetails": [ {
          "references": {
            "EndToEndId": "79892",
            "mandateId": "10001"
          },
          "amount": {
            "currency": "EUR",
            "amount": "-76.00"
          },
          "amountDetails": {
            "instructedAmount": {
              "amount": {
                "currency": "EUR",
                "amount": "69"
              }
            }
          },
          "bankTransactionCode": "PMNT-IDDT-UPDD",
          "bankTransactionCodeProprietary": "NRTI+109++901",
          "bankTransactionCodeProprietaryIssuer": "DK",
          "charges": {
            "record": [ {
              "amount": {
                "currency": "EUR",
                "amount": "-3"
              },
```



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```
            "chargeIncludedIndicator": true,
            "agent": {
              "financialInstitutionId": {
                "bicfi": "BANKDEFFXXX"
              }
            }
          }, {
            "amount": {
              "currency": "EUR",
              "amount": "-4"
            },
            "chargeIncludedIndicator": true,
            "agent": {
              "financialInstitutionId": {
                "bicfi": "COBADEFFXXX"
              }
            }
          } ]
        },
        "relatedParties": {
          "debtor": {
            "party": {
              "name": "Urspruenglicher Zahlungspflichtiger 1"
            }
          },
          "debtorAccount": {
            "iban": "DE89370400440532013000"
          },
          "creditor": {
            "party": {
              "name": "Name des Kontoinhabers, hatte ursprünglich LS
gezogen",
              "identification": {
                "privateId": {
                  "others": [ {
                    "identification": "DE98ZZZ09999999999"
                  } ]
                }
              }
            }
          },
          "creditorAccount": {
            "iban": "DE62210500001234567890"
          }
        },
        "relatedAgents": {
          "debtorAgent": {
            "financialInstitutionId": {
              "bicfi": "COBADEFFXXX"
```



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```
            }
          },
          "creditorAgent": {
            "financialInstitutionId": {
              "bicfi": "BANKDEFFXXX"
            }
          }
        },
        "remittanceInformationUnstructured": [ "Angabe des urspruenglichen
Verwendungszweckes" ]
      }, {
        "references": {
          "EndToEndId": "768768",
          "mandateId": "10002"
        },
        "amount": {
          "currency": "EUR",
          "amount": "-80.00"
        },
        "amountDetails": {
          "instructedAmount": {
            "amount": {
              "currency": "EUR",
              "amount": "76"
            }
          }
        },
        "bankTransactionCode": "PMNT-IDDT-UPDD",
        "bankTransactionCodeProprietary": "NRTI+109++901",
        "bankTransactionCodeProprietaryIssuer": "DK",
        "charges": {
          "record": [ {
            "amount": {
              "currency": "EUR",
              "amount": "-4"
            },
            "chargeIncludedIndicator": true,
            "agent": {
              "financialInstitutionId": {
                "bicfi": "NOLADE21KIE"
              }
            }
          } ]
        },
        "relatedParties": {
          "debtor": {
            "party": {
              "name": "Urspruenglicher Zahlungspflichtiger 1"
            }
```



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```
            },
            "debtorAccount": {
              "iban": "DE68210501700012345678"
            },
            "creditor": {
              "party": {
                "name": "Name des Kontoinhabers, hatte ursprünglich LS
gezogen",
                "identification": {
                  "privateId": {
                    "others": [ {
                      "identification": "DE98ZZZ09999999999"
                    } ]
                  }
                }
              }
            },
            "creditorAccount": {
              "iban": "DE62210500001234567890"
            }
          },
          "remittanceInformationUnstructured": [ "Angabe des urspruenglichen
Verwendungszweckes" ]
        } ]
      } ]
    }, {
      "entryReference": "eeeeee",
      "amount": {
        "currency": "EUR",
        "amount": "-8500.00"
      },
      "statusCode": "BOOK",
      "bookingDate": "2020-08-31T00:00:00Z",
      "valueDate": "2020-08-31T00:00:00Z",
      "accountServicerReference": "Bankreferenz",
      "bankTransactionCode": "PMNT-ICDT-ESCT",
      "bankTransactionCodeProprietary": "191",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "additionalEntryInformation": "SEPA-Ueberweisung",
      "entryDetails": [ {
        "batch": {
          "messageId": "MsgId der pain-Nachricht",
          "paymentInformationId": "Sammler-Id dieser pain-Nachricht",
          "numberOfTransactions": "34"
        },
        "transactionDetails": [ {
          "amount": {
            "currency": "EUR",
            "amount": "-8500.00"
```



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```
        },
        "bankTransactionCode": "PMNT-ICDT-ESCT",
        "bankTransactionCodeProprietary": "NTRF+191",
        "bankTransactionCodeProprietaryIssuer": "DK"
      } ]
    } ]
  }, {
    "entryReference": "eeeeee",
    "amount": {
      "currency": "EUR",
      "amount": "-276.00"
    },
    "statusCode": "BOOK",
    "bookingDate": "2020-08-31T00:00:00Z",
    "valueDate": "2020-08-31T00:00:00Z",
    "accountServicerReference": "Bankreferenz",
    "bankTransactionCode": "PMNT-IDDT-UPDD",
    "bankTransactionCodeProprietary": "109",
    "bankTransactionCodeProprietaryIssuer": "DK",
    "additionalInformationIndicatorMessageNameId": "camt.054.001.08",
    "additionalInformationIndicatorMessageId": "054-20200831-00034",
    "entryDetails": [ {
      "batch": {
        "numberOfTransactions": "3",
        "totalAmount": {
          "currency": "EUR",
          "amount": "-276.00"
        }
      },
      "transactionDetails": [ {
        "amount": {
          "currency": "EUR",
          "amount": "-276.00"
        },
        "bankTransactionCode": "PMNT-IDDT-UPDD",
        "bankTransactionCodeProprietary": "NRTI+109",
        "bankTransactionCodeProprietaryIssuer": "DK"
      } ]
    } ]
  }, {
    "entryReference": "ffffff",
    "amount": {
      "currency": "EUR",
      "amount": "-432.76"
    },
    "statusCode": "BOOK",
    "bookingDate": "2020-08-31T00:00:00Z",
    "valueDate": "2020-08-31T00:00:00Z",
    "accountServicerReference": "Bankreferenz",
```

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```
      "bankTransactionCode": "PMNT-ICDT-XBCT",
      "bankTransactionCodeProprietary": "201",
      "bankTransactionCodeProprietaryIssuer": "DK",
      "additionalEntryInformation": "ZAHLUNGSAUFTRAG",
      "entryDetails": [ {
        "transactionDetails": [ {
          "references": {
            "EndToEndId": "Ende-zu-Ende-Id des Ueberweisenden",
            "uetr": "32ef3d04-e2a6-4a36-ba3c-1c0865e8410c"
          },
          "amount": {
            "currency": "EUR",
            "amount": "-432.76"
          },
          "amountDetails": {
            "instructedAmount": {
              "amount": {
                "currency": "USD",
                "amount": "500"
              },
              "currencyExchange": {
                "sourceCurrency": "USD",
                "targetCurrency": "EUR",
                "unitCurrency": "EUR",
                "exchangeRate": 1.1827
              }
            },
            "transactionAmount": {
              "amount": {
                "currency": "USD",
                "amount": 500
              }
            },
            "counterValueAmount": {
              "amount": {
                "currency": "EUR",
                "amount": "422.76"
              }
            }
          },
          "bankTransactionCode": "PMNT-ICDT-XBCT",
          "bankTransactionCodeProprietary": "NTRF+201",
          "bankTransactionCodeProprietaryIssuer": "DK",
          "charges": {
            "record": [ {
              "amount": {
                "currency": "EUR",
                "amount": "-10"
              },
```

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```
            "chargeIncludedIndicator": true,
            "agent": {
              "financialInstitutionId": {
                "bicfi": "BANKDEFFXXX"
              }
            }
          } ]
        },
        "relatedParties": {
          "debtor": {
            "party": {
              "name": "Herr Kontoinhaber"
            }
          },
          "creditor": {
            "party": {
              "name": "J.R. Ewing",
              "postalAddress": {
                "streetName": "South Polk Street",
                "postCode": "75089",
                "townName": "Dallas",
                "country": "US"
              }
            }
          },
          "creditorAccount": {
            "other": {
              "identification": "3756478365"
            },
            "currency": "USD"
          }
        },
        "relatedAgents": {
          "creditorAgent": {
            "financialInstitutionId": {
              "bicfi": "CHASUS33XXX"
            }
          }
        },
        "purposeCode": "IVPT"
      } ]
    } ]
  } ]
}
```




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## 4.3 Endpoints for Single Cards (XAIS-CRD)

**BOI remarks**: This section is not relevant for the Israeli market at this stage.

### 4.3.1 Read Card List

#### 4.3.1.1 Request

**Call**

```
GET /v2/cards
```

Reads a list of cards potentially with additional information, such as balance information. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of cards depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Note:** In case of corresponding access rights granted by the consent, additional details might be retrieved by addressing the /cards/{card-id} endpoint, cp. section 4.3.2.

**Query Parameters**

No specific query parameter.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. The X-Request-ID serves as an impotency key. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | Max70Text | Mandatory | Identification of the corresponding consent as granted by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

**Request Body**

No request body.

#### 4.3.1.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| cards | Array of Card Account Details | Mandatory | Descriptions of the accessible cards. |

**Remark:** The same syntactical structure is used to transport card information as card account information. In difference to the card-accounts context, in some attributes properties of the dedicated card are provided instead of properties of the underlying reconciliation account. This applies for example to the status attribute.

**NOTE**: If one of the card is a multicurrency card, then the account currency equals "XXX" as for current accounts.

#### 4.3.1.3 Example

***Request***

```
GET https://api.testbank.com/v2/cards

Accept:                 application/json
```


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```
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "cards": [
    {
      "resourceId": "6d9a81b3-a47d-4130-8765-a9c0ff861b99",
      "maskedPan": "525412******3241",
      "currency": "EUR",
      "name": "Main",
      "product": "Basic Credit Card",
      "debitAccounting": false,
      "status": "enabled",
      "creditLimit": {"currency": "EUR", "amount": "5000"},
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "-1390.10"},
          "balanceType": "interimBooked"
        }, {
          "balanceAmount": {"currency": "EUR", "amount": "3609.90"},
          "balanceType": "interimAvailable",
          "creditLimitIncluded": true
        }
      ]
    }, {
      "resourceId": "6d9a81b3-a47d-4130-8765-a9c0ff861b98",
      "maskedPan": "525412******3242",
      "currency": "EUR",
      "name": "PartnerCard",
      "product": "Basic Credit Card",
      "debitAccounting": false,
      "status": "enabled",
      "creditLimit": {"currency": "EUR", "amount": "5000"},
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "-559.10"},
          "balanceType": "interimBooked"
        },{
          "balanceAmount": {"currency": "EUR", "amount": "4440.90"},
```

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```
          "balanceType": "interimAvailable",
          "creditLimitIncluded": true
        }
      ]
    }
  ]
}
```

### 4.3.2 Read Card Details

#### 4.3.2.1 Request

**Call**

```
GET /v2/cards/{card-id}
```

Reads details about a card. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed details of this account depends then on the stored consent addressed by consentId, respectively the OAuth2 access token.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| card-id | Max70Text | This identification is denoting the addressed card. The card-id is retrieved by using a "Read Card List" call. The card-id is the "resourceId" attribute of the card structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No specific query parameter.

**Request Header**

The same requirements towards request headers apply as for the "Read Card List" request (see section 4.3.1).

**Request Body**

No request body.

#### 4.3.2.2 Response

**Response Code**

HTTP Response Code equals 200.


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**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| card | Card Account Details | Mandatory | Description of the addressed card. |

**Remark:** The same syntactical structure is used to transport card information as card account information.

**NOTE**: If the card is a multicurrency card, then the account currency equals “XXX" as for current accounts.

#### 4.3.2.3 Examples

##### 4.3.2.3.1 Standard Card

```
GET https://api.testbank.com/v2/cards/6d9a81b3-a47d-4130-8765-a9c0ff861b99

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7750
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7750
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "card": {
    "resourceId": "6d9a81b3-a47d-4130-8765-a9c0ff861b99",
    "maskedPan": "525412******3241",
    "currency": "EUR",
    "debitAccounting": false,
```

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```
    "name": "Main",
    "product": "Basic Credit Card",
    "status": "enabled",
    "creditLimit": {"currency": "EUR", "amount": "5000"},
    "balances": [
      {
        "balanceAmount": {"currency": "EUR", "amount": "-1390.10"},
        "balanceType": "interimBooked"
      }, {
        "balanceAmount": {"currency": "EUR", "amount": "3609.90"},
        "balanceType": "interimAvailable",
        "creditLimitIncluded": true
     }
    ],
    "_links": {
      "self": {
        "href": "/v2/cards/4d9a81b3-a47d-4130-8765-a9c0ff861b99"
      },
      "transactions": {
        "href": "/v2/cards/4d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions"
      }
    }
  }
}
```


#### 4.3.2.3.2 Multicurrency Card with Balances)

```
GET https://api.testbank.com/v2/cards/6d9a81b3-a47d-4130-8765-a9c0ff861b00

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f77aa
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f77aa
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "card": {
    "resourceId": "6d9a81b3-a47d-4130-8765-a9c0ff861b00",
    "maskedPan": "525412******3241",
    "currency": "XXX",
```

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```
    "name": "Main",
    "product": "Basic Credit Card",
    "debitAccounting": false,
    "status": "enabled",
    "creditLimit": {"currency": "EUR", "amount": "5000"},
    "balances": [
      {
        "balanceAmount": {"currency": "EUR", "amount": "-1390.10"},
        "balanceType": "interimBooked",
      },{
        "balanceAmount": {"currency": "EUR", "amount": "3155.17"},
        "balanceType": "interimAvailable",
        "creditLimitIncluded": true
      }, {
        "balanceAmount": {"currency": "USD", "amount": "-500.20"},
        "balanceType": "interimBooked"
      },{
        "balanceAmount": {"currency": "USD", "amount": "3470.69"},
        "balanceType": "interimAvailable",
        "creditLimitIncluded": true
      }
    ],
    "_links": {
      "self": {
        "href": "/v2/cards/6d9a81b3-a47d-4130-8765-a9c0ff861b00"
      },
      "transactions": {
        "href": "/v2/cards/6d9a81b3-a47d-4130-8765-
a9c0ff861b00/transactions"
      }
    }
  }
}
```


### 4.3.3 Read Card Balances

#### 4.3.3.1 Request

**Call**

```
GET /v2/cards/{card-id}/balances
```

Reads balance data from a given card addressed by "card-id". Please note, that the current credit line of a given card might be tighter than what a response to this request will suggest due to general credit limits on the card account and transactions by other cards to the same card account.


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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| card-id | Max70Text | This identification is denoting the addressed card. The card-id is retrieved by using a "Read Card List" call. The card-id is the "resourceId" attribute of the card structure. Its value is constant at least throughout the lifecycle of a given consent. |

### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | optional | Requests in addition to the balances of the current accounting period all booked balances at the end of previous accounting periods (e.g. monthly periods) from the provided date on if still retrievable under the given consent.<br><br>**Note:** The accounting period is the invoicing period of the related card.<br><br>This parameter is ignored by the ASPSP if it is not supported.<br><br>A TPP may not include both parameters "dateFrom" and "valueDateFrom" in the same request. |
| valueDateFrom | ISODate | Optional | Requests in addition to the balances of the current accounting period all balances at the end of previous accounting periods (e.g. monthly periods) with payment due date starting from the provided date on if still retrievable under the given consent.<br><br>A TPP may not include both parameters "dateFrom" and "valueDateFrom" in the same request.<br><br>**Note:** The accounting period is the invoicing period of the related card.<br><br>This parameter is ignored by the ASPSP if it is not supported. |

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**Request Header**

The same requirements towards request header apply as for the "Read Card List" request (see section 4.3.1).

**Request Body**

No request body.

#### 4.3.3.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| card | Account Reference | Mandatory | Identifier of the addressed card. |
| debitAccounting | Boolean | Optional | If true, the amounts of debits on the reports are quoted positive with the related consequence for balances.<br><br>If false, the amounts of debits on the reports are quoted negative. |
| balances | Array of Balance | Mandatory | |

#### 4.3.3.3 Examples

##### 4.3.3.3.1 Request for current Balances only (without PSU involvement)

***Request***

```
GET https://api.testbank.com/v2/cards/6d9a81b3-a47d-4130-8765-
a9c0ff861b99/balances
```


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```
Accept:                 application/json
X-Request-ID:           99391c7e-a188-49ec-a2ad-99ddcb1f7756
Date:                   Sun, 20 Sep 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-a188-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Sun, 20 Sep 2020 15:05:38 GMT

{
  "card": {"maskedPan": "525412******3241"},
  "debitAccounting": false,
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "5654.22"},
      "balanceType": "interimAvailable",
      "creditLimitIncluded": true
    },{
      "balanceAmount": {"currency": "EUR", "amount": "-4355.78"},
      "balanceType": "interimBooked"
    }
  ]
}
```

#### 4.3.3.3.2 Request covering also booked Balances of the Past (without PSU involvement)

### *Request*

```
GET https://api.testbank.com/v2/cards/6d9a81b3-a47d-4130-8765-
a9c0ff861b99?dateFrom=2020-06-01

Accept:                 application/json
X-Request-ID:           99391c7e-a288-49ec-a2ad-99ddcb1f7757
Date:                   Sun, 20 Sep 2020 15:05:39 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-a288-49ec-a2ad-99ddcb1f7757
Content-Type:           application/json
Date:                   Sun, 20 Sep 2020 15:05:40 GMT
```


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```
{
  "card": {"maskedPan": "525412******3241"},
  "debitAccounting": false,
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "5654.22"},
      "balanceType": "interimAvailable",
      "creditLimitIncluded": true
    },{
      "balanceAmount": {"currency": "EUR", "amount": "-4355.78"},
      "balanceType": "interimBooked"
    },{
      "balanceAmount": {"currency": "EUR", "amount": "-2255.45"},
      "balanceType": "closingBooked",
      "referenceDate": "2020-06-30"
    },{
      "balanceAmount": {"currency": "EUR", "amount": "-1234.56"},
      "balanceType": "closingBooked",
      "referenceDate": "2020-07-31"
    },{
      "balanceAmount": {"currency": "EUR", "amount": "-234.01"},
      "balanceType": "closingBooked",
      "referenceDate": "2020-08-31"
    }
  ]
}
```


### 4.3.4 Read Card Transaction List

#### 4.3.4.1 Request

**Call**

```
GET /v2/cards/{card-id}/transactions
```

Reads transaction data from a given card addressed by "card-id".

**Remark**: This card-id is a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This card-id then can be retrieved by the "Read Card List" call, see section 4.3.1.

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header.

**Remark:** Please note that the PATH might be already given in detail by the response of the "Read Card List" call within the _links subfield.


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### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| card-id | Max70Text | This identification is denoting the addressed card. The card-id is retrieved by using a "Read Card List" call. The card-id is the "resourceId" attribute of the card structure. Its value is constant at least throughout the lifecycle of a given consent. |

### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required. |
| dateTo | ISODate | Optional | End date (inclusive the data dateTo) of the transaction list, default is "now" if not given. |
| bookingStatus | String | Mandatory | Permitted codes are "booked", "pending" and "both".<br><br>"booked" shall be supported by the ASPSP.<br><br>To support the "pending" and "both" feature is optional for the ASPSP, Error code if not supported. |
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the last report access for this PSU on the addressed account.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported. |
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |

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**Request Header**

The same requirements towards request header apply as for the "Read Card List" request (see section 4.3.1).

**Request Body**

No request body.

#### 4.3.4.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| card | Account Reference | Mandatory | Identifier of the addressed card. |
| debitAccounting | Boolean | Optional | If true, the amounts of debits on the reports are quoted positive with the related consequence for balances.<br><br>If false, the amounts of debits on the reports are quoted negative. |
| cardTransactions | Card Account Report | Optional | JSON based account report including only transactions for the specifically requested card. |
| balances | Array of Balance | Optional | A list of balances regarding this card, which might be restricted to the current balance. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response: |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "download": a link to a resource, where the transaction report might be downloaded from in case where transaction reports have a huge size. |

#### 4.3.4.3 Example

***Request***

```
GET https://api.testbank.com/v2/cards/6d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions?dateFrom=2017-10-01&dateTo=2017-10-
30&bookingStatus=both

Accept:                 application/json
X-Request-ID:           99391c7e-a188-49ec-12ad-99ddcb1f7756
Date:                   Sun, 20 Sep 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-12ad-99ddcb1f7721
Date:                   Sun, 06 Aug 2017 15:05:47 GMT
Content-Type:           application/json

{
  "card": {"maskedPan": "525412******3241"},
  "debitAccounting": false,
  "cardTransactions": {
    "booked": [
      {
        "cardTransactionId": "201710020036959",
        "transactionAmount": {"currency": "EUR", "amount": "-256.67"},
        "grandTotalAmount": {"currency": "EUR", "amount": "-2566.70"},
        "transactionDate": "2017-10-25",
        "bookingDate": "2017-10-26",
        "valueDate": "2017-11-01",
        "cardAcceptorAddress": {
          "townName": "STOCKHOLM",
          "country": "SE"
        },
        "proprietaryBankTransactionCode": "INSTALMENT",
        "invoiced": false,
        "transactionDetails": "WIFIMARKET.SE"
      }, {
        "cardTransactionId": "201710020091863",
```


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```
        "transactionAmount": {"currency": "EUR", "amount": "-10.72"},
        "transactionDate": "2017-10-25",
        "bookingDate": "2017-10-26",
        "valueDate": "2017-11-01",
        "originalAmount": {"currency": "SEK", "amount": "-99"},
        "cardAcceptorAddress": {
          "townName": "STOCKHOLM",
          "country": "SE"
        },
        "proprietaryBankTransactionCode": "PURCHASE",
        "invoiced": false,
        "transactionDetails": "ICA SUPERMARKET SKOGHA"
      }
    ],
    "pending": [],
    "_links": {
      "card": {
        "href": /v2/cards/6d9a81b3-a47d-4130-8765-a9c0ff861b99"
      }
    }
  }
}
```


## 4.4 Endpoints for Savings Accounts (XAIS-SAV)

**BOI remarks**: This section is not relevant for the Israeli market at this stage.

### 4.4.1 Read Account List

#### 4.4.1.1 Request

**Call**

```
GET /v2/savings
```

Reads a list of savings accounts. The ASPSP may choose to provide information on balances in the response. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Note:** If the consent is granted only to show the list of addressable accounts, much less details are displayed about the accounts. Specifically hyperlinks to additional resources such as balances or transaction endpoint should not be delivered then.

**Note:** In case of corresponding access rights granted by the consent, additional details might be retrieved by addressing the /savings/{account-id} endpoint, cp. Section 4.4.2.


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### Path Parameters

No path parameters defined.

### Query Parameters

No query parameters defined.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. The X-Request-ID serves as an impotency key. |
| Consent-ID | Max70Text | Mandatory | Consent-Id as obtained during consent establishment for the consent resulting from the "Establish Consent on Account Information" performed via this API before. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

### Request Body

No request body.

#### 4.4.1.2 Response

### Response Code

The HTTP response code equals 200.


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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accounts | Array of Account Details | Mandatory | In case, no account is accessible, the ASPSP shall return an empty array. As this is also considered a positive response, the Response code must still be 200.<br><br>Please note that some attributes of an Account Details object are only supported for specific account types. For Details, see [oFA DaD]. |

#### 4.4.1.3 Example

***Request***

```
GET https://api.testbank.com/v2/savings

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "accounts": [
    {
      "resourceId": "4dc3d5b3-7023-4848-9853-f5400a64e81g",
      "other": {"identification": "MyProprietaryID-0001"},
      "currency": "EUR",
```


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```
      "ownerName": "Paul Simpson",
      "name": "Savings 1a",
      "product": "Saving Account",
      "cashAccountType": "SVGS",
      "interest": [
        {
          "type": "FIXD",
          "rate": [
            {
              "percentage": "1.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
          ],
          "toDateTime": "2017-01-05T23:59:59"
        }, {
          "type": "FIXD",
          "rate": [
            {
              "percentage": "0.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
          ],
          "fromDateTime": "2017-01-06T00:00:00"
        }
      ],
      "relatedDates": {
        "contractStartDate": "2016-01-01",
        "contractEndDate": "2026-01-01",
        "contractAvailabilityDate": "2019-01-01"
      },
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": 5000.00"},
          "balanceType": "closingBooked",
          "referenceDate": "2020-10-01"
        }
      ],
      "_links": {
        "balances": {
          "href": "/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g/balances"
```



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```
        },
        "transactions": {
          "href": "/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
        }
      }
    }, {
      "resourceId": "4dc3d5b3-7023-4848-9853-f5400a64e813",
      "other": {"identification": "MyProprietaryID-0002"},
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": "Savings 1b",
      "product": "Saving Account",
      "cashAccountType": "SVGS",
      "interest": [
        {
          "type": "FIXD",
          "rate": [
            {
              "percentage": "1.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
          ],
          "toDateTime": "2017-01-05T23:59:59"
        }, {
          "type": "FIXD" ,
          "rate": [
            {
              "percentage": "0.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
          ],
          "fromDateTime": "2017-01-06T00:00:00"
        }
      ],
      "relatedDates": {
        "contractSstartDate": "2016-01-01",
        "contractEndDate": "2026-01-01",
        "contractAvailabilityDate": "2019-01-01"
      },
      "balances": [
```



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```
        {
          "balanceAmount": {"currency": "EUR", "amount": 4000.00"},
          "balanceType": "closingBooked",
          "referenceDate": "2020-10-01"
        }
      ],
      "_links": {
        "balances": {
          "href": "/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e813/balances"
        },
        "transactions": {
          "href": "/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e813/transactions"
        }
      }
    }, {
      "resourceId": "4dc3d5b4-5765-4848-9853-f5400a64e81g",
      "iban": "DE23100100101234567799",
      "currency": "XXX",
      "ownerName": "Paul Simpson",
      "name": "Savings 2",
      "product": "Saving Account",
      "cashAccountType": "SVGS",
      "interest":[
        {
          "type": "FIXD",
          "rate": [
            {
              "percentage": "1.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
          ],
          "toDateTime": "2017-01-05T23:59:59"
        }, {
          "type": "FIXD",
          "rate": [
            {
              "percentage": "0.5",
              "fromAmount": {"currency": "EUR", "amount": "0.0"},
              "toAmount": {"currency": "EUR", "amount": "2000"}
            }, {
              "percentage": "0.1",
              "fromAmount": {"currency": "EUR", "amount": "2000"}
            }
```

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```
        ],
        "fromDateTime": "2017-01-06T00:00:00"
      }, {
        "type": "FIXD",
        "rate": [
          {
            "percentage": "1.5",
            "fromAmount": {"currency": "ILS", "amount": "0.0"},
            "toAmount": {"currency": "ILS", "amount": "8000"}
          }, {
            "percentage": "0.1",
            "fromAmount": {"currency": "ILS", "amount": "8000"}
          }
        ],
        "toDateTime": "2017-01-05T23:59:59"
      }, {
        "type": "FIXD",
        "rate": [
          {
            "percentage": "0.5",
            "fromAmount": {"currency": "ILS", "amount": "0.0"},
            "toAmount": {"currency": "ILS", "amount": "8000"}
          }, {
            "percentage": "0.1",
            "fromAmount": {"currency": "ILS", "amount": "8000"}
          }
        ],
        "fromDateTime": "2017-01-06T00:00:00"
      }
    ],
    "relatedDates": {
      "contractStartDate": "2016-01-01",
      "contractEndDate": "2026-01-01",
      "contractAvailabilityDate": "2019-01-01"
    },
    "balances": [
      {
        "balanceAmount": {"currency": "EUR", "amount": 10000.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2020-10-01"
      }, {
        "balanceAmount": {"currency": "ILS", "amount": 40000.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2020-10-01"
      }
    ],
    "_links": {
      "balances": {
```



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```
          "href": "/v2/savings/4dc3d5b4-5765-4848-9853-
f5400a64e81g/balances"
        },
        "transactions": {
          "href": "/v2/savings/4dc3d5b4-5765-4848-9853-
f5400a64e81g/transactions"
        }
      }
    }
  ]
}
```


### 4.4.2 Read Account Details

#### 4.4.2.1 Request

**Call**

```
GET /v2/savings/{account-id}
```

Reads details about a savings account. The ASPSP may choose to provide information on balances in the response. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.


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#### 4.4.2.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Details | Mandatory | Description of the addressed account. |

#### 4.4.2.3 Example

***Request***

```
GET https://api.testbank.com//v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {
    "resourceId": "4dc3d5b3-7023-4848-9853-f5400a64e81g",
    "iban": "DE23100100101234567888",
    "currency": "EUR",
    "ownerName": "Paul Simpson",
```

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```
"name": "Savings 1",
"product": "Saving Account",
"cashAccountType": "SVGS",
"status": "enabled",
"interest": [
  {
    "type": "FIXD",
    "rate": [
      {
        "percentage": "1.5",
        "fromAmount": {"currency": "EUR", "amount": "0.0"},
        "toAmount": {"currency": "EUR", "amount": "2000"}
      }, {
        "percentage": "0.1",
        "fromAmount": {"currency": "EUR", "amount": "2000"}
      }
    ],
    "toDateTime": "2017-01-05T23:59:59"
  }, {
    "type": "FIXD" ,
    "rate": [
      {
        "percentage": "0.5",
        "fromAmount": {"currency": "EUR", "amount": "0.0"},
        "toAmount": {"currency": "EUR", "amount": "2000"}
      }, {
        "percentage": "0.1",
        "fromAmount": {"currency": "EUR", "amount": "2000"}
      }
    ],
    "fromDateTime": "2017-01-06T00:00:00"
  }
],
"relatedDates": {
  "contractStartDate": "2016-01-01",
  "contractEndDate": "2026-01-01",
  "contractAvailabilityDate": "2019-01-01"
},
"balances": [
  {
    "balanceAmount": {"currency": "EUR", "amount": 5000.00"},
    "balanceType": "closingBooked",
    "referenceDate": "2020-10-01"
  }
],
"_links": {
  "balances": {
    "href": "/v2/savings/4dc3d5b3-7023-4848-9853-f5400a64e81g/balances"
  },
```



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```
      "transactions": {
        "href": "/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
      }
    }
  }
}
```

### 4.4.3 Read Account Balances

#### 4.4.3.1 Request

**Call**

```
GET /v2/savings/{account-id}/balances
```

Reads balance data from a given savings account addressed by "account-id".

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.4.3.2 Response

**Response Code**

HTTP Response Code equals 200.


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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| balances | Array of Balance | Mandatory | For the usage and interpretation of the balance type, compare section 3.2.3. |

#### 4.4.3.3 Example

***Request***

```
GET https://api.testbank.com/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g/balances

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-89ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-89ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {"iban": "DE23100100101234567888"},
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "5000.00"},
      "balanceType": "closingBooked",
      "referenceDate": "2020-10-20"
     }
  ]
```


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```
}
```

### 4.4.4 Read Transaction List

#### 4.4.4.1 Request

**Call**

```
GET /v2/savings/{account-id}/transactions
```

Reads transaction data from a given savings account addressed by "account-id".

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header.

**Remark:** Please note that the PATH might be already given in detail by the response of the "Read Account List" call within the _links subfield.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required and if bookingStatus does not equal "information".<br><br>In the case of booked transactions, the relevant date is the booking date. In the case of pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP. |
| dateTo | ISODate | Optional | End date (inclusive the date dateTo) of the transaction list, default is "now" if not given. Might be ignored if a delta function is used. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | "dateTo" is always applied to the same date as "dateFrom" (see previous row). |
| entryReferenceFrom | String | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the transaction with identification entryReferenceFrom alternatively to the above defined period. This is an implementation of a delta access.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| bookingStatus | String | Mandatory | Usage of an unsupported value for bookingStatus (context sensitive, see descriptions below) shall result in a response with the corresponding error code (PARAMETER_NOT_SUPPORTED).<br><br>Permitted codes are "booked", "pending" and "both". "booked" shall be supported by the ASPSP To support the "pending" and "both" feature is optional for the ASPSP, Error code if not supported. If supported, "both" means to request transaction reports of transaction of bookingStatus either "pending" or "booked". |
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the last report access for this PSU on the addressed account. This is another implementation of a delta access-report.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |

### Request Header

With the exception of the "Accept" header, the same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0):

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | Max70Text | Mandatory | |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| Accept | String | Optional | The TPP can indicate the formats of account reports supported together with a prioritisation following the HTTP header definition.<br><br>The formats supported by this specification are<br><br>• xml<br>• JSON<br>• text |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

**Remark:** The Berlin Group intends to apply for vnd-entries within the "accept" attribute for camt.05x and MT94x formats to scope with different account report formats available for the PSU e.g. in a corporate context. These values will be added to this specification as soon as available. This will then lead to expressions like /application/vnd.BerlinGroup.camt.053+xml etc. The TPP then could e.g. say: "I prefer camt.054, but take camt.053 if this is not available." This solution is recommended as a best practice until it is fully specified. In this example this would deliver the following accept header expression:

```
Accept: /application/vnd.BerlinGroup.camt.054+xml;q=0.9,
/application/vnd.BerlinGroup.camt.053+xml;q=0.8
```

In addition, these best practices allow to differentiate technical sub versions of camt, i.e. it could be stated that "I prefer camt.054.001.08 (the new sub version), but take (the older sub version) camt.054.001.02 if this is not available." This is to supports ASPSPs in migrating the technical camt formats.

```
Accept: /application/vnd.BerlinGroup.camt.054.001.08+xml;q=0.9,
application/vnd.BerlinGroup.camt.054.001.02+xml;q=0.8
```

**Request Body**

No request body.

#### 4.4.4.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |


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**Response Body**

If the ASPSP returns a **camt.05x** XML structure, the response body consists of either a camt.052 or camt.053 format. The camt.052 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request. In addition the ASPSP might offer camt.054x structure e.g. in a corporate setting.

If the ASPSP returns **a MT94x** content, the response body consists of an MT940 or MT942 format in a text structure. The MT942 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request.

A JSON response is defined as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| transactions | Account Report | Optional | JSON based account report.<br><br>This account report contains transactions resulting from the query parameters. |
| balances | Array of Balance | Optional | A list of balances regarding this account, which might be restricted to the current balance. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"download": a link to a resource, where the transaction report might be downloaded from in case where transaction reports have a huge size.<br><br>**Remark:** This feature shall only be used where camt-data is requested which has a huge size. |

#### 4.4.4.3 Examples

***Request***

```
GET https://api.testbank.com/v2/savings/4dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions?dateFrom=2020-08-30&dateTo=2020-10-
31&bookingStatus=both

Accept:                 application/json
X-Request-ID:           99391c72-ad88-49ec-a2ad-89ddcb1f7756
```


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```
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c72-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {"iban": "DE23100100101234567888"},
  "transactions": {
    "booked": [
      {
        "transactionId": "d8c2dfcf-3187-4e67-b5cd-b1953923a0b9",
        "transactionAmount": {"currency": "EUR", "amount": "2000"},
        "bookingDate": "2020-10-01",
        "valueDate": "2020-10-02",
        "remittanceInformationUnstructured": "Example 1"
      }, {
        "transactionId": "d7b9f311-4813-4582-aa0f-0b913bab0a34",
        "transactionAmount": {"currency": "EUR", "amount": "2000"},
        "bookingDate": "2020-10-09",
        "valueDate": "2020-10-10",
        "remittanceInformationUnstructured": "Example 2"
      }
    ],
    "pending": [
      {
        "transactionId": "d7b9f311-4813-4582-aa0f-0b913bab0a35",
        "transactionAmount": {"currency": "EUR", "amount": "2000"},
        "valueDate": "2020-10-30",
        "remittanceInformationUnstructured": "Example 4"
      }
    ]
  }
}
```

## 4.5 Endpoints for Loans (XAIS-LOAN)

**BOI remarks**: This section is not relevant for the Israeli market at this stage.


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### 4.5.1 Read Account List

#### 4.5.1.1 Request

**Call**

```
GET /v2/loans
```

Reads a list of loan accounts. The ASPSP may choose to provide information on balances in the response. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Note:** If the consent is granted only to show the list of addressable accounts, much less details are displayed about the accounts. Specifically hyperlinks to additional resources such as balances or transaction endpoint should not be delivered then.

**Note:** In case of corresponding access rights granted by the consent, additional details might be retrieved by addressing the /loans/{account-id} endpoint, cp. Section 4.5.2.

**Path Parameters**

No path parameters defined.

**Query Parameters**

No query parameters defined.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. The X-Request-ID serves as an impotency key. |
| Consent-ID | Max70Text | Mandatory | Consent-Id as obtained during consent establishment for the consent resulting from the "Establish Consent on Account Information" performed via this API before. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

**Request Body**

No request body.

#### 4.5.1.2 Response

**Response Code**

The HTTP response code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accounts | Array of Account Details | Mandatory | In case, no account is accessible, the ASPSP shall return an empty array. As this is also considered a positive response, the Response code must still be 200.<br><br>Please note that some attributes of an Account Details object are only supported for specific account types. For Details, see [oFA DaD]. |


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#### 4.5.1.3 Examples

***Request***

```
GET https://api.testbank.com/v2/loans/accounts

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "accounts": [
    {
      "resourceId": "5dc3d5b3-7023-4848-9853-f5400a64e81g",
      "other": {"identification": "MyProprietaryID-0003"},
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": " Silver",
      "product": "Retail loan",
      "cashAccountType": "LOAN",
      "interest": [
        {
          "type": "FIXD",
          "rate": [
            {"percentage": "4.5"}
          ],
          "toDateTime": "2021-01-05T23:59:59"
        }
      ],
      "relatedDates": {
        "contractStartDate": "2017-01-01",
        "contractEndDate":"2023-01-01",
        "contractAvailabilityDate": "2020-01-01"
      },
      "collateralsInvolved": false,
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "-80000.00"},
          "balanceType": "closingBooked",
          "referenceDate": "2020-10-30"
```


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```
        }
      ],
      "_links": {
        "balances": {
          "href": "/v2/loans/3dc3d5b3-7023-4848-9853-f5400a64e81g/balances"
        },
        "transactions": {
          "href": "/v2/loans/3dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
        }
      }
    }, {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e816",
      "other": {"identification": "MyProprietaryID-0004"},
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": " Silver",
      "product": "Retail loan",
      "cashAccountType": "LOAN",
      "interest": [
        {
          "type": "FIXD",
          "rate": [
            {"percentage": "4.5"}
          ],
          "toDateTime": "2021-01-05T23:59:59"
        }
      ],
      "relatedDates": {
        "contractStartDate": "2017-01-01",
        "contractEndDate": "2023-01-01",
        "contractAvailabilityDate": "2020-01-01"
      },
      "collateralsInvolved": false,
      "balances": [
        {
          "balanceAmount": {"currency": "USD", "amount": "-10000.00"},
          "balanceType": "closingBooked",
          "referenceDate": "2020-10-30"
        }
      ],
      "_links": {
        "balances": {
          "href": "/v2/loans/5dc3d5b3-7023-4848-9853-f5400a64e816/balances"
        },
        "transactions": {
          "href": "/v2/loans/5dc3d5b3-7023-4848-9853-
f5400a64e816/transactions"
        }
```



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```
      }
    }, {
      "resourceId": "5dc3d5b3-10a4-4848-9853-f5400a64e82g",
      "iban": "DE40100100103307118608",
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": " Happy Home 2008",
      "product": "Mortgage loan",
      "cashAccountType": "LOAN",
      "interest": [
        {
          "type": "FIXD",
          "rate": [
            {"percentage": "2.0"}
          ],
          "toDateTime": "2039-12-31T23:59:59"
        }
      ],
      "relatedDates": {
        "contractStartDate": "2020-01-01",
        "contractEndDate":"2040-01-01",
        "contractAvailabilityDate": "2030-01-01"
      },
      "collateralsInvolved": false,
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "-100000.00"},
          "balanceType": "closingBooked",
          "referenceDate": "2020-10-01"
        }
      ],
      "_links": {
        "balances": {
          "href": "/v2/loans/5dc3d5b3-10a4-4848-9853-f5400a64e82g/balances"
        },
        "transactions": {
          "href": "/v2/loans/5dc3d5b3-10a4-4848-9853-
f5400a64e82g/transactions"
        }
      }
    }
  ]
}
```



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### 4.5.2 Read Account Details

#### 4.5.2.1 Request

**Call**

```
GET /v2/loans/{account-id}
```

Reads details about a loan account. The ASPSP may choose to provide information on balances in the response. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.5.2.2 Response

**Response Code**

HTTP Response Code equals 200.


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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Details | Mandatory | Description of the addressed account. |

#### 4.5.2.3 Example

***Request***

```
GET https://api.testbank.com/v2/loans/5dc3d5b3-7023-4848-9853-f5400a64e81g

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {
    "resourceId": "5dc3d5b3-7023-4848-9853-f5400a64e81g",
    "iban": "DE23100100101234567888",
    "currency": "EUR",
    "ownerName": "Paul Simpson",
    "name": " Silver",
    "product": "Retail loan",
    "cashAccountType": "LOAN",
    "status": "enabled",
    "interest": [
      {
        "type": "FIXD" ,
```


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```
        "rate": [
          {"percentage": "4.5"}
        ],
        "toDateTime": "2021-01-05T23:59:59"
      }
    ],
    "relatedDates": {
      "contractStartDate": "2017-01-01",
      "contractEndDate":"2023-01-01",
      "contractAvailabilityDate": "2020-01-01"
    },
    "collateralsInvolved": false,
    "balances": [
      {
        "balanceAmount": {"currency": "EUR", "amount": "-80000.00"},
        "balanceType": "closingBooked",
        "referenceDate": "2020-10-01"
      }
    ],
    "_links": {
      "balances": {
        "href": "/v2/loans/5dc3d5b3-7023-4848-9853-f5400a64e81g/balances"
      },
      "transactions": {
        "href": "/v2/loans/5dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
      }
    }
  }
}
```


### 4.5.3 Read Account Balances

#### 4.5.3.1 Request

#### Call

```
GET /v2/loans/{account-id}/balances
```

Reads balance data from a given loan account addressed by "account-id".

**Note:** The original balance of the loan at the start date might be provided e.g. by a balance of type "openingBooked" and the referenceDate of the loan starting date.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as |


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| Attribute | Type | Description |
|---|---|---|
| | | described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.5.3.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| balances | Array of Balance | Mandatory | For the usage and interpretation of the balance type, compare section 3.2.3.<br><br>**Remark:** The historic balance of the loan can be provided by returning a balance of any type together with the respective referenceDate. This applies specifically to the |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | original loan amount by using the starting date as reference. |

#### 4.5.3.3 Examples

***Request***

```
GET https://api.testbank.com/v2/loans/5dc3d5b3-7023-4848-9853-f5400a64e81g

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-79ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-79ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {"iban": "DE23100100101234567 88"},
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "-80000.00"},
      "balanceType": "closingBooked",
      "referenceDate": "2020-10-01"
    }, {
      "balanceAmount": {"currency": "EUR","amount": "-82500.00"},
      "balanceType": "expected",
      "lastChangeDateTime": "2020-11-20T15:30:35.035Z"
    }
  ]
}
```

### 4.5.4 Read Transaction List

#### 4.5.4.1 Request

**Call**

```
GET /v2/loans/{account-id}/transactions
```


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Reads transaction data from a given loan account addressed by "account-id".

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header.

**Remark:** Please note that the PATH might be already given in detail by the response of the "Read Account List" call within the _links subfield.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required and if bookingStatus does not equal "information".<br><br>In the case of booked transactions, the relevant date is the booking date. In the case of pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP. |
| dateTo | ISODate | Optional | End date (inclusive the date dateTo) of the transaction list, default is "now" if not given. Might be ignored if a delta function is used.<br><br>"dateTo" is always applied to the same date as "dateFrom" (see previous row). |
| entryReferenceFrom | String | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the transaction with identification entryReferenceFrom alternatively to the above defined period. This is an implementation of a delta access. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| bookingStatus | String | Mandatory | Usage of an unsupported value for bookingStatus (context sensitive, see descriptions below) shall result in a response with the corresponding error code (PARAMETER_NOT_SUPPORTED).<br><br>Permitted codes are "booked", "pending", "both", "information" and "all". "booked" shall be supported by the ASPSP. To support the "pending", "both", "information" or "all" feature is optional for the ASPSP. If supported, "both" means to request transaction reports of transaction of bookingStatus either "pending" or "booked", "information" means that the response shall contain the expected amortisations for this loan account. "all" means to request lists of transaction of any bookingStatus ("pending", "booked" or "information"). |
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the last report access for this PSU on the addressed account. This is another implementation of a delta access-report.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |


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**Request Header**

With the exception of the "Accept" header, the same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0):

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Consent-ID | Max70Text | Mandatory | |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation. |
| Accept | String | Optional | The TPP can indicate the formats of account reports supported together with a prioritisation following the HTTP header definition.<br><br>The formats supported by this specification are<br><br>• xml<br>• JSON<br>• text |
| API-Contract-ID | UUID | Conditional | Might be mandated by ASPSP or business rules of related API access schemes.<br><br>ID of the underlying API service contract between API Client and API Server, resulting from API Client onboarding, following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |


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**Remark:** The Berlin Group intends to apply for vnd-entries within the "accept" attribute for camt.05x and MT94x formats to scope with different account report formats available for the PSU e.g. in a corporate context. These values will be added to this specification as soon as available. This will then lead to expressions like /application/vnd.BerlinGroup.camt.053+xml etc. The TPP then could e.g. say: "I prefer camt.054, but take camt.053 if this is not available." This solution is recommended as a best practice until it is fully specified. In this example this would deliver the following accept header expression:

```
Accept: /application/vnd.BerlinGroup.camt.054+xml;q=0.9,
/application/vnd.BerlinGroup.camt.053+xml;q=0.8
```

In addition, these best practices allow to differentiate technical sub versions of camt, i.e. it could be stated that "I prefer camt.054.001.08 (the new sub version), but take (the older sub version) camt.054.001.02 if this is not available." This is to supports ASPSPs in migrating the technical camt formats.

```
Accept: /application/vnd.BerlinGroup.camt.054.001.08+xml;q=0.9,
application/vnd.BerlinGroup.camt.054.001.02+xml;q=0.8
```

**Request Body**

No request body.

#### 4.5.4.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

If the ASPSP returns a **camt.05x** XML structure, the response body consists of either a camt.052 or camt.053 format. The camt.052 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request. In addition the ASPSP might offer camt.054x structure e.g. in a corporate setting.

If the ASPSP returns **a MT94x** content, the response body consists of an MT940 or MT942 format in a text structure. The MT942 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request.

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A JSON response is defined as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |
| transactions | Account Report | Optional | JSON based account report.<br><br>This account report contains transactions resulting from the query parameters. |
| balances | Array of Balance | Optional | A list of balances regarding this account, which might be restricted to the current balance. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"download": a link to a resource, where the transaction report might be downloaded from in case where transaction reports have a huge size.<br><br>**Remark:** This feature shall only be used where camt-data is requested which has a huge size. |

#### 4.5.4.3 Example

***Request***

```
GET https://api.testbank.com/v2/loans/5dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions?dateFrom=2020-08-30&dateTo=2020-10-
31&bookingStatus=both

Accept:                 application/json
X-Request-ID:           90391c7e-ad88-49ec-a2ad-99ddcb1f7721
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           90391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date:                   Thu, 29 Oct 2020 15:05:38 GMT
Content-Type:           application/json

{
```


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```
  "loanAccount": {"iban": "DE23100100101234567 88"},
  "transactions": {
    "booked": [
      {
        "transactionId": "d8c2dfcf-3187-4e67-b5cd-b1953923a0b9",
        "transactionAmount": {"currency": "EUR", "amount":"1250"},
        "bookingDate": "2020-08-30",
        "valueDate": "2020-08-31",
        "remittanceInformationUnstructured": "Amortisation Aug 2020"
      }, {
        "transactionId": "d8c2dfcf-3187-4e67-b5cd-b1953923a0b8",
        "transactionAmount": {"currency": "EUR", "amount":"1250"},
        "bookingDate": "2020-09-29",
        "valueDate": "2020-09-30",
        "remittanceInformationUnstructured": "Amortisation Sep 2020"
      }, {
        "transactionId": "d7b9f311-4813-4582-aa0f-0b913bab0a34",
        "transactionAmount": {"currency": "EUR", "amount": "-10.00"},
        "bookingDate": "2020-09-30",
        "valueDate": "2020-09-30",
        "remittanceInformationUnstructured": "Interest Q3 2020"
      }
    ],
    "pending": [
      {
        "transactionId": "d8c2dfcf-3187-4e67-b5cd-b1953923a0b6",
        "transactionAmount": {"currency": "EUR", "amount": "1250"},
        "valueDate": "2020-10-31",
        "remittanceInformationUnstructured": "Amortisation Oct 2020"
      }
    ]
  }
}
```


## 4.6 Endpoints for Securities Accounts (XAIS-SEC)

**BOI remarks**: This section is not relevant for the Israeli market at this stage.

### 4.6.1 Read Account List

#### 4.6.1.1 Request

**Call**

```
GET /v2/securities-accounts
```

Reads a list of securities accounts. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then


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on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Note:** If the consent is granted only to show the list of addressable accounts, much less details are displayed about the accounts. Specifically hyperlinks to additional resources such as balances or transaction endpoint should not be delivered then.

**Note:** In case of corresponding access rights granted by the consent, additional details might be retrieved by addressing the /securities-accounts/{account-id} endpoint, cp. Section 4.6.2.

**Path Parameters**

No path parameters defined.

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| evaluationCurrency | String | Optional | ISO Alpha-3 currency code to request evaluation of the balances in a specific currency.<br><br>This query parameter might be ignored by the ASPSP, if evaluation is not supported for variable currencies or does not support evaluation in the requested currency. |

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. The X-Request-ID serves as an impotency key. |
| Consent-ID | Max70Text | Mandatory | Consent-Id as obtained during consent establishment for the consent resulting from the "Establish Consent on Account Information" performed via this API before. |
| PSU-IP-Address | String | Conditional | The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU. |
| Authorization | String | Conditional | Is contained only, if an OAuth2 based authentication was performed in a pre-step or |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | an OAuth2 based SCA was performed in the related consent authorisation. |
| API-Contract-ID | UUID | Conditional | Shall be used, if provided by the ASPSP in the related onboarding following [oFA-IG-ADM].<br><br>The API-Contract-ID may differ from the API-Contract-ID used during consent establishment of the consent referenced in header field Consent-ID, e.g. in case of a change of relevant commercial conditions after consent establishment. |

**Request Body**

No request body.

#### 4.6.1.2 Response

**Response Code**

The HTTP response code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| accounts | Array of Account Details | Mandatory | In case, no account is accessible, the ASPSP shall return an empty array. As this is also considered a positive response, the Response code must still be 200.<br><br>Please note that some attributes of an Account Details object are only supported for specific account types. For Details, see [oFA DaD]. |


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#### 4.6.1.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts?evaluationCurrency=EUR

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "accounts": [
    {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
      "other": {"identification": "MyProprietaryID-0001"},
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": "Securities 1a",
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "22901.00"},
          "balanceType": "closingBooked"
        }, {
          "balanceAmount": {"currency": "EUR", "amount": "22910.00"},
          "balanceType": "interimAvailable",
          "referenceDateTime": "2020-10-29T14:00:00.011Z"
        }
      ],
      "_links": {
        "securitiesAccount": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g"
        },
        "positions": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/positions"
        },
        "transactions": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
```


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```
        },
        "orders": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/orders"
        }
      }
    }, {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e813",
      "other": {"identification": "MyProprietaryID-0002"},
      "currency": "EUR",
      "ownerName": "Paul Simpson",
      "name": "Securities 1b",
      "balances": [
        {
          "balanceAmount": {"currency": "EUR", "amount": "1000.00"},
          "balanceType": "closingBooked"
        }, {
          "balanceAmount": {"currency": "EUR", "amount": "987.60"},
          "balanceType": "interimAvailable",
          "referenceDateTime": "2020-10-29T14:00:00.011Z"
        }
      ],
      "_links": {
        "securitiesAccount": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e813 "
        },
        "positions": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e813/positions"
        },
        "transactions": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e813/transactions"
        },
        "orders": {
          "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e813/orders"
        }
      }
    }
  ]
}
```

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### 4.6.2 Read Account Details

#### 4.6.2.1 Request

**Call**

```
GET /v2/securities-accounts/{account-id}
```

Reads details about a securities account. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the consent addressed by consentId, respectively the OAuth2 access token.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| evaluationCurrency | String | Optional | ISO Alpha-3 currency code to request evaluation of the balances in a specific currency.<br><br>This query parameter might be ignored by the ASPSP, if evaluation is not supported for variable currencies or does not support evaluation in the requested currency. |

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.


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#### 4.6.2.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Details | Mandatory | Description of the addressed account. |

#### 4.6.2.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g?evaluationCurrency=EUR

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Thu, 29 Oct 2020 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Content-Type:           application/json
Date:                   Thu, 29 Oct 2020 15:05:38 GMT

{
  "account": {
    "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
    "other": {
      "identification": "123456789012",
      "schemeNameProprietary": "Depotnummer",
```


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```
      "issuer": "testbank"
    },
    "ownerName": "Paul Simpson",
    "name": "Securities 1",
    "product": "Securities Account",
    "status": "enabled",
    "applicableFees": [
      {
        "typeCode": "managementFee"
        "feeRules": [
          {"amount": {"currency": "EUR", "amount": "10.00"}}
        ]
        "applicableFrom: "2020-01-01"
        "applicableTo: "2025-12-31"
      }, {
        "typeCode": "courtage"
        "feeRules": [
          {
            "toBaseAmount": {"currency": "EUR", "amount": "19999.99"},
            "percentage": "1.0",
            "minimumAmount": {"currency": "EUR", "amount": "10.00"}
          }, {
            "fromBaseAmount": {"currency": "EUR", "amount": "20000.00"},
            "percentage": "0.8",
            "maximumAmount": {"currency": "EUR", "amount": "300.00"}
          }
        ]
      }
     ],
    "balances": [
      {
        "balanceAmount": {"currency": "EUR", "amount": "22901.00"},
        "balanceType": "closingBooked"
      }, {
        "balanceAmount": {"currency": "EUR", "amount": "22910.00"},
        "balanceType": "interimAvailable",
        "referenceDateTime": "2020-10-29T14:00:00.011Z"
      }
    ],
    "_links": {
      "positions": {
        "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/positions"
      },
      "transactions": {
        "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions"
      },
      "orders": {
```



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```
        "href": "/v2/securities-accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/orders"
      }
    }
  }
}
```


### 4.6.3 Read Account Positions

#### 4.6.3.1 Request

**Call**

```
GET /v2/securities-accounts/{account-id}/positions
```

This message reads the portfolio of a securities account.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.6.3.2 Response

**Response Code**

HTTP Response Code equals 200.


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**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed (securities) account. |
| reportDateTime | ISODateTime | Mandatory | Date and time of the report. That is, all listed positions are provided in their quantity within the account as reflected by the ASPSP at the reportDateTime.<br><br>Might differ from the current date and time in situations where a real time information of the deposit's positions is not available. |
| balances | Array of Balance | Optional | Calculated value of all securities in account currency. For the usage of "Balance" items compare section 3.2.3. |
| positionList | Array of Securities Position | Mandatory | If the deposit does not contain any positions, the "positionList" element must contain an empty array. |

#### 4.6.3.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g/positions

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Fri, 25 Mar 2022 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```


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### *Response*

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Fri, 25 Mar 2022 15:05:38 GMT

{
  "account": {"iban": "DE23100100101234567888"}
  "reportDateTime": "2022-03-25T00:00:00.000Z"
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "22901.00"},
      "balanceType": "closingBooked"
    }, {
      "balanceAmount": {"currency": "EUR", "amount": "22910.00"},
      "balanceType": "interimAvailable",
      "referenceDateTime": "2020-10-29T14:00:00.011Z"
    }
  ],
  "positionList": [
    {
      "financialInstrument": {
        "isin": "DE000BASF111",
        "name": "BASF SE Namens-Aktien o.N.",
        "normalisedPrice": {
          "amount": {"currency": "EUR", "amount": "70.88"},
          "priceDateTime": "2022-03-25T00:00:00.000Z",
          "priceType": "MRKT",
          "sourceOfPrice": {"type": "LMAR", "mic": "XETR"}
        }
      },
      "unitsNumber": 100,
      "balanceType": "AVAI",
      "averageBuyingPrice": {"currency": "EUR", "amount": "60.17"}
    }, {
      "financialInstrument": {
        "isin": "DE000A0Z2ZZ5",
        "name": "freenet AG Namens-Aktien o.N.",
        "normalisedPrice": {
          "amount": {"currency": "EUR", "amount": "29.88"},
          "priceDateTime": "2022-03-25T00:00:00.000Z",
          "priceType": "MRKT",
          "sourceOfPrice": {"type": "LMAR", "mic": "XETR"}
        }
      },
      "unitsNumber": 200,
      "balanceType": "AVAI",
      "averageBuyingPrice": {"currency": "EUR", "amount": "30.17"}
```


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```
    }, {
      "financialInstrument": {
        "isin": "XS1893631769",
        "name": "VOLKSWAGEN FINANCIAL SERVICES AG 2,25% 18/26",
        "normalisedPrice": {
          "percentage": "99.855",
          "priceDateTime": "2022-03-25T00:00:00.000Z",
          "priceType": "MRKT",
          "sourceOfPrice": {"type": "LMAR", "mic": "XETR"}
        }
      },
      "unitsNominal": {"currency": "EUR", "amount": "10000.00"},
      "balanceType": "AVAI",
      "totalBuyingPrice": {"currency": "EUR", "amount": "10100.00"}
    }
  ]
}
```


### 4.6.4 Read Transaction List

#### 4.6.4.1 Request

**Call**

```
GET /v2/securities-accounts/{account-id}/transactions
```

Reads transaction data from a given account addressed by "account-id". The provided transaction list contains the movements of positions that have already taken place. These movement might be the result of buying or selling financial instruments as well as other movements (such as borrowing or lending). Orders that the PSU has placed for this account will not be reported under "transactions". Instead, orders will be available under an additional "orders" endpoint (see section 4.6.6).

**Note:** The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header.

**Remark:** Please note that the PATH might be already given in detail by the response of the "Read Account List" call within the _links subfield.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |


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### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Conditional | Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required and if bookingStatus does not equal "information".<br><br>"dateFrom" always relates to one of the dates covered by element "relevantDates". The ASPSP shall provide a documentation, which type of date is used. |
| dateTo | ISODate | Optional | End date (inclusive the date dateTo) of the transaction list, default is "now" if not given. Might be ignored if a delta function is used.<br><br>"dateTo" is always applied to the same date as "dateFrom" (see previous row). |
| entryReferenceFrom | String | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the transaction with identification entryReferenceFrom alternatively to the above defined period. This is an implementation of a delta access.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |
| deltaList | Boolean | Optional if supported by API provider | This data attribute is indicating that the API Client is in favour to get all transactions after the last report access for this PSU on the addressed account. This is another implementation of a delta access-report.<br><br>This delta indicator might be rejected by the ASPSP if this function is not supported.<br><br>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| pageSize | Integer | Optional if supported by API provider | This query parameter defines the transaction entries per call to be retrieved for **extended** services.<br><br>If not supported, then the call is rejected.<br><br>If supported by the ASPSP and if the value is higher than maxPageSize as defined by the ASPSP in its documentation, then the call is rejected. |

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.6.4.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Mandatory | Identifier of the addressed account. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactions | Array of Securities Transaction | Optional | |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"first": Navigation link for paginated transaction lists.<br><br>"next:" Navigation link for paginated transaction lists.<br><br>"previous": Navigation link for paginated transaction lists.<br><br>"last": Navigation link for paginated transaction lists. |

#### 4.6.4.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g/transactions?dateFrom=2022-03-01

Accept:                 application/json
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Fri, 25 Mar 2022 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Fri, 25 Mar 2022 15:05:38 GMT

{
  "account": {"iban": "DE2310010010123456788"},
  "transactions": [
    {
      "transactionId": "d8c2dfcf-3187-4e67-b5cd-b1953923a0b9",
      "relevantDates": [
```


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```
        {
          "type": "transactionDate",
          "dateAndTime": "2022-02-28T17:00:05.000Z"
        }, {
          "type": "effectiveSettlementDate",
          "date": "2022-03-01"
        }
      ],
      "financialInstrument": {
        "isin": "DE000BASF111",
        "name": "BASF SE Namens-Aktien o.N."
      },
      "unitsNumber": 100,
      "_links": {
        "transactionDetails": {
          "href": "https://api.testbank.com/v2/securities-
accounts/3dc3d5b3-7023-4848-9853-
f5400a64e81g/transactions/transactions/d8c2dfcf-3187-4e67-b5cd-
b1953923a0b9"
        }
      }
    }, {
       "transactionId": "d7b9f311-4813-4582-aa0f-0b913bab0a34",
       "relevantDates": [
         {
           "type": "effectiveSettlementDate",
           "date": "2022-03-01"
         }
       ],
       "financialInstrument": {
         "isin": "US1912161007",
         "name": "Coca-Cola Registered Shs"
       },
       "unitsNumber": -100,
       "_links": {
         "transactionDetails": {
           "href": "https://api.testbank.com/v2/securities-
accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g /transactions/d7b9f311-4813-
4582-aa0f-0b913bab0a34"
         }
       }
    }
  ]
}
```



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### 4.6.5 Read Transaction Details

#### 4.6.5.1 Request

**Call**

```
GET /v2/securities-accounts/{account-id}/transactions/{transaction-id}
```

Reads transaction details from a given transaction addressed by "transactionId" on a given securities account addressed by "securities-account-id".

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |
| transaction-id | Max70Text | This identification is given by the attribute "transactionId" of the corresponding entry of a transaction list. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.6.5.2 Response

**Response Code**

HTTP Response Code equals 200.


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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionDetails | Securities Transaction | Mandatory | |

#### 4.6.5.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g/transactions/d7b9f311-4813-4582-aa0f-0b913bab0a34

Accept:                 application/json
X-Request-ID:           99a91c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Fri, 25 Mar 2022 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99a91c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Fri, 25 Mar 2022 15:05:38 GMT

{
  "transactionDetails":
    {
      "transactionId": "d7b9f311-4813-4582-aa0f-0b913bab0a34",
      "relevantDates": [
        {
          "type": "transactionDate",
          "dateAndTime": "2022-03-10T19:22:05.000Z"
        }, {
          "type": "effectiveSettlementDate",
          "date": "2022-03-01"
        }
```


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```
      ],
      "financialInstrument": {
        "isin": "US1912161007",
        "name": "Coca-Cola Registered Shs"
      },
      "unitsNumber": -100,
      "placeOfTrade": {"mic": "XETR"},
      "amountIncludesFees": true,
      "amountIncludesTaxes": false,
      "amount": {"currency": "EUR", "amount": "5202.00"},
      "unitsNumberBeforeTx": 100,
      "unitsNumberAfterTx": 0
  }
}
```


### 4.6.6 Read Securities Order List

#### 4.6.6.1 Request

#### Call

```
GET /v2/securities-accounts/{account-id}/orders
```

Reads all orders that are still kept in the ASPSP's data base. The ASPSP may restrict the response values (e.g. restriction to all orders that are still active or all orders that were inactivated no earlier than last month). These restrictions must be documented by the ASPSP in its general documentation of the ASPSP's interface for securities.

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed account. The account-id is retrieved by a (successful) "Read Account List" request as described in section 0. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |

#### Query Parameters

| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateFrom | ISODate | Mandatory | Starting date (inclusive the date dateFrom) of the order list.<br><br>"dateFrom" always relates the creation date of the order. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| dateTo | ISODate | Optional | End date (inclusive the date dateTo) of the order list, default is "now" if not given. |
| orderStatus | Comma separated list of Order Status Code | Optional | Restricts the result to orders that are currently assigned to one of the status values provided in this query parameter.<br><br>If the parameter is not provided, orders are provided without restriction to their respective status. |

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.6.6.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |

**Response Body**

A JSON response is defined as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| account | Account Reference | Optional | Identifier of the addressed securities account. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| | | | Remark for Future: It is recommended to use this data element. The condition might change to "mandatory" in a next version of the specification. |
| orders | Array of Securities Order | Optional | List of orders placed for this securities account. |
| _links | Links | Optional | A list of hyperlinks to be recognised by the TPP.<br><br>Type of links admitted in this response:<br><br>"first": Navigation link for paginated order lists.<br><br>"next:" Navigation link for paginated order lists.<br><br>"previous": Navigation link for order transaction lists.<br><br>"last": Navigation link for paginated order lists. |

#### 4.6.6.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g/orders?dateFrom=2022-03-01

Accept:           application/json
X-Request-ID:           99391c0e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
PSU-User-Agent:         Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date:                   Fri, 25 Mar 2022 15:05:37 GMT
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           99391c0e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Fri, 25 Mar 2022 15:05:38 GMT

{
  "account": {"iban": "DE2310010010123456788"},
  "orders": [
    {
```


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```
      "orderId": "aeec95a2-d227-4583-8c73-000f8e867997",
      "side": "buy",
      "financialInstrument": {
        "isin": "DE000BASF111",
        "name": "BASF SE Namens-Aktien o.N."
      },
      "unitsNumber": 100,
      "orderStatus": "filed",
      "_links": {
        "orderDetails": {
          "href": "https://api.testbank.com/v2/securities-
accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g/orders/aeec95a2-d227-4583-
8c73-000f8e867997"
        },
        "relatedTransactions": [
          {
            "href": "https://api.testbank.com/v2/securities-
accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g/transactions/d8c2dfcf-3187-
4e67-b5cd-b1953923a0b9"
          }
        ]
      }
    }, {
      "orderId": "23a1a8b1-8d4c-4955-a448-5976ef4a875c",
      "side": "buy",
      "financialInstrument": {
         "isin": "DE0007480204",
         "name": "Deutsche EuroShop AG Namens-Aktien o.N."
      },
      "unitsNumber": 200,
      "orderStatus": "acceptedForBidding",
      "_links": {
        "orderDetails": {
          "href": "https://api.testbank.com/v2/securities-
accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g/orders/23a1a8b1-8d4c-4955-
a448-5976ef4a875c"
        }
      }
    }
  ]
}
```


### 4.6.7 Read Securities Order Details

#### 4.6.7.1 Request

#### Call

```
GET /v2/securities-accounts/{account-id}/orders/{order-id}
```


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Reads order details from a given order addressed by “orderId” on a given securities account addressed by "securities-account-id.

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| account-id | Max70Text | This identification is denoting the addressed securities account. The securities-account-id is retrieved by using a "Read Securities Account List" call. The securities-account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent. |
| order-id | Max70Text | This identification is given by the attribute "orderId" of the corresponding entry of a securities order list. |

**Query Parameters**

No query parameters defined.

**Request Header**

The same requirements towards request headers apply as for the "**BOI remarks**: This section is not relevant for the Israeli market at this stage.

Read Account List" request (see section 0).

**Request Body**

No request body.

#### 4.6.7.2 Response

**Response Code**

HTTP Response Code equals 200.

**Response Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| X-Request-ID | UUID | Mandatory | ID of the request, unique to the call, as determined by the initiating party. |


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**Response Body**

A JSON response is defined as follows:

| Attribute | Type | Condition | Description |
|---|---|---|---|
| orderDetails | Securities Order | Mandatory | Details of the requested securities order. |

### 4.6.7.3 Example

***Request***

```
GET https://api.testbank.com/v2/securities-accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81g/orders/23a1a8b1-8d4c-4955-a448-5976ef4a875c

Accept:                 application/json
X-Request-ID:           94a91c7e-ad88-49ec-a2ad-99ddcb1f7756
Consent-ID:             8bd44685-026d-4484-8cc2-243d4f0b04ff
Date:                   Fri, 25 Mar 2022 15:05:37 GMT
API-Contract-ID:        3bd7ccec-6510-4907-909d-2fbc0fc5f0f0
```

***Response***

```
HTTP/1.x 200 Ok
X-Request-ID:           94a91c7e-ad88-49ec-a2ad-99ddcb1f7756
Content-Type:           application/json
Date:                   Fri, 25 Mar 2022 15:05:38 GMT

{
     "orderId": "23a1a8b1-8d4c-4955-a448-5976ef4a875c",
     "side": "buy",
     "financialInstrument": {
       "isin": "DE0007480204",
       "name": "Deutsche EuroShop AG Namens-Aktien o.N."
      },
      "unitsNumber": 200,
      "placeOfTrade": {"mic": "XETR"},
      "limitPriceAmount": {"currency": "EUR", "amount": "36.50"},
      "typesOfOrder": [ "limitOrder", "allOrNone" ],
      "timeInForce": "goodForMonth",
      "expiryDateTime": "2022-03-31T23:59:59.999+1:00",
      "relatedCashAccount": {"iban": "DE40100100103307118608"}
      "orderModifyable": true,
      "orderStatus": "acceptedForBidding"
}
```


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# 5 References

## 5.1 Informative References

[oFA-GuideV2] openFinance API Framework, A Guide to Version 2.1, 31 July 2024

[oFA-ComV2] openFinance API Framework, XS2A API as PSD2 Interface, Implementation Guidelines, Version 2.1, 31 July 2024

**BOI remarks**: Version 2.4, October 2025

[PSD2] Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, published 23 December 2015

[oFA-OR-Com] openFinance API Framework, Compliance Services, Operational Rules, to be published yet

## 5.2 Normative References

[oFA-ProtSec] openFinance API Framework, Protocol Functions and Security Measures in Version 2.x, version 2.1, 31 July 2024

[oFA DaD] openFinance API Framework, Data Dictionary for V2.x, Version 2.2.4, 17April 2025

[oFA-CO] openFinance API Framework, Consent API for V2, Implementation Guidelines, Version 2.1, 31 July 2024

[oFA-IG-ADM] openFinance API Framework, Implementation Guidelines for Administrative Services, Version 1.1, September 2024

[oFA-TDM] openFinance API Framework, Transaction Data Model and Account Statements for Version 2.0 of the openFinance API Framework, 1[6] November 2022

,



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# 6 Annex A: Best Practices for Converting Codes from ISO 15022 Messages

Currently, a widely used format for displaying security related information is ISO15022, particularly:

- MT502 to display orders
- MT535 to display holdings
- MT536 to display securities transactions

## Annex A.1. Mapping of Securities Balance Codes

Most of the values of the Qualifier of an MT535 messages field 93a (compare https://www.iso20022.org/15022/uhb/mt535-43-field-93a.htm) are also valid values of the **Securities Balance Type Code** (see [oFA DaD]). They can therefore be transferred to element balanceType without any conversion. Only for the following values, a conversion is necessary:

| Code MT535 | Description | SecuritiesBalanceTypeCode |
|---|---|---|
| AGGR | Aggregate | Not used, the security balance code is only used for individual positions in the context of the document at hand. |
| NAVL | Not Available Balance | BLOK |

## Annex A.2. Mapping Of Transaction Activity Code

The values of **Transaction Activity Code** (see [oFA DaD]) are identical to the values of the transaction indicator of MT536: (38) Field 22a: Indicator (https://www.iso20022.org/15022/uhb/mt536-38-field-22a.htm). They can therefore be transferred without further conversion.

## Annex A.3. Mapping of Market Type Code

The values of **Market Type Code** (see [oFA DaD]) are identical to the values of the source of price code used in MT536: (25) Field 94B: Place: Source of Price (https://www.iso20022.org/15022/uhb/mt536-25-field-94b.htm) and in MT535: (39) Field 94B (https://www.iso20022.org/15022/uhb/mt535-39-field-94b.htm). They can therefore be transferred without further conversion. For Security Orders (MT502) no corresponding information exists. The missing information in orders is no blocker for serving the interface, as the sourceOfPrice is only used as an optional element within this framework.

## Annex A.4. Mapping of Type of Price Code

The values of **Type of Price Code** (see [oFA DaD])cover the values of the qualifier in field "price" (90a) of MT535 (see https://www.iso20022.org/15022/uhb/mt535-46-field-90a.htm)


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and MT536 (see https://www.iso20022.org/15022/uhb/mt536-24-field-90a.htm) messages. They can therefore be transferred without further conversion. For Security Orders (MT502) no corresponding information exists. The missing information in orders is no blocker for serving the interface, as the priceType is only used as an optional within this framework.

## Annex A.5. Mapping of External Financial Instrument Identification Type Code

No specific fields are defined in MT messages to represent financial instrument identification other than ISIN. The field shall be filled according to the local conditions of usage.

## Annex A.6. Mapping of Trading Session Type Code

**Trading Session Type Code** (see [oFA DaD])can be derived from the **Trading Session Indicator** of an MT502 message (see https://www.iso20022.org/15022/uhb/mt502-18-field-22a.htm). The mapping can be done in a straightforward fashion as shown in the following table:

| Code MT502 | Description | Trading Session Type Code |
|---|---|---|
| AUCT | Auctions | auctions |
| CONT | Continuous | continuous |

## Annex A.7. Mapping of Securities Order Side

**Securities Order Side** (see [oFA DaD]) can, on principle, be derived from the Buy/Sell Indicator of an MT502 message (see https://www.iso20022.org/15022/uhb/mt502-18-field-22a.htm). However, currently not all of the MT502 indicators are reflected in the **Securities Order Side** code list.

Informative: List of MT502 Buy/Sell Indicator values:

| Code MT502 | Description | Securities Order Side |
|---|---|---|
| BUYI | Buy | buy |
| CROF | Cross From | [not supported] |
| CROT | Cross To | [not supported] |
| DIVR | Reinvestment of Dividend Order | [not supported] |
| FPOO | FPO Order | [not supported] |


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| Code MT502 | Description | Securities Order Side |
|---|---|---|
| IPOO | IPO Order | [not supported] |
| IPPO | IPP Order | [not supported] |
| REDM | Redemption | redemption |
| SELL | Sell | sell |
| SUBS | Subscription | subscription |
| SWIF | Switch From | [not supported] |
| SWIT | Switch To | [not supported] |

### Annex A.8. Mapping of Type of Order Code

**Type of Order Code** (see [oFA DaD]) can be derived from the **Type of Order Indicator** of an MT502 message (see https://www.iso20022.org/15022/uhb/mt502-18-field-22a.htm). The mapping can be done in a straightforward fashion as shown in the following table:

| Code MT502 | Description | Type of Order Code |
|---|---|---|
| ALNO | All or None | allOrNone |
| BCSE | Buy Contra Short Exempt | buyContraShortExempt |
| BCSH | Buy Contra Short | buyContraShort |
| BMIN | Buy Minus | buyMinus: |
| CARE | Carefully | carefully |
| COMB | Combination Order | combinationOrder |
| DISC | Discretionary | discretionary |
| DNIN | Do Not Increase | doNotIncrease |
| DNRE | Do Not Reduce | doNotReduce |
| ICEB | Iceberg Order | icebergOrder |
| LIWI | Limit With | limitWith |
| LIWO | Limit Without | limitWithout |
| LMTO | Limit Order | limitOrder |

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| Code MT502 | Description | Type of Order Code |
|---|---|---|
| MAKT | At Market | atMarket |
| MANH | Market Not Held | marketNotHeld |
| MTLO | Market to Limit Order | marketToLimitOrder |
| MUTO | Market Until Touched | marketUntilTouched |
| NOHE | Not Held | notHeld |
| ORLI | Order Lie | orderLie |
| SLOS | Stop Loss | stopLoss |
| SPLU | Sell Plus | sellPlus |
| STLI | Stop Limit | stopLimit |
| STOP | Stop Order | stopOrder |
| SSEX | Sell Short Exempt | sellShortExempt |
| SSHO | Sell Short | sellShort |

## Annex A.9. Mapping of Order Time Limit Code

**Order Time Limit Code** (see [oFA DaD]) can be derived from the **Time Limit Indicator** of an MT502 message (see https://www.iso20022.org/15022/uhb/mt502-18-field-22a.htm). The mapping can be done in a straightforward fashion as shown in the following table:

| Code MT502 | Description | Order Time Limit Code |
|---|---|---|
| CLOS | At the Closing | atTheClose, |
| FAKI | Fill and Kill | fillAndKill |
| FIKI | Fill or Kill | fillOrKill, |
| GDAY | Good for the Day | day |
| GTCA | Good until Cancelled | goodTillCancel |
| GTHD | Good through Date | goodTillDate |
| GTMO | Good for the Month | goodForMonth |

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| Code MT502 | Description | Order Time Limit Code |
|---|---|---|
| GTNM | Good until the End of Next Month | goodTillDate (+ specification of the end of next month in expiryDateTime) |
| GTXO | Good till Crossed | goodTillCrossing, |
| IOCA | Immediate or Cancel | immediateOrCancel, |
| OPEN | At the Opening | atTheOpening, |
| - | - | goodThroughCrossing, |
| - | - | atCrossing |
| - | - | goodForTime |
| - | - | goodForAuction, |

### Annex A.10. Mapping of Order Status Code

As the order Status is not part of an MT502 message, no mapping can be provided.


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# 7 Annex B: Change Log

## 7.1 Changes from Version 2.0 to Version 2.1

The following changes have been applied in version 2.1 relative to version 2.0:

| Section | Change | Reason |
|---|---|---|
| Several sections | The API-Contract-Id header is now conditional, where the API Client needs to use it, if the ASPSP has provided an API-Contract-Id in the related onboarding process via /onboardings. | General change to the Framework. |
| 4.3.4.1, 4.4.4.1, 4.5.4.1, 4.6.4.1 | A pagination query parameter for transaction reports has been added for premium services. | CR115 |
| 4.3.4.2 | Example corrected: contained element name "city" instead of townName for cardAcceptorAddress. | Erratum |

## 7.2 Changes from Version 2.1 to Version 2.2

The following changes have been applied in version 2.2 of this document relative to version 2.1:

| Section | Change | Reason |
|---|---|---|
| 3.2 | Adding endpoints in the overview for account statements and adjust explanations accordingly in the whole section. | Integration of the account statement definitions defined in [oFA-TDM]. |
| 4.2 | New Section<br><br>Added new endpoints for retrieving account statement for both single account and several accounts accessed by the PSU. | Integration of the account statement definitions defined in [oFA-TDM].<br><br>When introducing, CR124 and CR125 have been applied implicitly by introducing a new version of [oFA DaD]. |

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| Section | Change | Reason |
|---|---|---|
| All sections | JSON bugs corrected in examples by removing spaces before the ":" sign. | Errata |


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**openFinance API Framework**

**Implementation Guidelines**

# Advanced Multiple Recurring Payments

Version Draft for discussion

Version 0.1 (e4ffe99)

29th July 2026

Bank of Israel

Open Banking IL
Implementation Guidelines

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Version 2.0
27 August 2026

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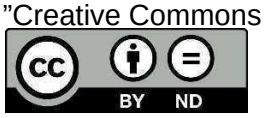


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# 1 Introduction

## 1.1 From Core XS2A Interface to openFinance API

With [PSD2] the European Union has published a directive on payment services in the internal market. Among others [PSD2] contains regulations on services to be operated by so called Third Party Payment Service Providers (TPP) on behalf of a Payment Service User (PSU). These services are

- Payment Initiation Service (PIS) to be operated by a Payment Initiation Service Provider (PISP) TPP as defined by article 66 of [PSD2],
- Account Information Service (AIS) to be operated by an Account Information Service Provider (AISP) TPP as defined by article 67 of [PSD2], and
- Confirmation on the Availability of Funds Service (FCS) to be used by a Payment Instrument Issuing Service Provider (PIISP) TPP as defined by article 65 of [PSD2].

To implement these services (subject to PSU consent) a TPP needs to access the account of the PSU. The account is managed by another PSP called the Account Servicing Payment Service Provider (ASPSP). To support the TPP in accessing the accounts managed by an ASPSP, each ASPSP has to provide an “access to account interface” (XS2A interface). Such an interface has been defined in the Berlin Group NextGenPSD2 XS2A Framework.

This XS2A Framework is now planned to be extended to extended services. This interface is addressed in the following as **openFinance API**. This openFinance API differs from the XS2A interface in several dimensions:

- The extended services might not rely anymore solely on PSD2.
- Other important regulatory frameworks which apply are e.g. GDPR.
- The openFinance API can address different types of **API Clients** as access clients, e.g. TPPs regulated by an NCA according to PSD2, or corporates not regulated by an NCA.
- The extended services might require contracts between the access client and the ASPSP.
- While the client identification at the openFinance API can still be based on eIDAS certificates, they do not need to be necessarily PSD2 compliant eIDAS certificates.
- The extended services might require e.g. the direct involvement of the access client’s bank for KYC processes.

**Note:** The notions of API Client and ASPSP are used because of the technical standardisation perspective of the openFinance API. These terms are analogous to “asset broker” and “asset holder” resp. in the work of the ERPB on a SEPA API access scheme.

**Note:** In implementations, the API services of several ASPSPs might be provided on an aggregation platform. Such platforms will be addressed in the openFinance API Framework as “API provider”.

The following account access methods are covered by this framework:

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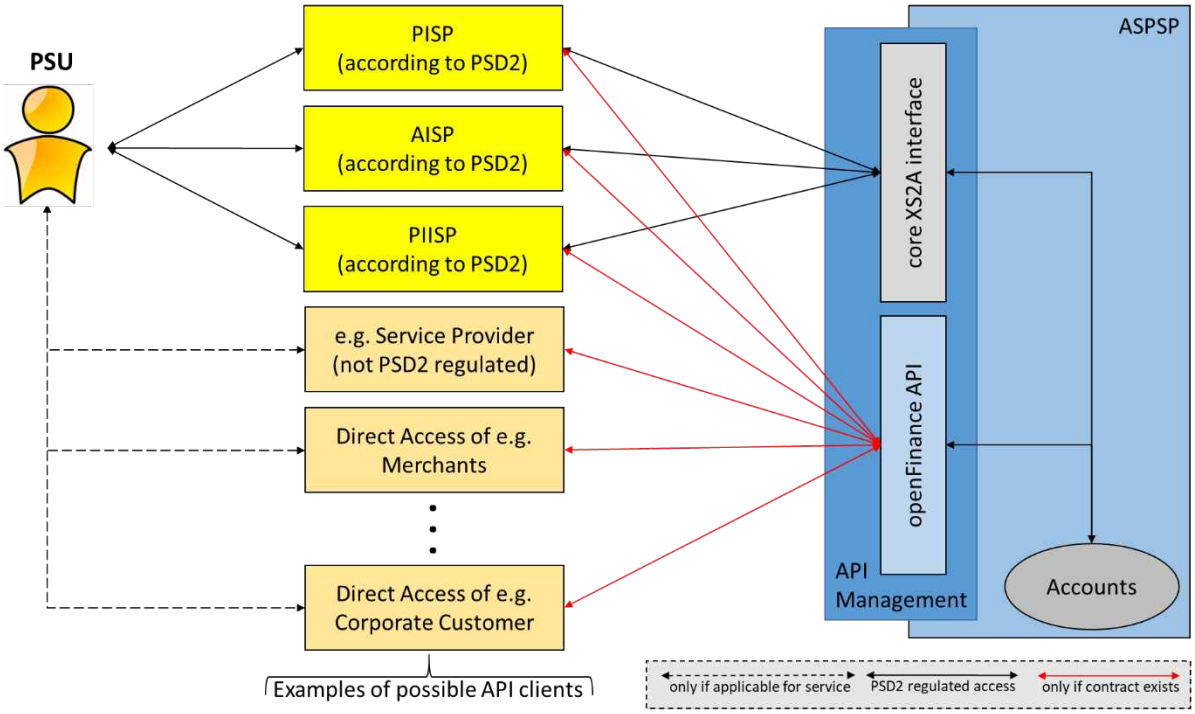


Figure 1: Core XS2A interface and openFinance API

The ASPSP may restrict the access to the services offered at its openFinance API and require dedicated onboarding. The requirements for the rights to access to services offered at the openFinance API are out of scope of this document. These requirements are described in a dedicated operational rules document [oFA-OR-Adm].

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# 2 Application Layer: Guiding Principles

## 2.1 API Access Methods

This section provides an overview over all endpoints for the respective services.

A link to the corresponding section with a more detailed description of the endpoint is provided in the table.

### 2.1.1 Advanced Extended Multiple Recurring Payment Initiation Services

The following table gives an overview of the HTTP access methods supported for the Advanced Extended Multiple Recurring Payment Initiation Services. These Services are referring to the service type XAMRPIS as defined in [oFA-OR-AdvPIS] and the related endpoint instances

- advanced-multiple-recurring-payments for XAMRPIS.

Please note that the authorisation related processes and endpoints are defined generically in [oFA-PFSM] and are not further included in this list.

| Path | Method | Condition | Description |
|---|---|---|---|
| /v2/advanced-multiple-recurring-payments/{payment-product} | POST | Mandatory | Advanced multiple recurring payment authorisation request.<br>Create an extended payment resource with all data relevant for the corresponding requested recurrig period and the underlying payment product.<br>This is the first step in the API to initiate the related advanced payment initiation service.<br>Optionally, the creditor information and limits on the periodical amount and the instructed amount of a single initiation can be included. The ASPSP might mandate the usage of (some of) these attributes.<br>See Section 3.1 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId} | GET | Mandatory | Read the details of an advanced multiple recurring payment authorisation.<br>Retrieves the details of an advanced payment resource.<br>See Section 3.2 |

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| Path | Method | Condition | Description |
|---|---|---|---|
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId} | PUT | Optional | Update of the advanced multiple recurring payment authorisation.<br><br>The API Client updates the whole resource by replacing the resource data with the data given in the request body. Only attributes that are deemed mutable by the ASPSP may be changed by this API Call. The end date, the maximum periodical amount and the maximum instructed amount can always be updated.<br><br>See Section 3.3 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId} | DELETE | Mandatory | Payment Authorisation Cancellation Request.<br><br>Cancels the addressed payment resource. No further SCA processes are needed for the cancellation. If the request addresses the current *changed version* of the request, only the unauthorised changes are withdrawn.<br><br>See Section 3.4 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/status | GET | Mandatory | Read Payment Authorisation Status Request.<br><br>Retrieves the detailed status of the payment.<br><br>See Section 3.5 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations | POST | Mandatory | Initiation for Advanced Multiple Recurring Payments.<br><br>Requests the initiation related to the authorised payment resource. This API Call must include the instructed amount. The initiation can follow a one-step approach where the execution is processed directly or a two-step approach, where an explicit confirmation of the initiation must be issued as second set before the initiation gets processed. If no creditor details were provided for the authorisation, they must be given for each initiation separately. This access method can only be successful after a positive authorisation of the payment is completed, i.e. the transaction status of the payment resource equals´ACTC.<br><br>See Section 3.6 |

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| Path | Method | Condition | Description |
|---|---|---|---|
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations | GET | Mandatory | Retrieve a list of all related initiations of the addressed payment resource.<br>See Section 3.7 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations/{initiationId} | GET | Mandatory | Read the details of an addressed initiation.<br>See Section 3.8 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations/{initiationId} | DELETE | Conditional | Cancellation of an initiation.<br>With this API Call, the cancellation of an initiation is requested. It may only be successful for initiations relying on the two-step approach before the confirmation step is issued.<br>The ASPSP must offer this API Call, if it supports the two-step approach for executing payments.<br>See Section 3.9 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations/{initiationId}/status | GET | Mandatory | Read the status of an addressed initiation.<br>See Section 3.10 |
| /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initiations/{initiationId}/confirmations | PUT | Conditional | Confirmation of the addressed initiation.<br>This is the initiation activation service. It is only applicable for initiations reyling on the two-step initiation process. If the two-step initiation approach is supported by the ASPSP, then this endpoint must be offered by the ASPSP.<br>See Section 3.11 |

## 2.2 Status information

### Transaction Status of the payment authorisation

The following diagram shows the overall status transition diagram for the authorisation of an advanced multiple recurring payment resource.

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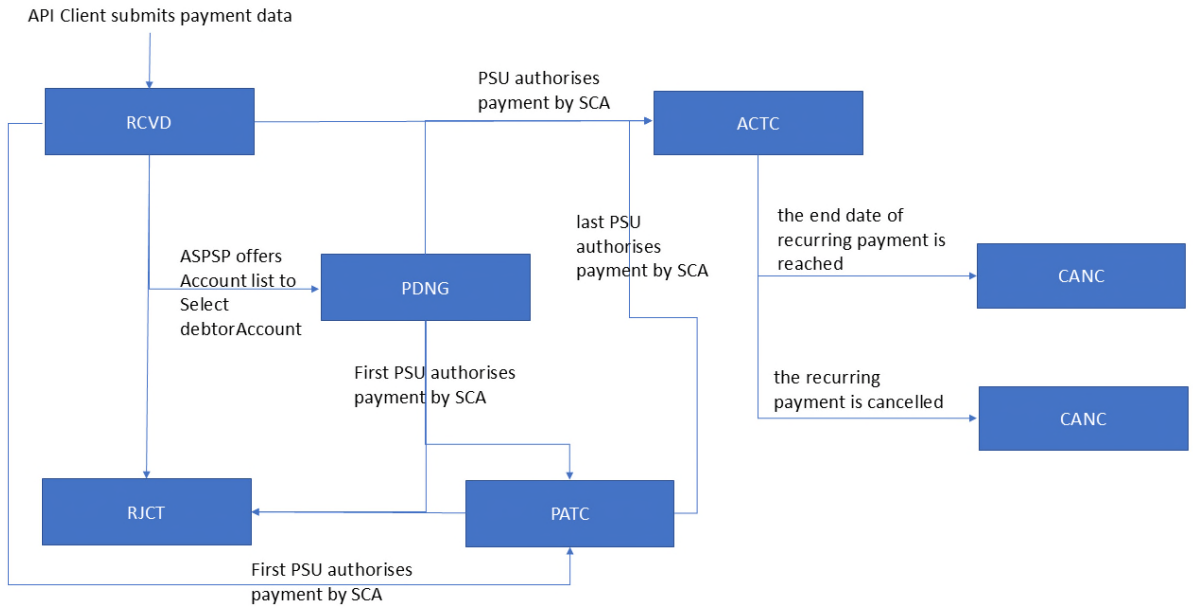


Figure 2: Status diagram for the advanced multiple recurring payment

Initiations related to the payment may only be executed if the addressed underlying payment resource obtains the status 'ACTC'. This specification supports a one-step initiation process which is directly processed and a two-step initiation process with additional confirmation request after a funds checked. The support for the two-step initation process remains optional for the ASPSP. If an API Client requests the two-step approach for an initiation and the ASPSP does not support this, then this request must be rejected and the ASPSP must inform the API Client on the reason of rejection.

**Initiation Status of an initiation relying on the one-step process**

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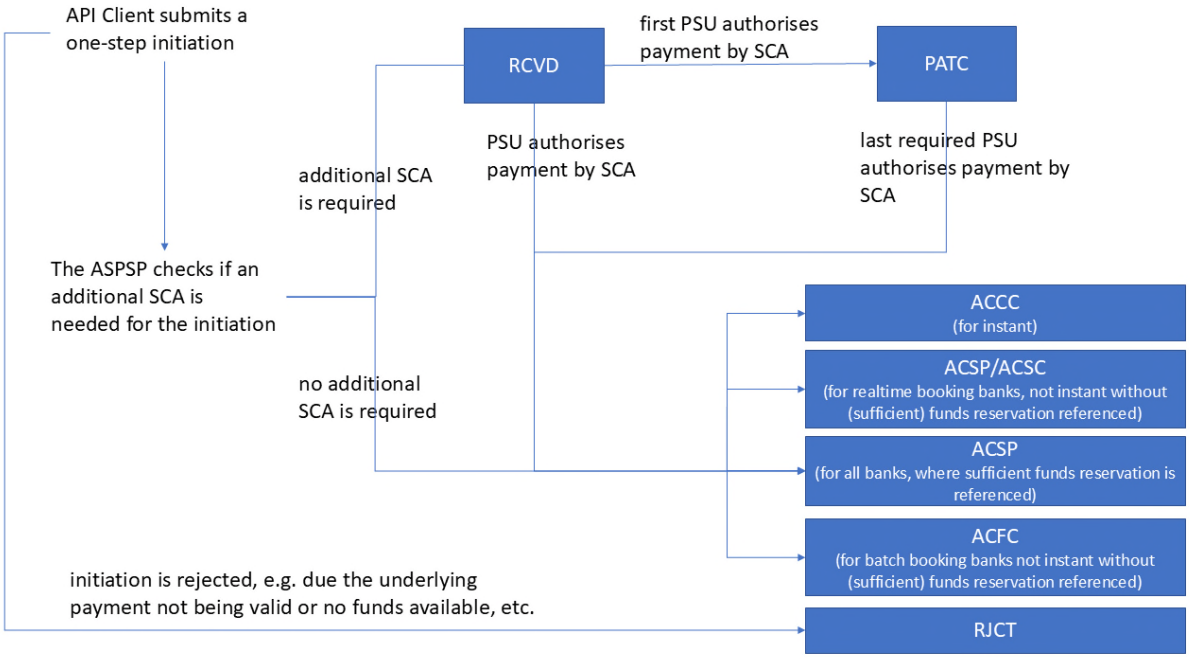


Figure 3: Status diagram for the one-step initiation

## Initiation Status of an initiation relying on the two-step process

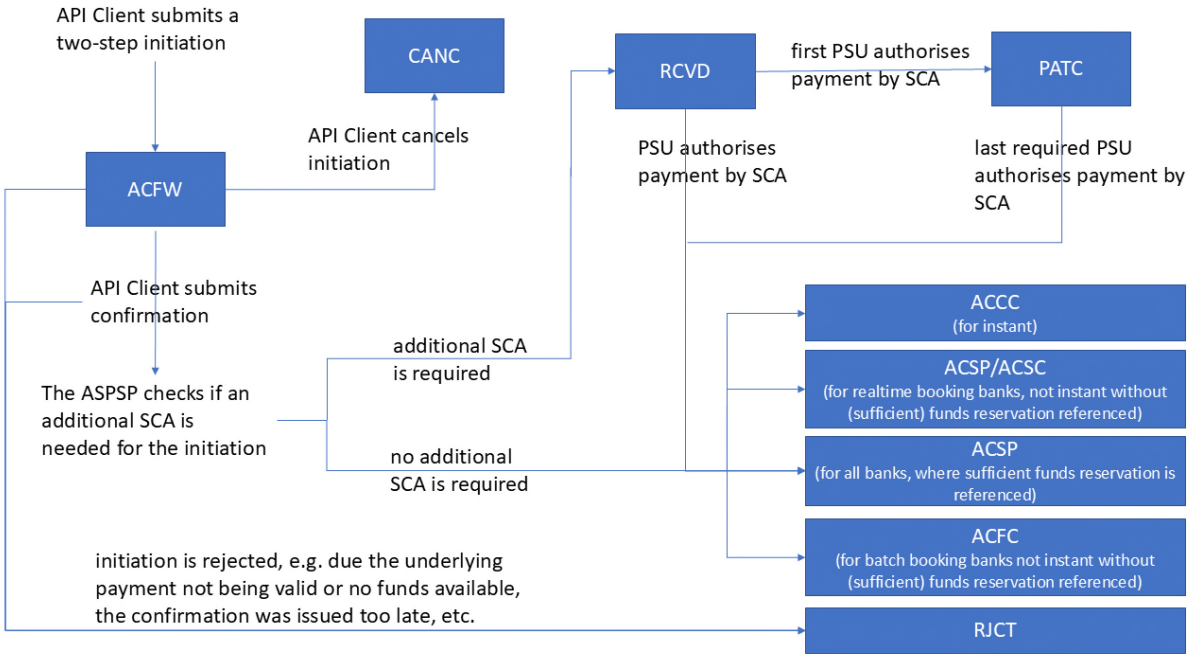


Figure 4: Status diagram for the two-step initiation approach

## Remark:

The ASPSP may decide to not support the dynamic SCA processes in general via its APIs, thus


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either allowing initiations to be executed without a second SCA process or rejecting the resp. initiation. If that is the case, the status diagrams become much simpler:

**Initiation Status of an initiation relying on the one-step process without dynamic SCA**

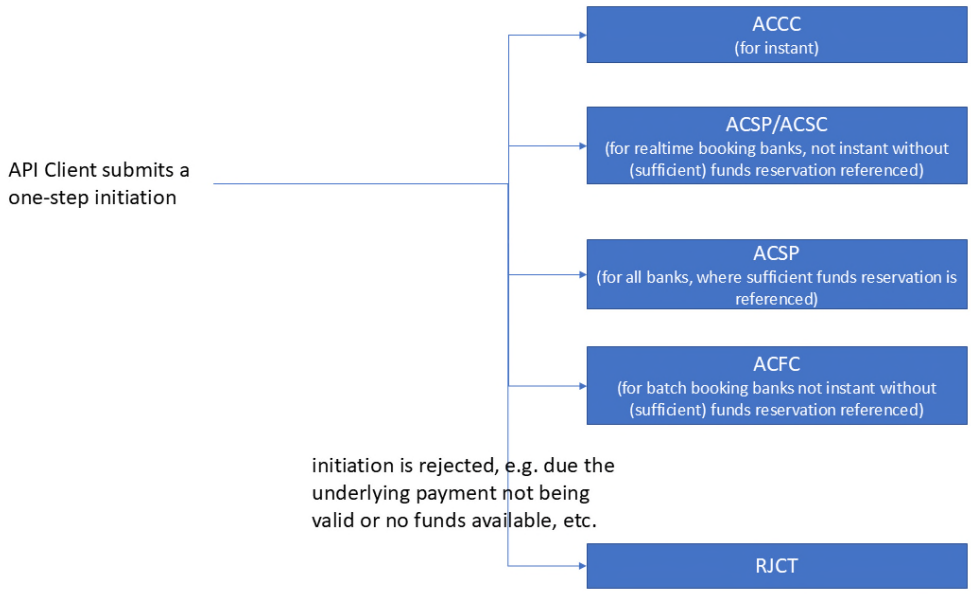


Figure 5: Status diagram for the one-step initiation without the option of an SCA for the initiation

**Initiation Status of an initiation relying on the two-step process without dynamic SCA**

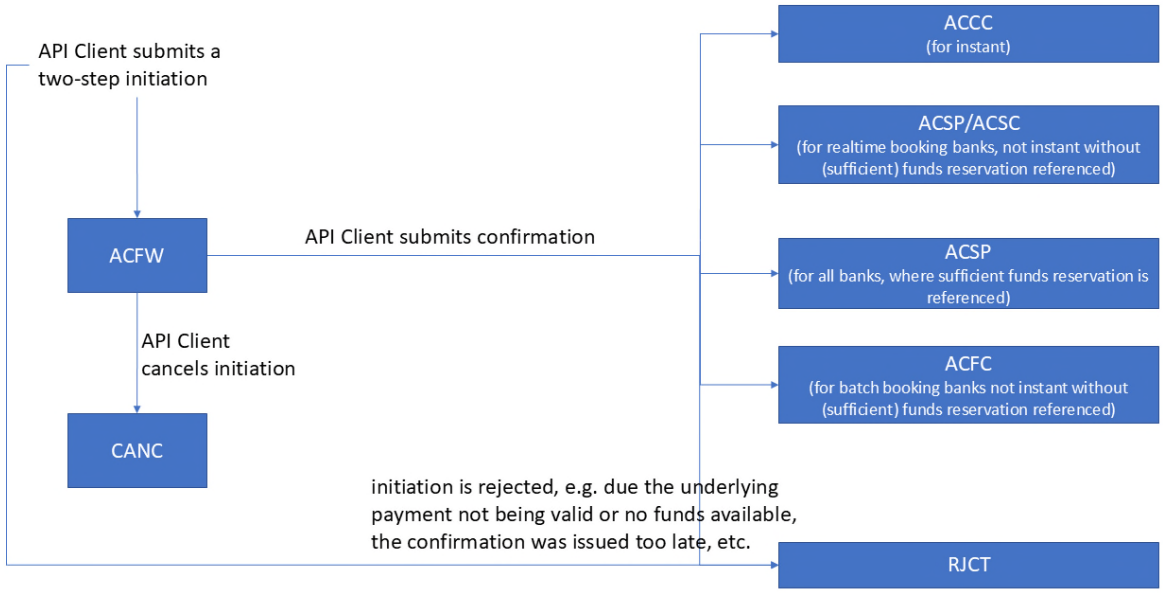


Figure 6: Status diagram for the two-step initiation without the option of an SCA for the initiation

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# 3 Advanced Extended Multiple Recurring Payment Initiation Services

## 3.1 Advanced multiple recurring payment authorisation request

Creates an extended payment resource for recurring payment with potentially multiple initiations per period at the ASPSP.

The recurring details of the payment (like the frequency and the start date) and the debtor account must be included in the request body. Optionally the requested recurring payment may include a maximum periodical amount, a maximum initiation amount and the creditor details, (see Section 3.6).

The ASPSP obtains the option to restrict the flexibilities of the service by mandating

- the creditor details (name and account),
- the maximum periodical amount and/or
- the maximum initiation amount for the authorisation of the payment.

The ASPSP must inform the API Client on such restrictions via its discovery API, cf. [oFA-IG-Disc].

If any of these attributes are set for the payment authorisation, later initiations related to the underlying payment authorisation must follow these restrictions, i.e. the sum of all initiations related to the advanced multiple recurring payment authorisaion within the same recurring period may not exceed the maximum periodical amount and the instructed amount of a single initiation may not exceed the maximum initiation amount, else the initation will be rejected.

If no specific creditor is addressed in the payment authorisation phase, this implies the creditor details must be provided for each payment initiation separately, in particular, allowing the API Client to use one advanced multiple recurring payment authorisation for potentially multiple different creditors.

If creditor information is provided during the authorisation phase, the API Client must initiate an additional advanced multiple recurring payment (with its related authorisation) on behalf of the PSU for an additional creditor.

The ASPSP can restrict the number of successful initiations that can be executed per recurring period based on the advanced mulitple recurring payment authorisation. Furthermore, if the ASPSP does not mandate the usage of the maximum periodical amount or the maximum initiation amount and the API Client sends a request without including these details for the authorisation of the payment, then the ASPSP can set up restrictions for these limitation which e.g. are based on agreements between the PSU and the ASPSP. If any such restrictions apply for the payment authorisation, then the ASPSP must inform the API Client on this in the response.

For a related initiation, the ASPSP can mandate that a second SCA is required before the initation is executed. This second verification could be required of a second PSU (e.g. not the PSU/PSUs that authorised the underlying payment resource) or by the same PSU that already authorised the payment or both. The API Client will be informed about this, for details on the dynamic SCA requirements please see Sections 3.6 and 3.11. The ASPSP informs the API Client via its Discovery API whether such dynamic SCA decisions for the initiation are supported in general or not, c.f. [oFA-IG-Disc].

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**Note:** For a PSD2-compliante implementation of this service, the following implementation options are suggested. If this payment service is requested without a detailed creditor information, then

- the payment might be used for creditors that are white-listed by the PSU only, and,
- additionally, a dedicated SCA for each initiation could be required again by the ASPSP for all creditors that are not white-listed by the PSU.
- Alternatively, the ASPSP may restrict this service for its implementation as described above, and mandates the creditor data, and maximum periodical amount to be provided already for the payment authorisation.

### 3.1.1 Request

#### Call

`POST /v2/advanced-multiple-recurring-payments/{payment-product}`

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

#### Query Parameters

No specific query parameters.

#### Request Header

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Transaction Initiation Request related attributes>* | | | The *Transaction Initiation Request* related request header attributes as described in [oFA-PFSM] are to be used. |

**Request Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |

### 3.1.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 201 | A new payment resource was created. |

**Response Header**


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Transaction Initiation Request Response related attributes>* | | | The *Transaction Initiation Request* related response header attributes as described in [oFA-PFSM] are to be used. |

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Transaction Initiation Request Response related attributes>* | | | The *Transaction Initiation Request* related response body attributes as described in [oFA-PFSM] are to be used. |
| transaction Status | Transaction Status | Mandatory | Payment transaction status. |
| paymentId | Max70Text | Mandatory | resource identification of the generated payment initiation resource. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the currencyConversionFees if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFee Indicator | Boolean | Optional | If equals 'true, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals 'false, the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| maximum NumberOf Initiations | Integer | Optional | The maximum number of payments which might be initiated on this resource per recurring period. |
| maximum Periodical Amount | Amount | Optional | Amount of money that can be initiated at most during a single recurring period.<br>Only included if the attribute was not provided in the request by the API Client but such a limitation is set by the ASPSP e.g. due to agreements with the PSU. |
| maximum InitiationAmount | Amount | Optional | The maximum amount that can be instructed by a single initiation related to the payment.<br>Only included if the attribute was not provided in the request by the API Client but such a limitation is set by the ASPSP e.g. due to agreements with the PSU. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |

### 3.1.3 Examples

No examples yet

## 3.2 Read the details of an advanced multiple recurring payment authorisation

With this API Call, the API Client can retrieve the addressed payment. It contains the view of the ASPSP on the addressed payment resource.

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### 3.2.1 Request

#### Call

```
GET /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |
| paymentId | Max70Text | Resource identification of the related payment. |

#### Query Parameters

No specific query parameters.

#### Request Header

No specific header parameters.

#### Request Body

No request body.

### 3.2.2 Response

#### Response Code

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 200 | OK. The requested resource is provided in the response body. |


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### Response Header

No specific response headers.

### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | Payment transaction status. |
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| remaining Authorised Amount | Amount | Conditional | This attribute is showing the maximum amount which can still be initiated on this resource during the current execution period, i.e. it is the maximum periodical amount minus the sum of all (successfull) initiations requested in the current execution period minus the sum of all valid initiations relying on the two-step approach that are already created and still await confirmation.<br>This attribute must be included if the maximum periodical amount is included in the underlying payment resource. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the `currencyConversionFees` if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |
| transactionFee Indicator | Boolean | Optional | If equals `true`, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals `false`, the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| maximum NumberOf Initiations | Integer | Conditional | The maximum number of payments which might be initiated on this resource in each recurring period.<br>If this attribute was set by the ASPSP in the payment authorisation response of this payment, it must be included. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU. |
| apiClient Messages | Array of Client Message Information | Optional | |

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### 3.2.3 Examples

No examples yet

## 3.3 Update of the advanced multiple recurring payment authorisation

The API Client requests to update the payment resource, following the Change Transaction Resource Process as described in the [oFA-PFSM]. Using this API Call, the API Client can request:

- a prolongation, restriction or deletion of the end date of the recurring payment, or
- an update of the maximum periodical amount (i.e. to set, change or to delete the limit), or
- an update of the maximum initiation amount (i.e. to set, change or to delete the limit), or
- an update consisting of multiple of the above options.

This request entirely replaces the addressed resource. This implies that any field that is not provided in the request body will be removed from the resource.

Any attributes not explicitly stated to be mutable by the ASPSP must obtain the same value as in the current version of the resource, else the ASPSP will reject the request.

If this API Call is supported by the ASPSP, the ASPSP must allow the API Client to request changes concerning the maximum periodical amount, the maximum instructed amount and the end date.

The ASPSP might replace or (if not set during the authorisation) set a maximum number of initiations per recurring period for the related payment resource. If that is the case, this (changed) limit must be included in the response, to inform the API Client.

### 3.3.1 Request

#### Call

```
PUT /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

### Query Parameters

No specific query parameters.

### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Change Transaction Resource Request related attributes>* | | | The *Change Transaction Resource Request* related request header attributes as described in [oFA-PFSM] are to be used. |

### Request Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |

### 3.3.2 Response

#### Response Code

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 200 | OK |

#### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Change Transaction Resource Request Response related attributes>* | | | The *Change Transaction Resource Request* related response header attributes as described in [oFA-PFSM] are to be used. |

#### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<Change Transaction Resource Request Response related attributes>* | | | The *Change Transaction Resource Request* related response body attributes as described in [oFA-PFSM] are to be used. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | Payment transaction status of the changed resource variant. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the currencyConversionFees if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |
| transactionFee Indicator | Boolean | Optional | If equals true, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| maximum NumberOf Initiations | Integer | Optional | The maximum number of payments which might be initiated on this resource per recurring period. |
| _links | Links | Mandatory | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for the Change Transaction Initiation Response are defined in [oFA-PFSM]. These links will also be contained in the related Open API files. Remark: All links can be relative or full links, to be decided by the ASPSP. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |

### 3.3.3 Examples

No examples yet

## 3.4 Payment Authorisation Cancellation Request

With this API Call the cancellation of the addressed payment is requested. This request is sufficient to cancel the payment, a dedicated authorisation of the PSU via SCA is not forseen.

When the request is accepted by the ASPSP, the resource will be deleted and any requests asking to execute or confirm initiations related to the payment resource are rejected by the ASPSP.

When the request addresses the current *changed version* of the payment resource, any unauthorised changes are withdrawn while the *active version* of the payment remains unchanged.

### 3.4.1 Request

#### Call

`DELETE /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}`

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

**Query Parameters**

No specific query parameters.

**Request Header**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| If-Match | UUID | Optional | If provided, the request withdraws the addressed *changed version* of the resource. This must be the current *changed version* of the resource. Otherwise, the request will be rejected. |

**Request Body**

No request body.

### 3.4.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 204 | No content. The payment resource will be deleted or the addressed *changed version* of the resource was withdrawn. |

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### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| ETag | UUID | Conditional | This field contains the ETag of the resource variant, on which the request was applied.<br>If the request addressed a particular ETag using the `If-Match` header, this attribute must be used and must contain the same ETag as addressed by the `If-Match` header in the request. |

### Response Body

No response body.

#### 3.4.3 Examples

No examples yet

## 3.5 Read Payment Authorisation Status Request

The API Client requests the authorisation status of the addressed payment. Additional information for the status may be given by the reason.

#### 3.5.1 Request

### Call

```
GET /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/sta
↪ tus
```

### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

**Query Parameters**

No specific query parameters.

**Request Header**

No specific header parameters.

**Request Body**

No request body.

### 3.5.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 200 | OK |

**Response Header**

No specific response headers.

**Response Body**


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | Payment transaction status of the changed resource variant. |
| remaining Authorised Amount | Amount | Conditional | This attribute is showing the maximum amount which can still be initiated on this resource during the current execution period, i.e. it is the maximum periodical amount minus the sum of all (successfull) initiations requested in the current execution period minus the sum of all valid initiations relying on the two-step approach that are already created and still await confirmation.<br>This attribute must be included if the maximum periodical amount is included in the underlying payment resource. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client, e.g. to retreive the full resource. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. |

### 3.5.3 Examples

No examples yet

## 3.6 Initiation for Advanced Multiple Recurring Payments

With this API Call the API Client requests a payment initiation related to the addressed payment resource.

The API Client can indicate in this API Call if the requested initiation shall be booked immediatly by the ASPSP or if an explicit confirmation by the API Client must be provided as second step before the API Client will execute the payment.

It is optional for the ASPSP to support the two-step initiation approach and informs the API Client on this via its Discovery API. If the API Client requests an initiation relying on the two-step approach but this is not supported by the ASPSP, then the request must be rejected by the API and the ASPSP must inform the API Client on the reason for this. If a two-step initation is requested by the API Client and the approach is supported by the ASPSP, the ASPSP informs the API Client on the timestamp until which the API Client must confirm the initiaton request. Afterwards, the initiation is invalid and cannot be executed by the ASPSP anymore.

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The ASPSP has to verify that the request is issued within the limitations given by the underlying payment resource (if provided). In particular, this implies the ASPSP verifies if:

- the maximum number of (successful) initiations has not been reached yet (if such a limitation was set by the ASPSP during the creation of the payment resource), and
- the sum of all successful initiations of the addressed execution period including the instructed amount of the current request is still less than or equal to the maximum periodical amount for the related recurring period (if such a limit was set during the authorisation of the payment), and
- the amount of the requested initiation is less than or equal to the maximum initiation amount for the related payment (if such a limit was set during the authorisation of the payment), and
- if a creditor was provided for the authorisation of the payment already, no additional creditor data is given in the initiation request, even if it is the same data, and
- if no creditor data was given for the authorisation of the payment, then the creditor data is provided in this initiation request to provide the related creditor, and
- if enough funds are available, and
- no other risk management reason results in a rejection of the initiation.

In case all checks are positive, the ASPSP creates the initiation resource.

If a one-step initiation is requested by the API Client, in addition to the above, the ASPSP verifies if a dedicated SCA of the PSU is needed for the execution of the initiation and informs the API Client about this. It is up to the ASPSP to decide if another SCA is needed. It is possible to require SCA from the same PSU that already provided its consent during the payment authorisation as well as another PSU that is also linked to the debtor account, e.g. when only one PSU authorised the underlying payment resource but the account is a shared account. In that case, the related authorisation links and attributes must be contained in the response. The API Client starts the authorisation process explicitly, via a dedicated

```
POST /advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initi
↪  ations/{initiationId}/authorisations
```

for details see [oFA-PFSM].

For the two-step initation approach, the ASPSP checks if a dedicated SCA is required after the confirmation of the initiation os requested, for details see Section 3.11.

**Note:** The ASPSP can decide dynamically if an SCA is needed again for the initiation of a payment. This decision is independent on the type of initiation approach requested by the API Client. For the two-step initiation approach, this SCA-check is done only after the confirmation of the initiation is requested by the API Client, i.e. after the second step.

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### 3.6.1 Request

#### Call

```
POST /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/in
↪ itiations
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

#### Query Parameters

No specific query parameters.

#### Request Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<SCA related attributes>* | | | The SCA related request header attributes as described in [oFA-PFSM] are to be used. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| Client-Explicit-Confirmation-Requested | Boolean | Optional | If it equals `true`, and if an explicit confirmation is supported by the ASPSP, then the related initiation will only be executed after an additional confirmation request.<br>If it equals `true`, and if an explicit confirmation is not supported by the ASPSP, then the related request will be rejected.<br>If it equals `false` or if an explicit confirmation is not supported by the ASPSP or if not used by the API Client, then the related initiation needs no further action on the API to be executed. |

**Request Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment Identification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification. Else the payment identification of the underlying payment is used (if it was provided for the payment authorisation). |
| instructed Amount | Amount | Mandatory | Amount to be initiated by this API Call. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| remittance Information Structured | Array of Remittance | Or – Optional} | The supported sub structure will depend on the underlying payment product. If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| creditorAccount | Account Reference 1 | Conditional | It obtains the unambiguous identification of the related account of the creditor. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. The data may only be included if and only if no creditor data is provided in the underlying payment. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditor | Party Description | Conditional | It obtains the description of the creditor of the initiation. The data must only be included if and only if no creditor data is provided in the underlying payment. |

### 3.6.2 Response

#### Response Code

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 201 | CREATED. The related initiaiton resource is created. |

#### Response Header

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<SCA related attributes>* | | | The SCA related response header attributes as described in [oFA-PFSM] are to be used. |

#### Response Body

| Attribute | Type | Condition | Description |
|---|---|---|---|
| *<SCA related attributes>* | | | The SCA related response body attributes as described in [oFA-PFSM] are to be used. |
| initiationId | Max70Text | Mandatory | Unique identification of the initiation resource. |
| transaction Status | Transaction Status | Mandatory | The status of the requested initiation. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| confirmation ExpiryDateTime | ISODate Time | Conditional | The ASPSP shall provide this attribute, if the explicit confirmation is supported by the ASPSP and if the Client-Explicit-Confirmation-Requested equals true. This attribute implies that an explicit confirmation by the API Client is still outstanding. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the ”currencyConversionFees” if applicable. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |
| transactionFee Indicator | Boolean | Optional | If equals ”true”, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals ”false”, the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| _links | Links | Conditional | If a one-step initiation approach is requested by the API Client and the ASPSP requires an additional SCA by the PSU before the initiaton can be executed, then the related links must be provided in the response. |

### 3.6.3 Examples

No examples yet

## 3.7 Retrieve a list of all related initiations of the addressed payment resource

The API Client requests the list of all initiations related to the addressed payment resource. The list shall include initiations using the two-step approach where the confirmation step is still required before the initiations will be executed.

Depending on whether the creditor was already set in the underlying payment resource for the creation and authorisation process, the creditor details must be included for each initiation in the list.

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### 3.7.1 Request

#### Call

```
GET /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/ini
↪ tiations
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |

#### Query Parameters

No specific query parameters.

#### Request Header

No specific header parameters.

#### Request Body

No request body.

### 3.7.2 Response

#### Response Code

The following specific responses are possible:

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| HTTP response code | Description |
|---|---|
| 200 | OK. The list of initiations of the addressed payment resource is provided in the response body. |

**Response Header**

No specific response headers.

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| initiations | Array of Advanced Initiation | Mandatory | List of all initiations requested for the related advanced multiple recurring payment. |

### 3.7.3 Examples

No examples yet

## 3.8 Read the details of an addressed initiation

The response body must contain the view of the ASPSP on the addressed payment resource.

### 3.8.1 Request

**Call**

```
GET /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/ini
↪ tiations/{initiationId}
```

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |
| initiationId | Max70Text | Resource identification of the related initiation. |

**Query Parameters**

No specific query parameters.

**Request Header**

No specific header parameters.

**Request Body**

No request body.

### 3.8.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 200 | Ok. |

**Response Header**

No specific response headers.

**Response Body**


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | The status of the addressed payment initiation. |
| payment Identification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification. Else the payment identification of the underlying payment is used (if it was provided for the payment authorisation). |
| instructed Amount | Amount | Mandatory | Amount to be initiated by this API Call. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| remittance Information Structured | Array of Remittance | Or – Optional} | The supported sub structure will depend on the underlying payment product. If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| creditorAccount | Account Reference 1 | Conditional | It obtains the unambiguous identification of the related account of the creditor. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. The data may only be included if and only if no creditor data is provided in the underlying payment. |
| creditor | Party Description | Conditional | It obtains the description of the creditor of the initiation. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in [oFA-PFSM] for all Transaction Initiation Response messages. These links will also be contained in the related Open API files.<br><br>Remark: All links can be relative or full links, to be decided by the ASPSP. |


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### 3.8.3 Examples

No examples yet

## 3.9 Cancellation of an initiation

The API Client can ask for the cancellation of the addressed initiation as long as it the initiation not confirmed yet. This API Call can only be successful for *initiationId*s related to a initiations using the two-step initiation approach.

### 3.9.1 Request

#### Call

```
DELETE /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/
↪ initiations/{initiationId}
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |
| initiationId | Max70Text | Resource identification of the related initiation. |

#### Query Parameters

No specific query parameters.

#### Request Header


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No specific header parameters.

**Request Body**

No request body.

### 3.9.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 204 | No content. The initiation will be deleted. |

**Response Header**

No specific response headers.

**Response Body**

No response body.

### 3.9.3 Examples

No examples yet

## 3.10 Read the status of an addressed initiation

### 3.10.1 Request

**Call**

```
GET /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/ini
↪ tiations/{initiationId}/status
```

**Path Parameters**

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |


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| Attribute | Type | Description |
|---|---|---|
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |
| initiationId | Max70Text | Resource identification of the related initiation. |

**Query Parameters**

No specific query parameters.

**Request Header**

No specific header parameters.

**Request Body**

No request body.

### 3.10.2 Response

**Response Code**

The following specific responses are possible:

| HTTP response code | Description |
|---|---|
| 200 | Ok. |

**Response Header**

No specific response headers.

**Response Body**


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | The status of the addressed payment initiation. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| remaining Authorised Amount | Amount | Conditional | This attribute is showing the maximum amount which can still be initiated on this resource during the current execution period, i.e. it is the maximum periodical amount minus the sum of all (successfull) initiations requested in the current execution period minus the sum of all valid initiations relying on the two-step approach that are already created and still await confirmation.<br>This attribute must be included if the maximum periodical amount is included in the underlying payment resource. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client, e.g. to retreive the full resource. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. |

### 3.10.3 Examples

No examples yet

## 3.11 Confirmation of the addressed initiation

The API Client confirms the actual execution of the addressed initiation with this request. It must be issued before the expiry timestamp is reached.

For the two-step initiation approach, now the ASPSP verifies if a dedicated SCA of the PSU is needed for the execution of the initiation and informs the API Client about this in the response. It is up to the ASPSP to decide if another SCA is needed. It is possible to require SCA from the same PSU that already provided its consent during the payment authorisation as well as another PSU that is also linked to the debtor account, e.g. when only one PSU authorised the underlying payment resource but the account is a shared account. If SCA is required, the related authorisation links and attributes must be contained in the response. The API Client starts the authorisation process explicitly, via a dedicated

```
POST /advanced-multiple-recurring-payments/{payment-product}/{paymentId}/initi
↪  ations/{initiationId}/authorisations
```

for details see [oFA-PFSM].


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### 3.11.1 Request

#### Call

```
PUT /v2/advanced-multiple-recurring-payments/{payment-product}/{paymentId}/ini
↪ tiations/{initiationId}/confirmations
```

#### Path Parameters

| Attribute | Type | Description |
|---|---|---|
| paymentId | Max70Text | Resource identification of the related payment. |
| payment-product | String | The addressed payment product endpoint, e.g. for SEPA Credit Transfers (SCT).<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>The following payment products are supported (all using request bodies with JSON encoding):<br>- sepa-credit-transfers<br>- instant-sepa-credit-transfers<br>- target-2-payments<br>- cross-border-credit-transfers<br>The ASPSP will publish which of the payment products/ endpoints will be supported.<br>For definitions of basic non euro generic products see [oFA-DomDef].<br>Further products might be published by the ASPSP within its XS2A documentation. These new product types will end in further endpoints of the XS2A Interface. |
| initiationId | Max70Text | Resource identification of the related initiation. |

#### Query Parameters

No specific query parameters.

#### Request Header

No specific header parameters.

#### Request Body

No request body.

### 3.11.2 Response

#### Response Code

The following specific responses are possible:


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| HTTP response code | Description |
|---|---|
| 200 | The confirmation is ok but the initiation might require additional SCA before it gets executed. |

**Response Header**

No specific response headers.

**Response Body**

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | The status of the requested initiation. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| _links | Links | Conditional | If the ASPSP requires an additional SCA by the PSU before the initiaton can be executed, then the related links must be provided in the response. |

### 3.11.3 Examples

No examples yet

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# 4 Annex: New data types

This section contains all data types used in this document that are not yet defined in the data dictionary.

These data type definitions will be integrated into the [oFA-DaD] once the specification is endorsed.

## 4.1 Advanced Initiation

Data model for an initiation of an multiple recurring avanced payment.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| initiationId | Max70Text | Mandatory | Unique identification of the payment initiation. |
| transaction Status | Transaction Status | Mandatory | The status of the addressed payment initiation. |
| payment Identification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification. Else the payment identification of the underlying payment is used (if it was provided for the payment authorisation). |
| instructed Amount | Amount | Mandatory | Amount to be initiated by this API Call. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| remittance Information Structured | Array of Remittance | Or – Optional} | The supported sub structure will depend on the underlying payment product. If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| creditorAccount | Account Reference 1 | Conditional | It obtains the unambiguous identification of the related account of the creditor. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. The data may only be included if and only if no creditor data is provided in the underlying payment. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditor | Party Description | Conditional | It obtains the description of the creditor of the initiation. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in [oFA-PFSM] for all Transaction Initiation Response messages. These links will also be contained in the related Open API files.<br>Remark: All links can be relative or full links, to be decided by the ASPSP. |

## 4.2 Advanced Initiation 1

The data model for an underlying advanced initiation as returned by the ASPSP when fetching a single resource

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | The status of the addressed payment initiation. |
| payment Identification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification. Else the payment identification of the underlying payment is used (if it was provided for the payment authorisation). |
| instructed Amount | Amount | Mandatory | Amount to be initiated by this API Call. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| remittance Information Structured | Array of Remittance | Or – Optional} | The supported sub structure will depend on the underlying payment product. If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditorAccount | Account Reference 1 | Conditional | It obtains the unambiguous identification of the related account of the creditor. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. The data may only be included if and only if no creditor data is provided in the underlying payment. |
| creditor | Party Description | Conditional | It obtains the description of the creditor of the initiation. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| _links | Links | Conditional | A list of hyperlinks to be recognised by the API Client. The actual hyperlinks used in the response depend on the dynamical decisions of the ASPSP when processing the request. The potential links for this response message are generically defined in [oFA-PFSM] for all Transaction Initiation Response messages. These links will also be contained in the related Open API files.<br>Remark: All links can be relative or full links, to be decided by the ASPSP. |

## 4.3 Advanced Initiation 2

Schema for an advanced payment initiation as submitted by an API client to an ASPSP.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment Identification | Payment Identification | Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for payment identification. Else the payment identification of the underlying payment is used (if it was provided for the payment authorisation). |
| instructed Amount | Amount | Mandatory | Amount to be initiated by this API Call. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| remittance Information Structured | Array of Remittance | Or – Optional} | The supported sub structure will depend on the underlying payment product. If this attribute is provided, then it will be used by the ASPSP in the related credit transfer for remittance information. Else the remittance information of the underlying payment is used (if it was provided for the payment authorisation). |
| creditorAccount | Account Reference 1 | Conditional | It obtains the unambiguous identification of the related account of the creditor. The data must only be included if and only if no creditor data is provided in the underlying payment. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. The data may only be included if and only if no creditor data is provided in the underlying payment. |
| creditor | Party Description | Conditional | It obtains the description of the creditor of the initiation. The data must only be included if and only if no creditor data is provided in the underlying payment. |

## 4.4 Advanced Multiple Recurring Payment

Data model for an underlying multiple recurring advanced payment.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| paymentId | Max70Text | Mandatory | Resource identification of the related payment. |
| transaction Status | Transaction Status | Mandatory | Payment transaction status. |
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br><br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| remaining Authorised Amount | Amount | Conditional | This attribute is showing the maximum amount which can still be initiated on this resource during the current execution period, i.e. it is the maximum periodical amount minus the sum of all (successfull) initiations requested in the current execution period minus the sum of all valid initiations relying on the two-step approach that are already created and still await confirmation.<br><br>This attribute must be included if the maximum periodical amount is included in the underlying payment resource. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the `currencyConversionFees` if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFee Indicator | Boolean | Optional | If equals `true`, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals `false` , the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| maximum NumberOf Initiations | Integer | Conditional | The maximum number of payments which might be initiated on this resource in each recurring period.<br>If this attribute was set by the ASPSP in the payment authorisation response of this payment, it must be included. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU. |
| apiClient Messages | Array of Client Message Information | Optional | |

## 4.5 Advanced Multiple Recurring Payment 1

The data model for an underlying advanced multiple recurring payment as returned by the ASPSP when fetching a single resource

| Attribute | Type | Condition | Description |
|---|---|---|---|
| transaction Status | Transaction Status | Mandatory | Payment transaction status. |
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| remaining Authorised Amount | Amount | Conditional | This attribute is showing the maximum amount which can still be initiated on this resource during the current execution period, i.e. it is the maximum periodical amount minus the sum of all (successfull) initiations requested in the current execution period minus the sum of all valid initiations relying on the two-step approach that are already created and still await confirmation.<br>This attribute must be included if the maximum periodical amount is included in the underlying payment resource. |
| transactionFees | Amount | Optional | Might be used by the ASPSP to transport the total transaction fees relevant for the underlying payments. This field includes the entry of the `currencyConversionFees` if applicable. |
| currency Conversion Fee | Amount | Optional | Might be used by the ASPSP to transport specific currency conversion fees related to the initiated credit transfer. |
| estimatedTotal Amount | Amount | Optional | The amount which is estimated to be debted from the debtor account. Note: This amount includes fees. |
| estimated Interbank Settlement Amount | Amount | Optional | The estimated amount to be transferred to the payee. |


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| Attribute | Type | Condition | Description |
|---|---|---|---|
| transactionFee Indicator | Boolean | Optional | If equals `true`, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals `false` , the transaction will not involve additional specific transaction costs to the PSU unless the fee amount is given specifically in the data elements transactionFees and/or currencyConversionFees. If this data element is not used, there is no information about transaction fees unless the fee amount is given explicitly in the data element transactionFees and/or currencyConversionFees. |
| maximum NumberOf Initiations | Integer | Conditional | The maximum number of payments which might be initiated on this resource in each recurring period.<br>If this attribute was set by the ASPSP in the payment authorisation response of this payment, it must be included. |
| reasonCode | Status Reason Code | {Or – Optional | Additional information on the reason for e.g. rejecting the request |
| reason Proprietary | Max35Text | Or – Optional} | Proprietary additional information on the reason for e.g. rejecting the request. |
| psuMessage | Max500Text | Optional | Text to be displayed to the PSU. |
| apiClient Messages | Array of Client Message Information | Optional | |

## 4.6 Advanced Multiple Recurring Payment 2

Schema for an advanced multiple recurring payment as submitted by an API client to an ASPSP.

| Attribute | Type | Condition | Description |
|---|---|---|---|
| payment Identification | Payment Identification | Optional | Set of elements used to reference a payment instruction. |
| categoryPurpose Code | Category Purpose Code | Optional | Specifies the high level purpose of the instruction based on a set of pre-defined categories; provided as code. |
| debtorAccount | Account Reference | Mandatory | Unambiguous identification of the account of the debtor to which a debit entry will be made as a result of the transaction. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| debtor | Party Description | Optional | Party that owes an amount of money to the (ultimate) creditor. |
| ultimateDebtor | Party Description 1 | Optional | Ultimate party that owes an amount of money to the (ultimate) creditor. Restriction to the schema are applied depending on the product. |
| creditorAccount | Account Reference 1 | Conditional | The unambiguous identification of the related account. If the related payment shall be used for a single beneficary, then this attribute must be included.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| creditorAgent | Agent Description 1 | Optional | Financial institution servicing an account for the creditor. |
| creditor | Party Description | Conditional | Description of the party to which an amount of money is due. This attribute must be used when the payment is requested for a single beneficary.<br>The ASPSP can mandate that the creditor details must be incldued already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| ultimateCreditor | Party Description | Optional | Ultimate party to which an amount of money is due. |
| purposeCode | Purpose Code | Optional | Specifies the purpose of the instruction based the code set ExternalPurpose1Code from ISO 20022. |
| remittance Information Unstructured | Array of Max140Text | {Or – Optional | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in an unstructured form. |
| remittance Information Structured | Array of Remittance | Or – Optional} | Information supplied to enable the matching/reconciliation of an entry with the items that the payment is intended to settle, such as commercial invoices in an accounts' receivable system, in a structured form. |
| startDate | ISODate | Mandatory | The first applicable day of execution starting from this date is the first payment. |
| endDate | ISODate | Optional | The last applicable day of execution. If not given, it is an infinite standing order. |
| frequency | Event Frequency Code | Mandatory | The frequency of the recurring payment resulting from this standing order. |

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| Attribute | Type | Condition | Description |
|---|---|---|---|
| maximum Periodical Amount | Amount | Conditional | Amount of money that can be initiated at most during a single recurring period.<br><br>The ASPSP might mandate the inclusion of the maximum amount per recurring period for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |
| maximum InitiationAmount | Amount | Conditional | The maximum amount that can be instructed by a single initiation related to the payment.<br><br>The ASPSP might mandate the inclusion of the maximum initiations amount already for the authorisation of the payment. In that case, the usage of this attribute is mandatory. |

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# Annex R: References


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