

Subsembly XS2A API

Product Information

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1 Summary

The Subsembly XS2A API provides client software with unified access to financial accounts, such as bank accounts or credit card transactions. The access to these accounts is based on public APIs, standard interfaces, or, if no other means are available, screen scraping. Additional back end interfaces can be integrated through a clean plug-in architecture.

In addition to the Subsembly XS2A API stand-alone software component for most .NET environments (.NET 4.6.1 or .NET Core 2.0), there is an XS2A add-on to the Subsembly BankAccessServer.

Regardless of the technology or interface used to access the account information, the client software always receives the account transaction data in the same standardized ISO 20022 CAMT format. The architecture and implementation of the Subsembly XS2A API ensures that the client does not even have to know at all, how the account data is accessed.

Currently the following account access methodologies are embraced by the Subsembly XS2A API, listed in order of precedence.

FinTS / HBCI	Standard online banking interface in Germany, supported by most banks.
PSD2 XS2A	Official PSD2 conforming Access to Account interfaces provided by account service providers for consumption by third parties.
API	Any proprietary API provided by the account service provider for accessing account information.
Screen Scraping	If neither of the above interfaces or APIs is available, the Subsembly XS2A API may resort to screen scraping of the web pages in order to gather the account information.

The Subsembly XS2A API is solely designed as an Access to Account solution and does not support initiation of payments or any other kind of transactions.

1.1 Supported Account Service Providers

At this time, the following account service providers are supported by the Subsembly XS2A API. We are continuously working on additional account service providers, so this list represents just a snapshot of the current state.

1.1.1 Credit Cards, Mobile Payment

Credit cards are identified through the leading digits of their credit card number (PAN). The following list is current as of 2018-05-03.

Account Service Provider	Account Products
Lufthansa Miles & More credit cards	Lufthansa Miles & More credit cards
Landesbank Berlin AG credit cards	Amazon Kreditkarte ADAC Kreditkarte Air Berlin Kreditkarte LBB Kreditkarte LBB Prepaid Kreditkarte Berliner Sparkasse Kreditkarte

Account Service Provider	Account Products
First Data credit cards	GRENKE Bank Bankhaus Lampe HaSpa SydBank HSBC Trinkaus & Burkhardt MasterCard Südwestbank Bank für Sozialwirtschaft M.M.Warburg & CO Berenberg Bankhaus Löffelbecker BNP Paribas Deutschland BANK SCHILLING & CO ISBANK Bankhaus Carl F. Plump & CO Marcard Stein & Co Bankhaus Anton Hafner KG Bankhaus Ludwig Sperrer KG W. Fortmann & Söhne Schwäbische Bank AG BANKHAUS NEELMEYER AG Fürst Fugger Privatbank BANKHAUS C. L. SEELIGER Sparkasse BusinessCard Bethmann Bank HSH NordBank VTB
Commerzbank credit cards	Commerzbank Business Card Commerzbank Corporate Cards Commerzbank FreeCard TUI CARD ROBINSON card GuteREISE card TchiboCard Plus BahnCard Kreditkarte

Account Service Provider	Account Products
DKB	DKB VISA DKB Business VISA DKB MasterCard Gold Hilton Honors Card
Barclaycard	Barclaycard New Visa Barclaycard Gold Visa Barclaycard Platinum Double Barclaycard for Students Eurowings Kreditkarten Classic Eurowings Kreditkarten Gold Web.de Club Web.de GMX Amway
American Express Germany	American Express Card American Express Blue Card American Express Gold Card American Express Platinum Card American Express Business Gold Card American Express Business Platinum Card PAYBACK dm PAYBACK PAYBACK GALERIA Kaufhof BMW Premium Card Silber BMW Premium Card Gold BMW Premium Card Carbon Mini Excitement Card Sixt American Express Card Sixt American Express Gold Card
Wirecard Bank	boon. MyCard2Go
Postbank	Postbank VISA Card Postbank MasterCard
Avanzia Bank	Gebührenfrei Mastercard GOLD

Account Service Provider	Account Products
Berlin Group	<i>The Berlin Group Access to Account interface will be implemented as soon as it becomes available.</i>
FinTS / HBCI	All credit cards that are supported by the FinTS/HBCI system of the corresponding bank.

1.1.2 Bank Accounts

Bank accounts are identified by their IBAN number. Hence, only bank accounts that actually have an IBAN number are supported. The following list is current as of 2018-05-03.

Account Service Provider	Account Products
Commerzbank	Commerzbank Kontokorrentkonten
N26	N26 Girokonto
Volkswagen Financial Services	Volkswagen Bank Konten Audi Bank Konten
Bank of Scotland Germany Branch	Tagesgeld
Bunq	All Bunq accounts
Moneyou	All Moneyou accounts
Wirecard Bank	Bankomo
Postbank	Tagesgeld Sparbuch (Girokonto via FinTS/HBCI)
Fidor	<i>planned</i>
Revolut	<i>planned</i>
Berlin Group	<i>The Berlin Group Access to Account interface will be implemented as soon as it becomes available.</i>
FinTS / HBCI	All bank accounts that are supported by the FinTS/HBCI system of the corresponding bank.

2 Architecture

The access to the various accounts may be accomplished using various different account service provider interfaces. The architecture of the Subsembly XS2A API provides an internal plug-in interface for implementations connecting to these account service providers in whatever way they see fit. For the client application using the Subsembly XS2A API it does not matter how the access to account is technically accomplished.

As a general rule, strictly defined interfaces and APIs are always preferred to screen scraping access, which is only used as a last measure.

Through the Capabilities property the scraper indicates which kind of online requests it supports. Currently the following capabilities, each of them is optional, can be announced:

ImplementsBalance	The scraper can query the current online balance for a given account.
ImplementsStatement	The scraper can provide the account statement for a given account. This statement data may, or may not, include a balance.
ImplementsDocuments	The scraper can download PDF documents, usually printed-like account statements, for a given account.

2.1 Ease of Use

The Subsembly XS2A API is very easy to use and requires only minimal coding. For example, the following code is all that is necessary to download the statement data for the last 90 days from a credit card account:

```
JsonObject jsCred = new JsonObject();  
jsCred["UserID"] = "UserID or Credit Card Number";
```



```
jsCred["Password"] = "My Secret Password";

JsonObject jsAcct = new JsonObject();
jsAcct["AcctTpCd"] = "CRDC";
jsAcct["AcctNo"] = "Credit Card Number";
jsAcct["AcctCcy"] = "EUR";

SepaDocument camt;

ScraperResult res = ScraperService.DownloadStatement(
    out camt, jsCred, jsAcct, DateTime.Today.AddDays(-90));

if (res.IsSuccess && (camt != null))
{
    camt.WriteDocument("camt.xml");
}
```

2.2 CSV- and SWIFT-Converters

As an additional benefit, the Subsembly XS2A API provides services to convert SWIFT MT-940, SWIFT MT-942, and various CSV transaction data files to unified ISO 20022 data.

The SWIFT MT-940 and MT-942 converters are internally used by the FinTS/HBCI implementation to convert the data, downloaded via FinTS/HBCI, to ISO 20022 format.

CSV files are usually obtained by the user through download from the account service providers web page. If possible, the screen scraper based account access providers follow the same path and use these CSV converters internally to convert the download to ISO 20022 data.

Currently the following CSV converter classes are implemented:

CSV Format	Class Name
American Express CSV	ScraperCsvAmEx
Bank of Scotland CSV	ScraperCsvBankOfScotland
Barclaycard CSV	ScraperCsvBarclays
Bunq CSV	ScraperCsvBunq

Commerzbank Kontokorrent CSV	ScraperCsvCommerzbank
DKB VISA	ScraperCsvDkbVisa
LBB credit cards	ScraperCsvLbbCreditCard
Miles & More credit card	ScraperCsvMilesMore
Postbank Tagesgeld CSV	ScraperCsvPostbank
Volkswagen Bank CSV	ScraperCsvVW

SWIFT MT-940 and MT-942 data can be processed and converted by the Subsembly.Swift assembly, which is included in the development kit. In order to convert SWIFT to ISO 20022 format, the class SwiftMX can be used.

2.3 ScraperCmd Sample Code

The Subsembly XS2A API development kit includes the small sample application ScraperCmd with complete C# source code. ScraperCmd is a simple command line based utility that downloads the transaction data for an account, saving it into a file either in JSON or CAMT XML format.

3 Related Information

The complete reference documentation of the Subsembly XS2A API, as well as all other Subsembly APIs, is available online at <https://subsembly.com/apidoc.html>.

3.1 Subsembly BankAccessServer

<https://subsembly.com/bank-access-server.html>

3.2 Other Subsembly Banking APIs / SDKs

FinTS API: <https://subsembly.com/fints-api.html>

EBICS API: <https://subsembly.com/ebics-api.html>

SEPA API: <https://subsembly.com/sepa-api.html>

3.3 Related Specifications

Subsembly Payments Datenformate (SUPA): <https://subsembly.com/supa.html>

Deutsche Kreditwirtschaft / PSD2 Kontoschnittstelle:

<https://die-dk.de/zahlungsverkehr/electronic-banking/psd2-kontoschnittstelle/>

3.4 .NET Runtime

Microsoft .NET Core: <https://www.microsoft.com/net/core>