

Data Warehouse

User Detailed Functional Specification

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1 Introduction

The Data Warehouse (DWH) is a common component. It collects business information and data derived from services and common components. The DWH is designed to support business decisions by allowing data consolidation and reporting at different aggregation levels. Data is populated into the DWH through the processes of extraction, transformation and loading.

Both modes (application-to-application (A2A) and user-to-application (U2A)) are available for the DWH. However, as regards the A2A interface no A2A requests and answers with xml messages are foreseen. Instead of that functionality is provided, allowing users to receive [\(predefined\) reports](#) [▶ 16] and also user defined DWH reports on the basis of a prior configuration (in U2A mode) in the scheduler.

To enable the access to the DWH via U2A, a Graphical User Interface (DWH GUI) is available. The DWH GUI gives a business-oriented view of the data. Detailed information is provided in the User Handbook (UHB) for the DWH, including, e.g. presentation of data structure and possible filter criteria.

For both modes (A2A and U2A delivery of the scheduled reports) the DWH is using the Eurosystem Single Market Infrastructure Gateway (ESMIG). Data access depends on which services/components are used and is available for central banks (CBs), ancillary systems (AS) and payment banks. Authorised users can access their data according to their access rights (which depend on the given [user profile](#) [▶ 15]) and their own data scope.

The collected information is kept for at least ten years.

2 Data Warehouse scope

The aim of the DWH is to consolidate information from the Central Liquidity Management (CLM), the Real-Time Gross Settlement (RTGS), TARGET2-Securities (T2S¹), the Common Reference Data Management (CRDM), Billing, Contingency Services and the component managing the business day.



Figure 1 - High level DWH coverage

Each component of the T2 Service and T2S has its dedicated production database. The DWH consolidates the content of those production databases into a single database for operational and statistical purposes for the operator, CBs, ancillary systems and payment banks. It is ensured that the provision of data from production databases to the DWH does not influence the functioning and availability of the T2/T2S Services and the respective underlying production databases.

Access to historical data

In order not to disrupt data analysis after the migration, access to historical data from TARGET2 is provided for CBs via the DWH.

Data availability

Data is propagated from the services and common components after end of each business day. As a consequence, the DWH depends on the timely end-of-day (EoD) processing in the feeding (settlement)

¹ T2S data will be available in the DWH as soon as the T2S Long Term Statistical Information (LTSI) component has been decommissioned.

services concerning the availability of data of the previous business day. Normally, data of the previous business day shall be available in DWH as of the start of the new calendar day (00:00 CET) at the latest.

Within the DWH no currency conversion is done. Hence, currency amounts are always displayed in the currency they have been processed by the respective service/component.

The processes and the availability of data for queries in CLM and RTGS (i.e. not via DWH) are described in the CLM User Detailed Functional Specifications (UDFS) chapter "*Query management for CLM*" and RTGS UDFS chapter "*Query management for RTGS*".

Opening times

The DWH common component is open with the exception of DWH closing days and maintenance window times.

DWH closing days are those days, where all of the following services/components are closed for all currencies:

- | CLM;
- | RTGS;
- | T2S (only relevant as of the T2S LTSI component has been decommissioned).

The following maintenance window times are relevant for the DWH:

- | optional maintenance window on Tuesdays, Wednesdays, Thursdays and Fridays: Starting at a planned time of 03:00 CET and ending at a planned time of 05:00 CET on each of the aforementioned days (only if it is activated).

3 Data Warehouse features

3.1 Overview

The DWH provides a DWH GUI where authorised users have different options for their research. Depending on the profile of the user, they can use predefined DWH reports, adapt predefined DWH reports and create own user defined DWH reports.

Aggregation level

Additionally, users have the possibility to execute or configure (only advanced user profile) certain DWH reports by choosing one of the following aggregation levels (in ascending order):

- | party level;
- | group level:
 - Account Monitoring Group level;
 - Banking Group level.
- | service level:
 - CLM level;
 - RTGS level;
 - T2S level.
- | overall level:
 - CLM, RTGS and T2S.

Data scope

The data scope in the DWH follows the following rules:

Users have access to their party's data based on the data scope according to the hierarchical model.

- | For CBs: Each CB has access to granular data (e.g. account balances, transaction details etc.) for all parties belonging to its system entity. Moreover, each CB has access to aggregated data of all system entities.
- | For PBs and AS: Each payment bank and AS has access to granular data (e.g. account balances, transaction details etc.) for its own party.

DWH communication

DWH ad-hoc reports can be requested in the GUI via U2A mode. More information on ad-hoc reports (including the search/output criteria and report examples) are provided in the DWH UHB.

Moreover, the DWH offers a scheduler function allowing the configuration and delivery of (recurring) reports with individual settings. The configuration is done in U2A whilst the delivery can be done via U2A (storing in a folder) or A2A (file delivery). For more information as regards the A2A delivery of DWH reports, please refer to the chapter [Examples for A2A delivery of DWH reports](#) [▶ 12].

As regards the response/the data output the DWH offers the following possibilities using ESMIG:

- | the user receives an ad-hoc DWH report result on the GUI screen (U2A mode);
- | the report result is stored in a folder and can be viewed U2A;
- | the scheduled report result is delivered via A2A mode.

In the latter case, the functional specifications and limitations (e.g. as regards the maximum file size) for ESMIG apply accordingly. Further information can be found in the ESMIG UDFS.

Please note, that due to the authorisation process via ESMIG the user will be known in the DWH without DN information. Therefore the user and his party will be used for the determination of the data scope and the determination of the technical address for SNF file channel, the communication is sent to. It is therefore not possible, that e.g. a Co-manager generates a report and has it sent to the Co-managee via A2A – the report will always be sent to the default party technical address of the Co-manager. For more details on DNs, technical addresses and the setup of routing, please consult the CRDM UDFS.

Format

The results of DWH reports can be displayed on-screen and from there downloaded to various file types (html, pdf, csv, xlsx, xml) in U2A mode. As regards the A2A delivery of reports the following file types are applicable based on the individual configuration the user selects within the scheduler function: csv, xlsx, xml. This allows the further processing of data in other applications.

Structure of the A2A message

In order to transport all three file formats (csv, xlsx, xml) via A2A xml-message, the message content (see examples in [Examples for A2A delivery of DWH reports](#) [▶ 12]) is embedded within an xml-envelope as BLOB (binary large object) using CDATA. This envelope contains the additional fields that enables report receivers to correctly route the report within their system. Following additional fields are used:

Tag	Description	Format/length
<DWHRptRcptID>	BIC of the report recipient party	CHAR(11)
<DWHUsr>	User login name of the user, that scheduled the report. It is the same as used in ESMIG for logging in.	CHAR(35)
<DWHRptName>	Name of the report (first 35 characters). For predefined reports it is the name of the report as described in chapter	CHAR (35)

Tag	Description	Format/length
	Predefined reports [▶ 16], for user-defined report it is the name provided by the user when setting up the report in the DWH.	
<DWHRptFileName>	File Name of the report which is a free text that can be provided by the user in the DWH and used for internal routing on customer side	CHAR(85)
<DWHExecTime>	Execution Time of the DWH report	CHAR(28)
<DWHRptID>	A technical identifier unique for this report instance provided by the DWH – in case of problems it enables the operational team to unambiguously identify the report.	CHAR(35)
<DWHRptCont>	Contains the report itself in the chosen format.	BLOB

Table 1 - A2A message envelope contents

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<Response>
  <DWHEnvelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="DWHReport.xsd">
    <DWHHdr>
      <DWHRptRcptID>AAAAE8BBXXX</DWHRptRcptID>
      <DWHUsr>5874569852</DWHUsr>
    </DWHHdr>
    <DWHRpt>
      <DWHRptName>IDC04 - Credit line/IDC averages an</DWHRptName>
      <DWHRptFileName>DWH report IDC04_DEPT_Z110-STAT</DWHRptFileName>
      <DWHExecTime>Tue Feb 16 16:38:00 CET 2022</DWHExecTime>
      <DWHRptID>A67587Z7899gf53856hgik875Frt654i8F5</DWHRptID>
      <DWHRptCont><![CDATA[BLOB-Report]]></DWHRptCont>
    </DWHRpt>
  </DWHEnvelope>
</Response>
```

Scheduler function

With the scheduler function it is possible for the user to configure DWH reports for unique or periodic (e.g. daily, weekly, monthly, quarterly and yearly) provision at any given date and time. In addition, it offers the possibility to configure DWH reports for a specific event. This event informs about the completion of the data propagation to the DWH, which means the report is generated after all data from the data source for the previous business day has been loaded and stored in the DWH.

In the scheduler the report data (selected via the filter criteria) optionally can be refreshed each time the report is generated (e.g. for a DWH report that is delivered on every day at 8:00 Central European Time (CET) and shows the transactions of all parties of a CB from the previous business day, the filter “date” is changed automatically with the respective new value of the last business day and the output data is refreshed accordingly).

3.2 Types, sharing and storage of Data Warehouse reports

Depending on the given profile a user can use the following three different types of DWH reports:

Predefined

For predefined DWH reports a fixed number of parameters are given. The parameter values are selectable for the user.

The list of predefined reports can be found in chapter [Predefined reports](#) [▶ 16].

Adaptable

All predefined DWH reports can serve as a basis for adapted reports. For the use of this functionality the report needs to be copied first to the individual or shared user dedicated folder and the advanced user profile must be granted (which is however only applicable for CB users). This profile allows adapting the standard criteria, i.e. remove or add search criteria. The parameter values are selectable in the same way as for the predefined DWH reports.

User defined

Advanced users are allowed to create new DWH reports from scratch. Those DWH reports can be freely designed, i.e. the user can choose from a range of parameters. The values of the parameters are selectable and variable.

Therefore, the user has the option to define the data objects he wants to display/return. The user has the possibility to join different data sources (e.g. CLM and RTGS). The user can set conditions for executing the DWH report (e.g. Business Identifier Code (BIC), account).

Further information on how to build user defined DWH reports and information as regards the available search and output criteria are part of the DWH UHB.

Sharing and storage of reports

All adaptable and user defined DWH reports can be stored for later adaptation and use. CB advanced users can store these reports in an individual or shared dedicated folder.

CB advanced users are allowed to share (user defined) reports with all other users within their CB in a folder dedicated to each CB. It is also possible to share (user defined) reports with other CBs in a dedicated folder.

Note: Shared reports are not write-protected. This means, that each CB advanced user may adapt the reports stored in this folder.

Results of scheduled reports are automatically stored within DWH. For results of reports on the DWH GUI it is not possible to store them within DWH. In case of need, the results may be exported and stored locally by the DWH user.

3.3 Examples for A2A delivery of DWH reports

The following represents examples of a report delivered via A2A in csv, xlsx and xml-format, in this case the predefined DWH report TRN01(Transactions 01 – cash transfer (order) search and details).

Flag	Sender/Receiver Party	BIC	Transaction Reference	Number	Sender Message Reference	Type	Service Type	Status	Debit	Account Number	Debit	Account Number	Credited Account Number	Credited Account BIC
Sender	PBANKMDD00002018141433293	not provided	paacs.008RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433294	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433295	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433300	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433301	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433302	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433303	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433304	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433305	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433306	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433307	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433308	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433309	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433310	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433311	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433312	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433313	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433314	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433315	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433316	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433317	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433318	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433319	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433320	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433321	not provided	paacs.009RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433322	not provided	paacs.010RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433323	not provided	paacs.998RTGS	Settle	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001
Sender	PBANKMDD00002018141433324	not provided	paacs.008RTGS	Remove	RTGS	DC	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001	PBANKMDD0000E	LRD001

Figure 2 - Example for A2A delivery of predefined DWH report TRN01 (csv-format)

This example represents the predefined DWH report in CSV format and opened in Excel. The next figure represents a predefined DWH report in CSV format opened with notepad.

Data	BookName	Format	Asset	Wdr	Party BEC	Party (Short)	Party Connected	Parent BEC	Parent Liquidity	Party Currency	Party Code	Party Country	Party Type	Party Code	Party Type	WFI Code	LEI
ASAMND0000	MetroCapital	MetroCapital	Corporation	Cork	C0000000000E	Central Bank of Fiction	EUR	EUR	EUR	56L	2	S_YES	Settled	Final	IS028022	AS Payment	paac.99
ASAMND0000	MetroCapital	MetroCapital	Corporation	Cork	C0000000000E	Central Bank of Fiction	EUR	EUR	EUR	56L	2	S_YES	Settled	Final	IS028022	AS Payment	paac.99
ASAMND0000	MetroCapital	MetroCapital	Corporation	Cork	C0000000000E	Central Bank of Fiction	EUR	EUR	EUR	56L	2	S_YES	Settled	Final	IS028022	AS Payment	paac.99

Figure 3 - Figure x: Example for A2A delivery in csv format and opened in notepad

The csvformat support Unicode data across many client operating systems and are UTF-16 Little Endian data encoded. It includes a BOM (Byte Order Mark) at the beginning of the file and is Tab-delimited. The csv

format do not enclose strings in quotation marks and use a new line character to delimit rows. The character set and delimiter are fixed and can not be changed.

You can open reports saved in CSV format using a variety of spreadsheet software applications. By default, reports produced in CSV format will appear in the application associated with the .csv file type.

Flag	Sender/Receiver	Party BIC	Transaction Reference Number	Sender Message Reference	Message Type	Service Type	Status	Debited Account Number	Debited Account BIC	Credited Account Number	Credited Account BIC	Amount
Sender	FBABKM0000X		201814133293	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	361.888,68
Sender	FBABKM0000X		201814133294	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	144.728,27
Sender	FBABKM0000X		201814133295	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	434.168,82
Sender	FBABKM0000X		201814133296	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	5.788,81
Sender	FBABKM0000X		201814133301	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	361.888,69
Sender	FBABKM0000X		201814133302	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	144.728,28
Sender	FBABKM0000X		201814133303	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	434.168,83
Sender	FBABKM0000X		201814133304	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	5.788,81
Sender	FBABKM0000X		201814133305	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	361.888,17
Sender	FBABKM0000X		201814133306	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	144.728,07
Sender	FBABKM0000X		201814133307	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	434.168,2
Sender	FBABKM0000X		201814133308	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	5.788,8
Sender	FBABKM0000X		201814133309	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	361.888,82
Sender	FBABKM0000X		201814133310	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	144.728,33
Sender	FBABKM0000X		201814133311	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	434.168,98
Sender	FBABKM0000X		201814133312	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	5.788,81
Sender	FBABKM0000X		201814133313	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	361.888,08
Sender	FBABKM0000X		201814133314	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	144.728,43
Sender	FBABKM0000X		201814133315	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	434.168,3
Sender	FBABKM0000X		201814133316	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X		FBABKM0000X	5.788,82
Sender	FBABKM0000X		201814133317	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	361.888,75
Sender	FBABKM0000X		201814133318	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	144.728,3
Sender	FBABKM0000X		201814133319	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	434.168,89
Sender	FBABKM0000X		201814133320	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	5.788,81
Sender	FBABKM0000X		201814133321	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	361.888,48
Sender	FBABKM0000X		201814133322	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	144.728,58
Sender	FBABKM0000X		201814133323	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	434.168,78
Sender	FBABKM0000X		201814133324	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	5.788,82
Sender	FBABKM0000X		201814133325	not provided	paes.009	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	361.888,28
Sender	FBABKM0000X		201814133326	not provided	paes.010	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	144.728,11
Sender	FBABKM0000X		201814133327	not provided	paes.998	RTGS	Settled	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	434.168,33
Sender	FBABKM0000X		201814133328	not provided	paes.008	RTGS	Removed	ITGSDCPBABKM000000EUR001	FBABKM0000X	ITGSDCPBABKM000000EUR001	FBABKM0000X	5.788,8

Figure 4 - Example for A2A delivery of predefined DWH report TRN01 (xlsx-format)

Excel render report output in native Excel XML format, also known as XLSX. This format provides a fast way to deliver native Excel spreadsheets. Excel provides fully formatted reports for use in Microsoft Excel.

```
<?xml version="1.0" encoding="utf-8"?>
<dataset xmlns="http://developer.cognos.com/schemas/xmldata/1/" xmlns:xs="http://www.w3.org/2001/XMLSchema-instance">
<!--
<dataset
  xmlns="http://developer.cognos.com/schemas/xmldata/1/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
  xs:schemaLocation="http://developer.cognos.com/schemas/xmldata/1/ xmldata.xsd"
>
-->
<metadata>
  <item name="Flag" type="xs:string" length="18"/>
  <item name="Sender/Receiver Party BIC" type="xs:string" length="24"/>
  <item name="Transaction Reference Number" type="xs:decimal" precision="16"/>
  <item name="Sender Message Reference" type="xs:string" length="90"/>
  <item name="Message Type" type="xs:string" length="34"/>
  <item name="Service Type" type="xs:string" length="34"/>
  <item name="Status" type="xs:string" length="72"/>
  <item name="Debited Account Number" type="xs:string" length="70"/>
  <item name="Debited Account BIC" type="xs:string" length="24"/>
  <item name="Credited Account Number" type="xs:string" length="70"/>
  <item name="Credited Account BIC" type="xs:string" length="24"/>
  <item name="Amount" type="xs:decimal" scale="2" precision="31"/>
</metadata>
<data>
  <row>
    <value>Sender</value>
    <value>PBABKMD0XXX</value>
    <value>2018141433293</value>
    <value>not provided</value>
    <value>pacs.009</value>
    <value>RTGS</value>
    <value>Settled</value>
    <value>RTGSDCPBABKMD0XXXEUR0D01</value>
    <value>PBABKMR001X</value>
    <value xs:nil="true" />
    <value>PBABKWR001X</value>
    <value>361800.68</value>
  </row>
  <row>
    <value>Sender</value>
    <value>PBABKMD0XXX</value>
    <value>2018141433294</value>
    <value>not provided</value>
    <value>pacs.010</value>
    <value>RTGS</value>
    <value>Settled</value>
    <value>RTGSDCPBABKMD0XXXEUR0D01</value>
    <value>PBABKMR001X</value>
    <value xs:nil="true" />
    <value>PBABKWR001X</value>
    <value>144720.27</value>
  </row>
  <row>
  </row>
</data>
</dataset>
```

Figure 5 - Example for A2A delivery of predefined DWH report TRN01 (xml-format)

This example represents the formatted table from the predefined DWH report TRN01, where the <metadata> section contains the information about the columns with their titles and the content in the <data> section respectively represents the result data per row. Hence, the number of <row> blocks is equal to the number of transactions that have been retrieved with the corresponding search/input criteria. These criteria are dependent on the users input during the setup of the A2A DWH report delivery in the scheduler.

Note: The A2A delivery format/structure for user defined and adapted DWH reports depends on the individual design the user has defined for the DWH report during the creation/editing process (structure) and the selected scheduling settings (format). Hence, no universally valid A2A delivery example for these kind of DWH reports can be provided. However, the logic for the A2A delivery of these kind of DWH reports is the same as shown in the example above.

3.4 User profiles

Access to the DWH depends on the user's profile which ensures that the user is allowed to perform the requested action (e.g. execute or configure DWH report and download results). The user profiles ("normal user" and "advanced user") at the same time correspond to the DWH privileges granted in CRDM by the respective party. More details on (granting) these DWH privileges can be found in the CRDM UDFS chapter „Access rights“.

The user has access to the data of his party based on the data scope according to the hierarchical model.

The DWH user profiles are defined as follows:

I normal user:

- access to predefined DWH reports;
- use available parameters and filter criteria on predefined DWH reports;
- execute predefined DWH reports;
- execute user defined reports²;
- configure the scheduling of DWH reports;
- download DWH report results.

I advanced user:

- access to predefined DWH reports;
- use available parameters and filter criteria on predefined DWH reports;
- adapt predefined DWH reports;
- create user defined DWH reports;
- execute all types of DWH reports;
- configure the scheduling of DWH reports;
- download DWH report results;
- store adaptable/user defined DWH reports in an individual dedicated folder;
- share (user defined) DWH reports with all other users within their CB or with other CBs in a dedicated folder.

The advanced user profile is available for CB users only. The normal user profile is available for all party types.

More details on the configuration of DWH reports can be found in chapter [Types, sharing and storage of Data Warehouse reports](#) [▶ 11].

² Only possible for CB users and in case the respective report has been shared by a CB advanced user.

3.5 Predefined reports

This chapter provides an overview of predefined DWH reports that can be accessed by authorised users and which are available in A2A and in U2A (through the scheduler function) mode. Depending on the DWH report and the profile of the user, aggregated or detailed (e.g. transaction level) data can be retrieved. For aggregated data it is ensured that the user cannot see any personal or party-specific information (e.g. name and address of parties) which are out of his data scope. In general, for every predefined DWH report, a user will only see results in accordance with his data scope.

The following tables include for each report a short name, a long name, a description with the aim to reflect the content of the report from a business perspective and an indicator for which party type(s) it is available. The detailed report descriptions (including the search/output criteria and report examples) are provided in DWH UHB.

Predefined DWH reports (ancillary system)

Short name	Long name of the DWH report	Available for
ANS01	ANS 01 - Overview of AS transfer orders	CB/ Ancillary system
ANS02	ANS 02 - Daily average of AS transfers	CB

Table 2 - Predefined DWH reports (ANS)

Predefined DWH reports (business day)

Short name	Long name of the DWH report	Available for
BDY01	BDY 01 – Business day event/delay information and settlement opening time	CB/ Ancillary system / payment bank

Table 3 - Predefined DWH reports (BDY)

Predefined DWH reports (billing)

Note: These reports also contain billing data referring to the TIPS service.

Short name	Long name of the DWH report	Available for
BIL01	BIL01 – Consumption data	CB
BIL02	BIL02 – Monitoring the invoicing activity	CB

Short name	Long name of the DWH report	Available for
BIL03	BIL03 – Audit of critical billing data	CB
BIL04	BIL04 – Detailed consumption	CB
BIL05	BIL05 - Detailed participation	CB

Table 4 - Predefined DWH reports (BIL)
Predefined DWH reports (contingency)

Short name	Long name of the DWH report	Available for
CON01	CON 01 – Cash transfers settled during contingency processing and final contingency account balances	CB
CON02	CON 02 – Contingency processing – end of procedure account balances per CB	CB

Table 5 - Predefined DWH reports (CON)
Predefined DWH reports (data extraction)

Short name	Long name of the DWH report	Available for
DEX01	DEX 01 - Monitor data extraction request(s)	CB
DEX02	DEX 02 - Data extraction request	CB

Table 6 - Predefined DWH reports (DEX)
Predefined DWH reports (intraday credit)

Short name	Long name of the DWH report	Available for
IDC01	IDC 01 – Daily Intraday credit (IDC) community indicators	CB
IDC02	IDC 02 – Credit line/IDC daily reporting	CB
IDC03	IDC 03 - Credit line/IDC averages and maxima (account level)	CB/ Ancillary system / payment bank
IDC04	IDC 04 - Credit line/IDC averages and maxima (community level)	CB
IDC05	IDC 05 - Maximum of credit line used	CB/ Ancillary system / payment bank
IDC06	IDC 06 – Credit line and IDC use at system level	CB

Table 7 - Predefined DWH reports (IDC)

Predefined DWH reports (invoice data)

Note: This report also contains billing data referring to the TIPS service.

Short name	Long name of the DWH report	Available for
INV01	INV 01 - Reporting revenues	CB

Table 8 - Predefined DWH reports (INV)

Predefined DWH reports (minimum reserve)

Short name	Long name of the DWH report	Available for
MIR01	MIR 01 – Minimum reserve information	CB/payment bank
MIR02	MIR 02 – Minimum reserve requirements per country	CB

Table 9 - Predefined DWH reports (MIR)

Predefined DWH reports (participation)

Short name	Long name of the DWH report	Available for
PAR01	PAR 01 - Critical participants	CB
PAR02	PAR 02 - List of active Direct and Indirect Participants according to RTGS Directory	CB/ Ancillary system / payment bank
PAR03	PAR 03 - Parties subject and not subject to minimum reserve	CB
PAR04	PAR 04 - List of ancillary systems	CB
PAR05	PAR 05 - List of DCA cross-border links	CB
PAR06	PAR 06 - Number of participants per CB	CB

Table 10 - Predefined DWH reports (PAR)

Predefined DWH reports (statements)

Short name	Long name of the DWH report	Available for
STA01	STA 01 - Statement of account (single account)	CB/ Ancillary system / payment bank
STA02	STA 02 - Statement of account (co-managed accounts)	CB/payment bank

Table 11 - Predefined DWH reports (STA)

Predefined DWH reports (standing facilities)

Short name	Long name of the DWH report	Available for
STF01	STF 01 - Standing facilities information	CB/payment bank

Table 12 - Predefined DWH reports (STF)

Predefined DWH reports (transactions)

Short name	Long name of the DWH report	Available for
TRN01	TRN 01 – Cash transfer (order) search and details	CB/ Ancillary system / payment bank
TRN02	TRN 02 - Monthly overview of domestic and cross-border payments	CB/payment bank
TRN03	TRN 03 – Monthly peak day and peak hour in terms of volume and value of cash transfer orders	CB/payment bank
TRN04	TRN 04 - Cash transfers per time band and per CB	CB
TRN05	TRN 05 - Monthly overview of cash transfer orders per party	CB/payment bank
TRN06	TRN 06 - Monthly share of Indirect Participant, addressable BIC and multi-addressee payments as part of total Direct Participant's activity	CB/payment bank
TRN07	TRN 07 - Cash transfers between two accounts of different parties	CB
TRN08	TRN 08 - Business activity of a party/parties	CB/payment bank
TRN09	TRN 09 – RTGS Account Holder activity	CB
TRN10	TRN 10 - Monthly value and volume of cash transfers in CLM/RTGS (according to T2 statistical framework)	CB
TRN11	TRN11 - Monthly value and volume of cash transfers between system entities	CB

Table 13 - Predefined DWH reports (TRN)

3.6 CLM/RTGS inbound XML messages available in the DWH

The following list contains all xml message types available in the DWH which were processed in CLM or RTGS as inbound messages. Query messages as well as all outbound messages are not transferred to the DWH.

Source	Message type	Description
CLM	camt.048	Modify reservation
CLM	camt.049	Delete reservation
CLM	camt.050	Liquidity credit transfer
CLM (CB specific)	camt.056	FtoFI Cancellation request
CLM (CB specific)	camt.998	Modify credit line, Authorize penalty MR, Insert value of MR, Insert balance MR
CLM (CB specific)	pacs.009	FI Credit transfer
CLM (CB specific)	pacs.010	FI Direct debit
RTGS	camt.007	Modify transaction
RTGS	camt.011	Modify limit
RTGS	camt.012	Delete limit
RTGS	camt.048	Modify reservation
RTGS	camt.049	Delete reservation
RTGS	camt.050	Liquidity credit transfer
RTGS	camt.056	FtoFI Payment cancellation request
RTGS	pacs.004	Payment return
RTGS	pacs.008	Customer credit transfer
RTGS	pacs.009	FI Credit transfer
RTGS	pacs.010	FI Direct debit
RTGS	pain.998	AS transfer initiation (ASTI)

Table 14 - List of CLM/RTGS inbound messages