

Data Warehouse

User Detailed Functional Specifications

Author 4CB

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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](#) [▶ 17] 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](#) [▶ 16]) 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.

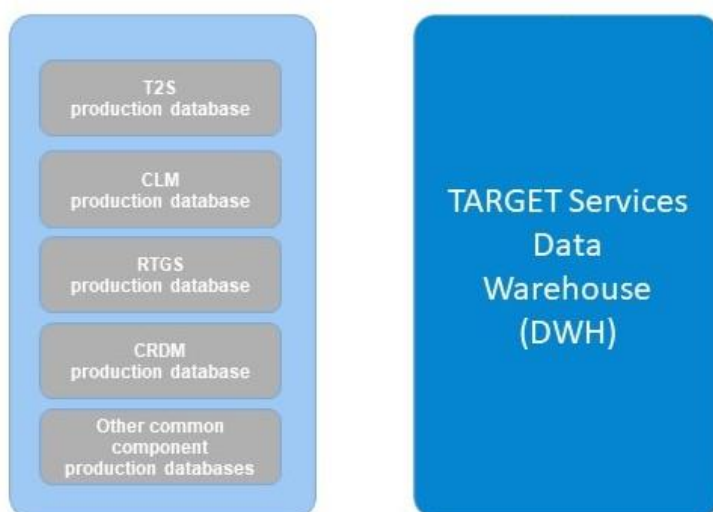


Figure 1 - High level DWH coverage

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.

Please note, that when choosing 'XML' or 'CSV' as export format for reports having more than one list as report output, only the first list is exported in the chosen format.

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. The BLOB is neither compressed nor encrypted. 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) |

| Tag | Description | Format/length |
|------------------|---|---------------|
| <DWHRptName> | Name of the report (first 35 characters). For predefined reports it is the name of the report as described in chapter Predefined reports [▶ 17], for user-defined report it is the name provided by the user when setting up the report in the DWH. | CHAR (35) |
| <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

For the different parts of the message and the message itself, following data set encodings are used:

| Object | Encoding |
|---|----------------------------|
| XML-message | UTF-8 (ISO20022 Standard) |
| BLOB (embedded in XML message) | UTF-8 (ISO20022 Standard) |
| Content of the BLOB: | |
| CSV (BOM at the beginning of the file, TAB-delimited, LF at the end of each row, quotation marks used only for special characters) | UTF-16 Little Endian |
| XLSX | UTF-8 (Microsoft Standard) |
| XLM | UTF-8 (ISO20022 Standard) |

Table 2 - A2A message encoding

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
  <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>
```

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](#) [▶ 17].

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 | 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 | PBANKMDOXXX201814143329 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361800.68 | | | | | |
| Sender | PBANKMDOXXX201814143329 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.27 | | | | | |
| Sender | PBANKMDOXXX201814143329 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434160.82 | | | | | |
| Sender | PBANKMDOXXX201814143329 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.81 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361800.69 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.28 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434160.83 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.81 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361800.17 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.07 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434160.2 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.8 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361800.82 | | | | | |
| Sender | PBANKMDOXXX201814143330 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.33 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434160.98 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.81 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361801.08 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.43 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434161.3 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.82 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361800.75 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.3 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434160.89 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.81 | | | | | |
| Sender | PBANKMDOXXX201814143331 | not provided | 009RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X361801.48 | | | | | |
| Sender | PBANKMDOXXX201814143332 | not provided | 010RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X144720.59 | | | | | |
| Sender | PBANKMDOXXX201814143332 | not provided | 098RTGS | Settled | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X434161.78 | | | | | |
| Sender | PBANKMDOXXX201814143332 | not provided | 008RTGS | Removed | RTGS | DCPBANKMDOXXXEUR001 | PBANKMRO01XPBANKWRO01X5788.82 | | | | | |

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.

| Party BIC | Party (Short) | Party | Parent BIC | Parent Liquidity | Party Currency Code | Party Currency | Party Country Code | Party Country | Party Type Code | Party Type | MFI Code | LEI |
|-------------|---------------|--------------------------|-------------|-------------------------|---------------------|----------------|--------------------|---------------|-----------------|------------------|----------|-----------------|
| ASAAKMD0XXX | MetroCapital | MetroCapital Corporation | CBXXXMD0XXX | Central Bank of Fiction | EUR | Euro | KM | Fictionland | ANSY | Ancillary System | 10018 | LEI ASAAKMD0XXX |
| ASAAKMD0XXX | MetroCapital | MetroCapital Corporation | CBXXXMD0XXX | Central Bank of Fiction | EUR | Euro | KM | Fictionland | ANSY | Ancillary System | 10018 | LEI ASAAKMD0XXX |
| ASAAKMD0XXX | MetroCapital | MetroCapital Corporation | CBXXXMD0XXX | Central Bank of Fiction | EUR | Euro | KM | Fictionland | ANSY | Ancillary System | 10018 | LEI ASAAKMD0XXX |

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

The csv format 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 PBABKMD0XXX | | 2018141433293 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBABKWR001X | 361,800,68 |
| | Sender PBABKMD0XXX | | 2018141433294 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBABKWR001X | 144,720,27 |
| | Sender PBABKMD0XXX | | 2018141433295 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBABKWR001X | 434,160,82 |
| | Sender PBABKMD0XXX | | 2018141433296 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBABKWR001X | 5,788,81 |
| | Sender PBABKMD0XXX | | 2018141433301 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 361,800,69 |
| | Sender PBABKMD0XXX | | 2018141433302 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 144,720,28 |
| | Sender PBABKMD0XXX | | 2018141433303 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 434,160,83 |
| | Sender PBABKMD0XXX | | 2018141433304 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 5,788,81 |
| | Sender PBABKMD0XXX | | 2018141433305 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 361,800,17 |
| | Sender PBABKMD0XXX | | 2018141433306 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 144,720,07 |
| | Sender PBABKMD0XXX | | 2018141433307 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 434,160,2 |
| | Sender PBABKMD0XXX | | 2018141433308 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 5,788,8 |
| | Sender PBABKMD0XXX | | 2018141433309 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 361,800,82 |
| | Sender PBABKMD0XXX | | 2018141433310 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 144,720,33 |
| | Sender PBABKMD0XXX | | 2018141433311 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 434,160,98 |
| | Sender PBABKMD0XXX | | 2018141433312 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 5,788,81 |
| | Sender PBABKMD0XXX | | 2018141433313 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 361,801,08 |
| | Sender PBABKMD0XXX | | 2018141433314 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 144,720,43 |
| | Sender PBABKMD0XXX | | 2018141433315 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 434,161,3 |
| | Sender PBABKMD0XXX | | 2018141433316 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | | PBAEKWR001X | 5,788,82 |
| | Sender PBABKMD0XXX | | 2018141433317 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 361,800,75 |
| | Sender PBABKMD0XXX | | 2018141433318 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 144,720,3 |
| | Sender PBABKMD0XXX | | 2018141433319 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 434,160,89 |
| | Sender PBABKMD0XXX | | 2018141433320 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 5,788,81 |
| | Sender PBABKMD0XXX | | 2018141433321 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBAEKMD000000EUR0D11 | PBAEKWR001X | 361,801,48 |
| | Sender PBABKMD0XXX | | 2018141433322 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBAEKMD000000EUR0D11 | PBAEKWR001X | 144,720,59 |
| | Sender PBABKMD0XXX | | 2018141433323 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBAEKMD000000EUR0D11 | PBAEKWR001X | 434,161,78 |
| | Sender PBABKMD0XXX | | 2018141433324 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBAEKMD000000EUR0D11 | PBAEKWR001X | 5,788,82 |
| | Sender PBABKMD0XXX | | 2018141433325 | not provided | | pacs.009 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 361,800,28 |
| | Sender PBABKMD0XXX | | 2018141433326 | not provided | | pacs.010 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 144,720,11 |
| | Sender PBABKMD0XXX | | 2018141433327 | not provided | | pan.998 | RTGS | Settled | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 434,160,33 |
| | Sender PBABKMD0XXX | | 2018141433328 | not provided | | pacs.008 | RTGS | Removed | RTGSDCPBABKMD000000EUR001 | PBABKMR001X | RTGSDCPBACKMD000000EUR0A01 | PBAEKWR001X | 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>

```

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 3 - 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 4 - 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 |
| BIL03 | BIL03 – Audit of critical billing data | CB |

| Short name | Long name of the DWH report | Available for |
|------------|--------------------------------|---------------|
| BIL04 | BIL04 – Detailed consumption | CB |
| BIL05 | BIL05 - Detailed participation | CB |
| BIL06 | BIL06 – PDF invoice list | CB |

Table 5 - Predefined DWH reports (BIL)

Predefined DWH reports (Business transaction pattern monitoring (BPM))

| Short name | Long name of the DWH report | Available for |
|------------|--|---------------|
| BPM01 | Business transaction pattern monitoring - Submission time on T2 opening days | CB |
| BPM02 | Business transaction pattern monitoring - Submission time on T2 closing days | CB |
| BPM03 | Business transaction pattern monitoring - New parties | CB |
| BPM04 | Business transaction pattern monitoring – Failed transactions | CB |
| BPM05 | Business transaction pattern monitoring - Daily volumes and value | CB |
| BPM06 | Business transaction pattern monitoring - Overview of alerts triggered | CB |

Table 6 - Predefined DWH reports (BPM)

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 7 - 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 8 - 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 9 - 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 10 - 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 11 - Predefined DWH reports (MIR)

Predefined DWH reports (TARGET Multilateral Balances (MLB))

| Short name | Long name of the DWH report | Available for |
|------------|------------------------------|---------------|
| MLB01 | TARGET Multilateral Balances | CB |

Table 12 - Predefined DWH reports (MLB)

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 - Aggregation group list | CB |
| PAR06 | PAR 06 - Number of participants per CB | CB |

Table 13 - 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 14 - 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 15 - 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 16 - 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 17 - List of CLM/RTGS inbound messages