SAP Solution Manager 7.2
ITSM Analytics – BW 7.4
Technical Documentation
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This document provides you detailed information for the activation and usage of **BW Reporting** especially for the scenarios **IT Service Management** and **Change Request Management**. Furthermore, technical information in regards to the **Extractor Framework** is provided.
1 ACTIVATION OF BW REPORTING

The SAP Solution Manager system includes a dedicated SAP Business Information Warehouse to store, aggregate and report collected data for a various range of SAP Solution Manager scenarios such as IT Service Management, Test Management or Change Request Management.

In this step, you set up the SAP Business Information Warehouse (BW).

1.1 Prerequisites – Infrastructure Preparation

In this activity, you activate the general SAP BW functionality as a prerequisite for all subsequent business scenarios.

Activities:

- Start the SAP Solution Manager Configuration via transaction SOLMAN_SETUP
- Navigate to configuration scenario: Cross Scenario Configuration → Mandatory Configuration → Infrastructure Preparation
- Choose step 3 Set Up SAP BW
- This step contains 3 sub steps
  - 3.1 Confirm SAP BW
  - 3.2 Maintain Users
  - 3.3 Enable SAP BW

Figure 1: SOLMAN_SETUP – Infrastructure Preparation – Step 3 Set Up SAP BW
1.1.1 Confirm SAP BW

Activities:

- Navigate to sub step 3.1 Confirm SAP BW
- Switch to edit mode
- Check the settings in section Advanced Settings
  - For an easy configuration, minimization of remote accesses and simple user administration, SAP recommends that you set up the BW system component in the current client of your SAP Solution Manager system
    → Use Standard SAP Solution Manager BW Environment
  - For more information, see SAP Note 1487626
    → It provides information about the best way to set up BW for SAP Solution Manager
- Check the settings in section BW Time Zone
  - The BW time zone is necessary for reports with day resolution to assign the collected data to the appropriate day
  - By default, this time zone is the one of the SAP Solution Manager system

Figure 2: SOLMAN_SETUP – Infrastructure Preparation – Step 3.1 Confirm SAP BW
1.1.2 Maintain Users

In this step, you generate technical users required for BW reporting.

**SM_BOC**  
Business Cloud Objects User

- This technical user is used to acquire data from BW Queries (for Incident Management and Test Suite Management), so that end users can view the related stories in BOC
- The system assigns the PFCG role SAP_SM_BI_BOC
- You need the role to SAP_SM_BI_BOC to read data from the BOC

**SM_BW_ACT**  
BI Reporting User

- This technical user is used to activate BI content for individual scenarios, such as Incident Management or Data Volume Management
- The system assigns the PFCG role SAP_BI_E2E to this user
- You need the role SAP_BI_E2E to read and write data from the BW
- The role SAP_BI_E2E contains all authorization values for all InfoCubes in the Business Warehouse that are related to SAP Solution Manager

**Figure 3: Technical BW users**

**Remarks:**

- To complete this step, log on with a user with role **SAP_SM_USER_ADMIN**

**Activities:**

- Navigate to sub step 3.2 Maintain Users
- Switch to edit mode
- Select a technical user

**Figure 4: SOLMAN_SETUP – Infrastructure Preparation – Step 3.2 Maintain Users**
• Define action *Create New User with Strong Password*
  – A new hidden password is generated
• In section *Required Roles* all PFCG roles are listed which are copied to Z* namespace
• Press *Execute* to start the user creation

![Image](image.png)

Figure 5: SOLMAN_SETUP – Infrastructure Preparation – Step 3.2 Maintain Users – Start user generation
1.1.3 *Enable SAP BW*

Depending on where your SAP BW is deployed, you have to perform several automatic activities to enable it.

**Activities:**
- Navigate to sub step 3.3 *Enable SAP BW*
- Switch to edit mode
- Press *Execute All* or select an activity an press *Execute Selected*

![Image: SOLMAN_SETUP – Infrastructure Preparation – Step 3.3 Enable SAP BW](image-url)
1.1.3.1 Activate BW Source System:

- This activity activates the BW source system for use in SAP Solution Manager
- If your SAP BW System component is installed on your SAP Solution Manager system (see step Confirm SAP BW), then you find this activity in the table Automatic Activities
- Only if you use SAP BW in a separate system, then you find this activity in the table Manual Activities
- Activation logs can be checked in transaction RSTCO_ADMIN

As a manual activity, you proceed as follows:

- Log on to the configured BW client or system
- Start transaction RSA1
- Select the source system and, in the context menu, select Activate
- In the Replicate Metadata dialog, select Replicate as Well
- In the following screens, confirm the default settings displayed on the screen
- Besides you have to execute function module RS_MANDT_UNIQUE_SET in transaction SE37, and enter the BW client in the initial screen
- For more information about replication of DataSources, see the SAP NetWeaver documentation at http://help.sap.com/netweaver, select the release and the language of the Function-Oriented View in the Application Help, and search for Replication of DataSources
1.1.3.2 Configure RFC Connectivity:

- In this automatic activity the RFC destinations from the SAP Solution Manager to the SAP BW are created and stored.
- Do not execute this activity manually.
- Check the result of the activity in the corresponding row in the Log table.
- In the standard environment (BW and SAP Solution Manager are running in the same system and client) all these connections are NONE.
- If SAP BW is situated in another client or system, these destinations are as follows:
  - **BI_CLNT**<BW Client>
    is used to write data to the BW (configuration name: SAP_BID).
  - **SM_BW_<BW System ID>CLNT_<BW Client>_READ**
    is used to extract data from BW (configuration name: SAP_BIEX).
  - **SAP_BILO**
    is used for individual access to the BW, e.g. for the Metric Monitor (configuration name: SAP_BILO).
  - **SM_<BW System ID>CLNT_<BW Client>_CALLBACK**
    is used for access from the BW to the SAP Solution Manager, e.g. for reading configuration (configuration name: BI_CALLBACK).

1.1.3.3 Configure BW Settings:

- In this automatic activity the BW Read Access is created and a logical system is assigned to the BW client.
- The BW Read Access is used by SAP services such as Early Watch Alert to read data from SAP Solution Manager Diagnostics that are stored in SAP BW.
- Do not execute this activity manually.
- Check the result of the activity in the corresponding row in the Log table.
1.2 Extractor Activation for IT Service Management

In this activity, you activate the SAP BW for business scenario *IT Service Management*.

**Activities:**

- Start the SAP Solution Manager Configuration via transaction *SOLMAN_SETUP*
- Navigate to configuration scenario: IT Service Management
- Choose step 4 *Configure BW Reporting*
- This step contains 2 sub steps
  - 4.1 Define Extraction Settings
  - 4.2 Choose Transaction Type for Reporting

![Figure 8: SOLMAN_SETUP – IT Service Management – Step 4 Configure BW Reporting](image-url)
1.2.1 Define Extraction Settings

In this step, you activate the BW content of scenario IT Service Management. Furthermore, the extraction settings are defined and the related extractors are activated.

Activities:

- Navigate to sub step 4.1 Define Extraction Settings
- Switch to edit mode

![Figure 9: SOLMAN_SETUP – IT Service Management – Step 4.1 Define Extraction Settings](image)

- Choose the transaction type for which the BW content should be activated by pressing the related tab
  - Every transaction type group contains a specific BW content which can be activated
  - You have the possibility to activate the BW content for your used transaction types only
- By choosing Activate BW Content, you trigger a background job to prepare all BW objects that are required by the BW reports.
  - You need to complete this step before you continue with the Extraction Settings
  - The BW content activation requires some time

![Figure 10: SOLMAN_SETUP – IT Service Management – Step 4.1 Define Extraction Settings – BW Content Activation](image)

Important Note:

- We recommend performing this step again after an update to SAP Solution Manager, so that the latest version of BW content is always installed and compatible with the extraction settings
• Check out the activation log for any issues and for the actual activation progress by pressing button *Show Activation Log*

![Image of activation log](image_url)

*Figure 11: SOLMAN_SETUP – IT Service Management – Step 4.1 Define Extraction Settings – BW Activation Log*
Finally, after successful activation, navigate to section *Extraction Settings*

Enter the extraction parameters and choose *Save*

- This automatically adjusts the extraction settings
- Initialize must be done the first time a system is configured
- It is mandatory to enter an Extraction From date

Figure 12: SOLMAN_SETUP – IT Service Management – Step 4.1 Define Extraction Settings – Extraction Settings
## Extraction Settings:

<table>
<thead>
<tr>
<th>Extraction Setting</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Extraction Interval**     | • Default time (in minutes) between two extractions  
• Enter a number between 1 and 1440                                                                                                             |
| **Initialize**              | • If you select this checkbox, you delete all data in BW, reset the extraction settings, and load everything back from IT Service Management  
• Note: Data that has already been deleted or archived from IT Service Management is not recovered by this option                                  |
| **Time Zone**               | • Time zone of the report  
• All information is displayed in this time zone  
• If you need to adjust this parameter, the Initialize option must be checked                                                                   |
| **Extraction From**         | • Start date of the report  
• Only the documents created after this date are loaded into BW  
• If you need to adjust this parameter, the Initialize option must be checked                                                                    |
| **Package Size**            | • Number of documents for each extraction                                                                                                                                                                  |
| **Snapshot Pattern**        | • Configuration of the snapshot extraction. The snapshots are used to report the “Open Document” KPIs  
• You can configure weekly, monthly, or both weekly and monthly snapshots, so that you are able to see weekly/monthly trends of the “Number of Open Documents”  
• You can also select a particular day, within a week or month, when the snapshot is to be taken                                                                 |

**Figure 13: Extraction Settings**
1.2.2 Choose Transaction Type for Reporting

In this step, you define all the transaction types which should be used for the reporting.

Activities:

- Navigate to sub step 4.2 Choose Transaction Type for Reporting
- Switch to edit mode

![Figure 14: SOLMAN_SETUP – IT Service Management – Step 4.2 Choose Transaction Types](image)

- Select the tab for the transaction type group
- Flag all the transaction types which should be available within the reporting (e.g. dashboard app)
  - You have the possibility to activate more than one transaction type of a specific group
  - For instance, you are using ZMIN for your Incidents reported by business users, YMIN for your automatic created Incidents out of technical monitoring and ZMDT for your Test Case Errors
- Save your changes

![Figure 15: SOLMAN_SETUP – IT Service Management – Step 4.2 Choose Transaction Types – Select Transaction Type](image)
1.3 Extractor Activation for Change Request Management

In this activity, you activate the SAP BW for business scenario Change Request Management.

Activities:

- Start the SAP Solution Manager Configuration via transaction SOLMAN_SETUP
- Navigate to configuration scenario: Change Control Management → Change Request Management
- Choose step 6 Define Reporting
- This step contains 3 sub steps (step 1 and 2 are related to BW reporting)
  - 6.1 BW Reporting: Define Extraction Settings
  - 6.2 BW Reporting: Choose Transaction Type for Reporting
  - 6.3 Change Request Management Reporting
- The following activities are similar as for the IT Service Management
- For further information, please refer to chapters:
  - 1.2.1 Define Extraction Settings
  - 1.2.2 Choose Transaction Type for Reporting

Figure 16: SOLMAN_SETUP – Change Request Management – Step 6 Define Reporting
2 USING BW REPORTING

BW reports are displayed in dedicated Dashboard Apps accessible out of the SAP Solution Manager LaunchPad.

Every Solution Manager scenario offers an own set of dashboard apps with dedicated KPIs (Key Performance Indicators).

2.1 Prerequisites – Roles for LaunchPad Groups

For accessing the dashboard apps of a specific SAP Solution Manager scenario, the related PFCG LaunchPad group roles have to be assigned first to the responsible user.

Each LaunchPad PFCG group role include following prefix:

- **SAP_SMWORK_**<LaunchPad group>

<table>
<thead>
<tr>
<th>LaunchPad Group – PFCG Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP_SMWORK_BASIC</td>
<td>Work Center: Basic Authorization Objects</td>
</tr>
<tr>
<td>SAP_SMWORK_BPO</td>
<td>Work Center: Business Process Operations</td>
</tr>
<tr>
<td>SAP_SMWORK_CCLM</td>
<td>Work Center: CCLM</td>
</tr>
<tr>
<td>SAP_SMWORK_CHANGE_MAN</td>
<td>Work Center: Change Management</td>
</tr>
<tr>
<td>SAP_SMWORK_CHANGE_MAN_SPC</td>
<td>Work Center: Change Request Management for Service Provider</td>
</tr>
<tr>
<td>SAP_SMWORK_CONFIG</td>
<td>Work Center: Solution Manager Configuration</td>
</tr>
<tr>
<td>SAP_SMWORK_DIAG</td>
<td>Work Center: Root Cause Analysis</td>
</tr>
<tr>
<td>SAP_SMWORK_DIAG_PE</td>
<td>Work Center: Root Cause Analysis for PE</td>
</tr>
<tr>
<td>SAP_SMWORK_DVM</td>
<td>Work Center: Data Volume Management</td>
</tr>
<tr>
<td>SAP_SMWORK_IMPL</td>
<td>Work Center: Implementation and Upgrade</td>
</tr>
<tr>
<td>SAP_SMWORK_INCIDENT_MAN</td>
<td>Work Center: Incident Management</td>
</tr>
<tr>
<td>SAP_SMWORK_INCIDENT_MAN_SPC</td>
<td>Work Center: Incident Management for Service Provider</td>
</tr>
<tr>
<td>SAP_SMWORK_JTEST</td>
<td>Work Center: Test Suite</td>
</tr>
<tr>
<td>SAP_SMWORK_JOB_MAN</td>
<td>Work Center: Job Management</td>
</tr>
<tr>
<td>SAP_SMWORK_MYHOME</td>
<td>Work Center My Home Page</td>
</tr>
<tr>
<td>SAP_SMWORK_OBN</td>
<td>Work Center: Basic Authorization Objects</td>
</tr>
<tr>
<td>SAP_SMWORK_SDA</td>
<td>Work Center: SDA</td>
</tr>
<tr>
<td>SAP_SMWORK_SERVICE_DEV</td>
<td>Work Center: SAP Engagement and Service Delivery</td>
</tr>
<tr>
<td>SAP_SMWORK_SM_ADMIN</td>
<td>Work Center: Solution Manager Administration</td>
</tr>
<tr>
<td>SAP_SMWORK_SYS_ADMIN</td>
<td>Work Center: Technical Administration</td>
</tr>
<tr>
<td>SAP_SMWORK_SYS_MON_SPC</td>
<td>Work Center: System Monitoring for Service Provider</td>
</tr>
<tr>
<td>SAP_SMWORK_TECH_MON</td>
<td>Work Center: System &amp; Application Monitoring</td>
</tr>
<tr>
<td>SAP_SMWORK_TECH_MON_PE</td>
<td>Work Center: Technical Monitoring for PE</td>
</tr>
</tbody>
</table>
Example:

- Below you will find the generated template user `IM_PROC_A4H` who is representing a typical ITSM message processor
- This user includes the PFCG role `SAP_SMWORK_INCIDENT_MAN` for the LaunchPad group `IT Service Management`
- The LaunchPad group IT Service Management offers various dashboard tiles for BW reporting capabilities

![Figure 17: PFCG Roles of Template User ‘IM_PROC_A4H’](image)

Remarks:

Template users with dedicated **PFCG Roles** can be created in scenario-specific steps of the Solution Manager Configuration (SOLMAN_SETUP)

- **Scenario: IT Service Management**
  - Step: 8 Set Up Users and Partners → Sub step: 8.4 Create Template Users
- **Scenario: Change Request Management**
  - Step: 5 Define Settings for Template Users → Sub step: 5.1 Create Template Users
2.2 Launch Dashboard Apps

The LaunchPad can be started via transaction `SM_WORKCENTER`.

In the screenshot below you will see the default tiles loaded for the group *IT Service Management*. Two of them represent analytics apps.

Figure 18: LaunchPad Group ‘IT Service Management’ 7.2 SP 5 – Default Dashboard Apps
Following analytics apps are available:

<table>
<thead>
<tr>
<th>LaunchPad Group</th>
<th>Description</th>
<th>Details</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Service Management</td>
<td>IT Service Management Analytics</td>
<td></td>
<td>SP 4</td>
</tr>
<tr>
<td>Renamed to:</td>
<td>Incident and Problem Dashboard</td>
<td></td>
<td>SP 7</td>
</tr>
<tr>
<td></td>
<td>ITSM and Change Management Dashboard</td>
<td></td>
<td>SP 4</td>
</tr>
<tr>
<td>Renamed to:</td>
<td>Incident and Change Dashboard</td>
<td></td>
<td>SP 7</td>
</tr>
<tr>
<td></td>
<td>Incident Analytics</td>
<td></td>
<td>SP 6</td>
</tr>
<tr>
<td>Renamed to:</td>
<td>Incident Dashboard</td>
<td></td>
<td>SP 7</td>
</tr>
<tr>
<td></td>
<td>Service Request Analytics</td>
<td></td>
<td>SP 5</td>
</tr>
<tr>
<td>Renamed to:</td>
<td>Service Request Dashboard</td>
<td></td>
<td>SP 7</td>
</tr>
<tr>
<td></td>
<td>Service Order Analytics</td>
<td></td>
<td>SP 5</td>
</tr>
<tr>
<td>Renamed to:</td>
<td>Service Order Dashboard</td>
<td></td>
<td>SP 7</td>
</tr>
<tr>
<td></td>
<td>Configuration Analytics and Dashboard</td>
<td></td>
<td>SP 5</td>
</tr>
<tr>
<td>Change Management</td>
<td>Change Control Management Analytics</td>
<td></td>
<td>SP 4</td>
</tr>
<tr>
<td></td>
<td>IT Service and Change Dashboard (=Incident and Change Dashboard)</td>
<td></td>
<td>SP 4</td>
</tr>
<tr>
<td></td>
<td>Configuration Analytics and Dashboard</td>
<td></td>
<td>SP 5</td>
</tr>
</tbody>
</table>
When you click on a tile (app), the dedicated dashboard with the defined KPIs is loaded.

Figure 19: LaunchPad Group ‘IT Service Management’ 7.2 SP 5 – Dashboard App ‘IT Service Management Analytics’
2.2.1 Personalization

Some of the dashboard apps are not available by default and have to be added to the specific LaunchPad group via user personalization.

Activities:
- Navigate to the LaunchPad group
- Switch to Personalization mode

Figure 20: LaunchPad Group 'IT Service Management' 7.2 SP 5 – Personalization
• Add a new tile to the group via + icon

Figure 21: LaunchPad Group ‘IT Service Management’ 7.2 SP 5 – Adding additional Dashboard Apps 1

• Switch on additional available analytics apps according to your needs

Figure 22: LaunchPad Group ‘IT Service Management’ 7.2 SP 5 – Adding additional Dashboard Apps 2
Figure 23: LaunchPad Group ‘IT Service Management’ 7.2 SP 5 – Available Dashboard Apps Solution Manager
2.3 Dashboard Builder

For creating and displaying dashboards, SAP provides the Dashboard Builder as standard in SAP Solution Manager 7.2. The Dashboard Builder is a Browser-based tool that enables you to quickly create tile-based dashboards in order to visualize data for analysis.

The Dashboard Builder can be started by pressing tile Configuration - Analytics and Dashboards.

![Dashboard Builder](image)

**Figure 24: LaunchPad Group 'IT Service Management' – Dashboard Builder**

**Remarks:**
For more information such as features from an end user perspective, please visit:

2.4 KPI Catalog
SAP offers a KPI catalog as documentation base for all existent KPIs used within the dashboard apps.

Activities:
- Open the KPI catalog [https://go.support.sap.com/kpicatalog/](https://go.support.sap.com/kpicatalog/)
- Application Area: IT Service Management
- Klick on a KPI for further details

Figure 25: KPI Catalog – Supported KPIs for IT Service Management

The values of the KPI are stored in the assigned Business Warehouse of the SAP Solution Manager system, and are technically based on the following objects:

- InfoProvider: ITSM – MultiProvider (0SPRMP01)
- Din Query: Backlog - Incident (0SPR_IN_BACKLOG_KC)

The Query is restricted to:

a) InfoProvider: 0SPRINCU
b) Transaction Type Incident (Variable 0SPR_Y_TTYPE_IN filled via SAP Exit)
c) Completion Flag (0SPR_COMPL) not equal to X

Figure 26: KPI Catalog – Technical Details of KPI ‘Open Incidents’
3 TECHNICAL INFORMATION

The following chapter provides additional technical information according to the BW reporting for Solution Manager scenario IT Service Management and Change Request Management.

3.1 Extractors

The properties of ITSM-Extractors are described in the EFWK template table:

- Transaction: SE16
- Table: E2E_TEMPLLEXTR
- Extractor: E2E_ITSM*

![Figure 27: Table 'E2E_TEMPLLEXTR']

<table>
<thead>
<tr>
<th>Extractor ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2E_ITSM_EXTRACTOR_CM_SNP</td>
<td>Change Management Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_CM</td>
<td>ITSM Change Management Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SO</td>
<td>ITSM Service Order Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_IN_SNP</td>
<td>Extractor for Incident Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_TEXT</td>
<td>Main service provider incident extractor for text</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_PR</td>
<td>ITSM Problem Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SR</td>
<td>ITSM Service Request Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SR_SNP</td>
<td>ITSM Service Request Extractor for Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_PR_SNP</td>
<td>Problem Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_IN</td>
<td>ITSM Incident Extractor</td>
</tr>
</tbody>
</table>
3.2 EFWK Architecture (Extractor Framework)

The following diagram depicts the architecture how EFWK is used to extract CRM data into the BW model.

Figure 28: EFWK Architecture

Example:

In a typical extraction phase, the behavior can be described as the following:

- The Extractor will get all data about the new/changed documents since the last extraction
- The 1:N part will be loaded into the current cube (before/after/reverse image)
- Only load running KPIs for closed documents
- The log part will be loaded into the log cube (delta)
- The extractor will get all logs
- Check the incoming logs, reverse all logs regarding one changed document which are already loaded in cube, without checking the log time period
- Load the new logs into the master data
- The SMUD M:N data will be loaded into the SMUD cube
- All 1:N attributes will also be loaded into the GUID attribute table for further use as navigation attributes in reports, and change run needs to be applied after loading
Figure 29: EFWK Sequence Diagram

Details:
- ETL – Transactional Data Loading
- ETL – Master Data Loading
- ETL – Snapshot Loading
3.2.1 **ETL – Transactional Data Loading**

3.2.1.1 **Overview**

- All cubes are in *selective full* delta mode, except the snapshot cube and master data
  - Get the GUID list according to the change/creation time
  - Get new image from the source
  - According to the GUID list in the new image, get the before image and convert all records into reverse image
  - Write reverse image together with the after image into the target
  - Compress the target cube
  - Update the before image with the after image
- BW Image Object (BIO) and Data Package (DP) are introduced for the procedure above
  - BIO is the reverse image + after image for one data flow
  - DP is a static class, is global accessible within one session, can share data between the extractor and the data loader without the main extractor interface
  - With these two innovation, we can realize
    - One extractor in EFWK supports multiple data flows
    - Serialize data flows so that master data are loaded in advance of transactional data
- CRM Reader capsulizes the CRM API into a class
  - Pass the documents to be processed to construct the BIO
- Package Manager
  - Get next package for delta and append to the end of the delta queue
  - Pick up the first 500 (can be configured) documents from the head of the delta queue

3.2.1.2 **Extractor**

Dedicated function module is implemented for each group type:

<table>
<thead>
<tr>
<th>Extractor ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2E_ITSM_EXTRACTOR_CM</td>
<td>ITSM Change Management Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SO</td>
<td>ITSM Service Order Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_PR</td>
<td>ITSM Problem Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SR</td>
<td>ITSM Service Request Extractor</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_IN</td>
<td>ITSM Incident Extractor</td>
</tr>
</tbody>
</table>

Each transaction data extractor has the same logic:

- Create package manager object
- Retrieve CRM GUID list from package manager
- Create CRM reader object
- Retrieve BW image object list and save to data package
3.2.1.3 Package Manager CL_ITSM_PACKAGE_MANAGER
This class will retrieve CRM GUID list based on configuration DB table ITSM_CONF.

Important Methods:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTRUCTOR</td>
<td>• Initial loading parameters from configuration table ITSM_CONF</td>
</tr>
</tbody>
</table>
| GET_NEXT_PACKAGE      | • Retrieve CRM GUID list based on creation time and last change time and save to DB table ITSM_PKQU  
                        | • Return CRM GUID list this run will be load (restricted by package size from configuration) |
| COMPLETE_PACKAGE      | • After data loading finished successfully, update load from time and date, initial flag (if necessary) in configuration table and delete CRM GUID list loaded this time from packaging queue |
| GET_TRANSACTION_LIST  | • Return transaction type list of every group type, e.g: SMIN, ZMIN …etc. for Incident |
3.2.1.4 CRM Reader Classes

Since those objects we need to show in our report, such as Incident, Problem and Change Document, all are technically based on CRM documents, some part of the logic about how to read the details of these objects are similar while other parts of the logic are different.

The idea is we need to organize the logic/coding in a good way, so that we can apart the shared logic and the specific logic clearly, which is a big benefit during both of the development phase and maintenance phase. Following picture shows how we implement this idea into an OO design.

CRM Reader class is used to read CRM source data and package data into 6 BW image objects:
- Data for current cube
- Data for log cube
- Data for SMUD cube
- Data for IOBJECT cube
- Attribute data of 0SPRGUID
- Text data

CRM Reader will firstly read header data which can be retrieved in batch, and then handle log data, semantic mapping data, calculate key figures, convert duration separately.

- CL_ITSM_CRM_READER_BASIS Supper Class of CRM Reader
- CL_ITSM_CRM_READER_CHMG CRM Reader for Change Document
- CL_ITSM_CRM_READER_INIC CRM Reader for Incident
- CL_ITSM_CRM_READER_PROB CRM Reader for Problem

![Diagram of CRM Reader Classes]

Important Methods:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTRUCTOR</td>
<td>• Initial GUID list, time zone, transaction type</td>
</tr>
<tr>
<td></td>
<td>(constructor of Subclass will create BW image objects)</td>
</tr>
<tr>
<td>GET_BW_IMAGE</td>
<td>• Invoke methods to fill BW image objects and return</td>
</tr>
</tbody>
</table>
3.2.1.5  *Data loader*

Following data loader is used to load transaction data:

- E2E_ITSM_DATALOADER
3.2.2  ETL – Master Data Loading

3.2.2.1  Extractor
E2E_ITSM_EXTRACTOR_TEXT will load text data for below mentioned characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0SPRTTYPE</td>
<td>Transaction Type</td>
</tr>
<tr>
<td>0SPRSYSST</td>
<td>System Status</td>
</tr>
<tr>
<td>0SPRMGPRITD</td>
<td>Priority</td>
</tr>
<tr>
<td>0SPRINPRI</td>
<td>Initial Priority</td>
</tr>
<tr>
<td>0SPRURGEN</td>
<td>Urgency</td>
</tr>
<tr>
<td>0PRIMPAC</td>
<td>Impact</td>
</tr>
<tr>
<td>0SPRCSPST</td>
<td>User Status</td>
</tr>
<tr>
<td>0SPRIRTST</td>
<td>IRT Status</td>
</tr>
<tr>
<td>0SPRMPTST</td>
<td>MPT Status</td>
</tr>
<tr>
<td>0SPRSPRO</td>
<td>Service Product</td>
</tr>
<tr>
<td>0SPROBJTY</td>
<td>ChaRM Document Type</td>
</tr>
</tbody>
</table>

3.2.2.2  Data Loader
Following data loader is used for loading text data:
- E2E_ITSM_DATALOADER_TEXT
3.2.3  **ETL – Snapshot Loading**

3.2.3.1  **Overview**
Snapshot data will be loaded weekly and monthly on the time configured in setup UI. Data will load from current cube and add loading time, snapshot type (weekly or monthly).

3.2.3.2  **Extractor**

<table>
<thead>
<tr>
<th>Extractor ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2E_ITSM_EXTRACTOR_CM_SNP</td>
<td>Change Management Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_IN_SNP</td>
<td>Extractor for Incident Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_SR_SNP</td>
<td>ITSM Service Request Extractor for Snapshot</td>
</tr>
<tr>
<td>E2E_ITSM_EXTRACTOR_PR_SNP</td>
<td>Problem Snapshot</td>
</tr>
</tbody>
</table>

3.2.3.3  **Data loader**
Following data loader is used for snapshot data loading:
- E2E_ESREP_DATA_LOADER_CUBE_ND
3.3 Application Log & Troubleshooting

3.3.1 Overview
The application log is added for both ITSM Setup and ITSM Data ETL:

- **CL_ITSM_LOG** is used to write application log
- To make sure that there is only one instance of running in one session, **CL_ITSM_LOG_FACTORY** is used to return its instance

3.3.2 How to use Application Log
- Start transaction **SLG1**
- Input following parameters in red rectangles and press button *Execute* or press **F8**

![Figure 31: Structure of Application Log](image)

- **Object** ITSM
- **Subobject** ITSM_IN_EXT
- **External ID** *

![Figure 32: Application Log](image)
**Object/Subobject:**

- Please use parameters as following table to view different types of application log

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Object</th>
<th>Subobject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup</td>
<td>ITSM</td>
<td>ITSM_SETUP</td>
</tr>
<tr>
<td>Incident ETL</td>
<td>ITSM</td>
<td>ITSM_IN_EXT</td>
</tr>
<tr>
<td>Incident Snapshot ETL</td>
<td>ITSM</td>
<td>ITSM_IN_SNP</td>
</tr>
<tr>
<td>Problem ETL</td>
<td>ITSM</td>
<td>ITSM_PR_EXT</td>
</tr>
<tr>
<td>Problem Snapshot ETL</td>
<td>ITSM</td>
<td>ITSM_PR_SNP</td>
</tr>
<tr>
<td>ChaRM ETL</td>
<td>ITSM</td>
<td>ITSM_CM_EXT</td>
</tr>
<tr>
<td>ChaRM Snapshot ETL</td>
<td>ITSM</td>
<td>ITSM_CM_SNP</td>
</tr>
<tr>
<td>Service Request ETL</td>
<td>ITSM</td>
<td>ITSM_SR_EXT</td>
</tr>
<tr>
<td>Service Request Snapshot ETL</td>
<td>ITSM</td>
<td>ITSM_SR_SNP</td>
</tr>
<tr>
<td>Service Order ETL</td>
<td>ITSM</td>
<td>ITSM_SO_EXT</td>
</tr>
<tr>
<td>Masterdata ETL</td>
<td>ITSM</td>
<td>ITSM_MD</td>
</tr>
<tr>
<td>ST-BCO Cube Dataloader</td>
<td>ITSM_BCT</td>
<td>ITSM_CUBE</td>
</tr>
<tr>
<td>ST-BCO Hierarchy Dataloader</td>
<td>ITSM_BCT</td>
<td>ITSM_HIER</td>
</tr>
<tr>
<td>ST-BCO Masterdata Dataloader</td>
<td>ITSM_BCT</td>
<td>ITSM_MDATA</td>
</tr>
<tr>
<td>ST-BCO Text Dataloader</td>
<td>ITSM_BCT</td>
<td>ITSM_TEXT</td>
</tr>
</tbody>
</table>
A typical application log should look like this:

- Green light means correct
- Yellow light means warning
- Red light means error

Figure 33: Application Log for Incident ETL (ITSM_IN_EXT) 1
3.3.3 FAQ

Why there is a series of red lights in the application log?

- This error means no changed or new created documents have been found since the last extraction
- In this case it's not an error
- No action is needed here

Figure 34: Application Log for Incident ETL (ITSM_IN_EXT) 2