Scope and Effort Analyzer
How-To Guide

Applicable Releases:
Solution Manager 7.1 SP11

Target groups:
Technology Consultants
System Administrators

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## Document History

<table>
<thead>
<tr>
<th>Document Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>Internal draft version</td>
</tr>
<tr>
<td>1.0</td>
<td>For SAP Solution Manager 7.1 SP11</td>
</tr>
<tr>
<td>1.1</td>
<td>New chapter: Definition of the analysis landscape added</td>
</tr>
</tbody>
</table>
Step 1: Introduction

1.1 Purpose of this Document

Scope and Effort Analyzer (SEA) is an innovative tool designed for all customers running maintenance events on their SAP systems to get a clear understanding of the change impact and the test scope and related effort. To take advantage from Scope and Effort Analyzer we provide this practical How-to document that explains all relevant prerequisites and configuration tasks to generate an analysis report of a maintenance event. This document will act as guidance for a fast consumption of Scope and Effort Analyzer.

For feedback on this How-to guide please contact: martina.kaplan@sap.com.

1.2 Introduction to Scope and Effort Analyzer

Scope and Effort Analyzer tool is a brand new application shipped with SAP Solution Manager 7.1 SP11 (March 2014) and is an innovative application to predict the two major cost and effort drivers of maintenance projects (aka: software change events) without the need to physically deploy the software packages. We recommend to run the Scope and Effort analysis in an early planning phase of each maintenance project. The result analysis covers the following parts:

- **Development Management**
  Identification of affected custom code and modifications, required adjustments in the SAP system, since software updates comes with updates or deletions of SAP standard objects. Detailed effort estimation for custom code and modification adjustments.

- **Test Management**
  Identification of required test scope, test planning, recommendations for creation of missing test cases and execution of manual tests. Detailed effort estimation for regression tests and recommendations based on test scope optimization.

The Scope and Effort Analyzer as part of each maintenance project planning phase.
1.3 Typical Use Cases for SEA
Scope and Effort analyzer tool can evaluate the impact on your ABAP based SAP NetWeaver system if you plan to implement Support Packages or SAP Enhancement Packages.

The typical use cases are:

- You are in the planning phase of a maintenance project and want transparency about the scope and effort of development changes and what tests to run to cover all changes.

- You need details about the related costs and effort (project budget) to decide about the execution of an SAP software update project.

- You need advice on project scoping: for example how much extra effort does it mean to install the latest SAP Enhancement Package as part of your maintenance event.

- You want to reduce modifications and move closer to SAP standard.

- You want to reduce maintenance costs and efforts on a long term basis.

- You want to invest in Test Management / Solution Documentation (e.g. creation of automated test cases) to reduce the manual test effort on a long term basis.

- Any further use case where transparency and the change impact of software changes are needed.

Benefits and process of Scope and Effort Analyzer tool
1.4 Quick Start – Overview of End-to-End Procedure

In this chapter we want to give you an end-to-end overview of all related tasks associated with Scope and Effort Analyzer tool.

These are the steps to perform:

- Install SP11 in your productive SAP Solution Manager 7.1 system
- Run SOLMAN_SETUP configuration steps in your SAP Solution Manager 7.1 system
  - System preparation (all steps)
  - Basic Configuration (all steps)
- Run SOLMAN_SETUP configuration steps
  - Managed Systems Configuration
    - All productive systems you intend to analyze. In addition we recommend to set up your development and test/QA system as well.
- Make sure that all productive systems you intend to analyze fulfill the technical prerequisites for Usage and Procedure Logging (UPL) activation. For details see SAP Note 1828848 - Usage and Procedure Logging: Technical prerequisite.
- Run SOLMAN_SETUP configuration step
  - Custom Code Management (Steps 1 – 6 mandatory for SEA)
    - This setup procedure activates UPL and custom code data collection.
- Collect UPL data of your productive system (recommended: 3 month+, see chapter Mandatory prerequisites for Managed Systems for details).
- Ensure that all systems you plan to analyze are configured in your SAP Solution Manager LMDB/SMSY and that Maintenance Optimizer is configured.
- Run Scope & Effort Analysis guided procedure for your managed system once you are in the planning phase of your next maintenance project or if you want to evaluate the effort and scope of a software update task.
  - The guided procedure is described in chapter Guided Procedure of Scope and Effort Analyzer.
- Use the analysis result report as part of your maintenance project planning.

We understand the Scope and Effort Analyzer tool as a new standard and an integral part of your planning phase for any maintenance event or software change project in your SAP system landscape.
2.1 Technique behind Scope and Effort Analyzer

Scope and Effort Analyzer is an innovative application combining latest techniques to identify the change impact of SAP software updates. With these new techniques in place several barriers can be overcome as shown in the figure below:

With help of Usage and Procedure Logging technique it is now possible to calculate the impact to custom code, modifications and business processes in consideration of the real system usage.

Based on the automatically calculated update vector (that’s a detailed list of all technical support and / or enhancement packages to reach the target definition) Scope and Effort Analyzer calculates all SAP ABAP objects which are either deleted, changed (update version) or new delivered with this software update. This ABAP object list or Bill of Material (BOM) is the central element to calculate the impact on your SAP system even without a physical installation of those packages.

Semi-dynamic TBOM generation and the automated generation of SAP Module oriented blueprints are two new features of Test Management. These features ensure to identify the impact on your business processes / transaction codes with the objective to outline the test scope and recommendations how to reduce the test effort with help of Test Scope Optimization (TSO) functionality. This is achieved through a program-based optimization of the number of changed objects by business process and the test effort of associated test cases.

The resulting optimized test scope is presented graphically in the result report with a suggested sequence of process steps to be included in the test scope. The user can apply multiple levers to adjust and optimize the test scope.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Transparency</td>
<td>What custom code and modifications are used in PRD?</td>
<td>New: Usage and Procedure Logging (UPL)</td>
</tr>
<tr>
<td>Sandbox upgrade required</td>
<td>Sandbox update or test installation always required to evaluate change impact and implementation effort</td>
<td>New: ABAP object lists now obtainable with Maintenance Optimizer procedure</td>
</tr>
<tr>
<td>Setup efforts for existing analysis tools</td>
<td>Excellent capabilities of BPCA but significant implementation efforts for set-up</td>
<td>New: Semi-dynamic TBOM generation based on UPL</td>
</tr>
</tbody>
</table>

**Issues – Solutions – Benefits of Scope and Effort Analyzer tool thanks to innovative techniques**
2.1.1 Usage and Procedure Logging

Usage and Procedure Logging (UPL) is a new functionality available in any ABAP based system as of SAP NetWeaver 7.01 SP10 or equivalents. UPL is used to log all called and executed ABAP units (procedures) like programs, function modules down to classes, methods and subroutines or smart forms.

This new enhanced SAP NetWeaver capability will have no performance impact on your system and will capture usage information of ABAP routines directly as they occur. UPL will give you 100% coverage of usage without estimations or evaluation of ABAP call stacks. This also includes the detection of dynamically called ABAP elements.

UPL is the technology to close existing gaps in the SAP workload statistics which only captures static calls as opposed to static and dynamic calls. With the secured access to the UPL data, your usage information is protected against 3rd party eyes. The full reporting capabilities with enriched information in BW of the Solution Manager will give you the flexibility to analyze ABAP usage on demand.

UPL Documentation and helpful SAP notes

A full documentation about Usage and Procedure Logging is available at:

- SAP Usage & Procedure Logging Documentation: https://websmp104.sap-ag.de/~sapidb/011000358700000427102012E
- SAP Note 1955847 UPL: Activation Procedure and Authorization Handling in SAP Solution Manager.
- All UPL based prerequisites can are available in SAP Note 1828848, Usage and Procedure Logging: Technical prerequisite.

Space Consumption

UPL data are collected and temporary stored in database tables in the managed system for a period of 14 days (default retention period). The total space consumption in the managed system should not significantly exceed 2-10 MB for 14 days. The database space per single UPL entry is around 55 bytes. If the activation of UPL is done as described in this guide a daily background job moves UPL data from the managed system to the SAP Solution Manager system, which is the final storage location. A database space issue in the SAP Solution Manager system is prevented by a special BW multicube layout. This layout enables a high level of aggregation of UPL data.

Example: UPL data of one business day are transferred to SAP Solution Manager into the BW day cube OSM_UPL. From there (selected) data are migrated on a daily basis into the weekly data cube, the monthly data cube and the yearly data cube. The day cube covers the information how often a dedicated ABAP unit was used per day (e.g. several hundred times) while all other cubes list ABAP units only once.

The dimension how often an ABAP unit was used is not covered anymore in the week/month/year cubes which leads to a high level of aggregation and prevents large database space consumption.

Activation of UPL

The recommended way to activate UPL is to run the Custom Code Management Setup procedure (SOLMAN_SETUP), available as of SAP Solution Manager 7.1 SP10. UPL activation on older SAP Solution Manager Versions is described in SAP Note 1955847. Within the UPL activation in the managed system a daily background job is scheduled to transfer all UPL data of the managed system to SAP Solution Manager where the data is stored for further use. The residence time of UPL data in SAP Solution Manager can be defined individually within the CCM setup procedure. A description is available in this guide.
Sizing Experience
The average data volume per UPL entry (in day cube OSM_UPL) counts 148 Byte. The sizing can be calculated with this formula:
("number average daily used UPL entries in managed system" * 'number of days" * "number of observed managed systems" * 148 bytes
Convert the key figure in gigabyte.
Example:
200.000 UPL entries (average / day) * 30 days * 5 productive systems * 148 bytes = 4 GB
4GB data volume is required to store UPL data of five productive systems for 30 days.
Note: The default resistance period of UPL data in day cube is 30 days if housekeeping is active.

Recommendation
We recommend setting up the housekeeping job (Step 2 of Custom Code Management setup) for any SAP system with active UPL data collection and where UPL data are transferred to the central SAP Solution Manager system.

UPL data collection release restrictions
If UPL was already activated before the update to SP11 on SAP Solution Manager 7.1 the following specifics are important based on the installed software components.

<table>
<thead>
<tr>
<th>Managed System</th>
<th>SAP Solution Manager 7.1</th>
<th>UPL data transfer handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-PI SP08</td>
<td>SP09 or SP10</td>
<td>UPL data is collected from the day on, at which UPL has been activated. Historic data from before that activation date is not available. In Solution Manager system only daily UPL cube exists.</td>
</tr>
<tr>
<td>ST-PI SP08</td>
<td>SP11</td>
<td>Data is collected from the day on, at which UPL has been activated; historic UPL data already collected before SP11 installation in SolMan is not transferred. In SolMan UPL data is aggregated to weekly, monthly and yearly cubes if CCM setup was configured (SOLMAN_SETUP).</td>
</tr>
<tr>
<td>ST-PI SP09</td>
<td>SP11</td>
<td><strong>Preferred and recommended scenario!</strong> If historic UPL data exists in the managed system that has not yet been transferred to Solution Manager, all data is uploaded to the BW cube in an initial load run. Afterwards, daily UPL data is transferred. If the customer first uses scenario 2 then the load of historic data is automatically done after the update to SP09 on the managed system. In SolMan data is aggregated to weekly, monthly and yearly cubes.</td>
</tr>
</tbody>
</table>
2.1.2 Semi-dynamic TBOM Generation

Already with SAP Solution Manager 7.1 SP10, it is possible to automatically create semi-dynamic TBOMs (Technical Bills of Material) as part of the Business Process Change Analyzer. Scope and Effort Analyzer tool is using this innovative approach to define the test scope even without any business process documentation available.

Elements of semi-dynamic TBOM generation

One part of Scope and Effort Analyzer application is to identify the impact on testing for the upcoming SAP software updates. To do this analysis the application does two important preparation steps automatically if no blueprint or TBOMs are available before the SEA analysis.

1. Generate a module based business blueprint
   For this SEA relies on the usage statistics data from the managed system. It then categories each of the used transactions based on the Application Component Hierarchy and builds a module based business blueprint structure.

2. Create Semi-dynamic TBOMs
   SEA automatically creates the semi-dynamic TBOMs by utilizing the Usage and Procedure Logging data.

Technical Bills of Material are a collection of SAP objects used by each of the transactions in the customer system. In order to find out the impact of upcoming software updates (changed SAP objects) on existing running business processes (transactions), SEA compares the changed objects with the content of the TBOMs for each of the transactions in the business blueprint.

The semi-dynamic TBOM generation happens as follows:
- Scan through the business blueprint and find all the transaction codes
- For each transaction code, go to the managed system and retrieve the source code (semi-dynamic generation is looking for workload statistics (ST03N) in the managed system)
- Scan the source code of the transaction to identify SAP objects used in the source code in the first call hierarchy
- Filter out those objects which are not part of the UPL data.
- Continue to scan the source code for level 2 and so on.

With this approach SEA is able to create semi-dynamic TBOMs for all transactions in the business blueprint automatically. UPL is a key enabler for this approach. If no UPL data is found for a given transaction code, then SEA will create a static TBOM, which basically includes all objects in the source code of the transactions (which might have objects which the customer has never used).

**Semi-dynamic TBOMs in Scope and Effort Analyzer**
Step 3: Prerequisites

3.1 General Preparation Steps

Before you start with Scope and Effort Analyzer some general planning tasks are recommended. This section gives you further advice on how to prepare a Scope and Effort Analyzer run.

We understand Scope and Effort Analyzer as a tool to support your planning phase of maintenance events such as SPs or EHP deployments. In general SEA tool was designed to calculate the development and test effort and many further details for you productive system of your system landscape. The productive system which is in scope of the analysis is also called the managed system.

After you run through the one time preparation tasks as described in chapter Solution Manager Configuration and some system usage information (UPL data) of your productive system are available (see chapter Mandatory prerequisites for Managed Systems) you are ready to start the Scope and Effort Analyzer tool.

The key element of this tool is a guided procedure where relevant questions about the planned maintenance project are asked. For your first guided procedure you should plan around one hour time (decide on the input, read the help texts and so on). Any further guided procedure runs should take less time.

Once the guided procedure is completed you can start the background processing of Scope and Effort Analyzer. The background processing can take up to several days depending on the amount of data to be analyzed and collected (for example to read and analyze the impact to custom code objects or to generate the semi-dynamic TBOMs). SEA does provide a processing log to monitor the progress of the background tasks.

Once all background jobs are finish the analysis result report is available for collection and further project related usage.

3.2 Definition of the analysis landscape

The typical use case of Scope and Effort Analyzer tool is to analyze the productive system of your SAP system landscape. Nevertheless the SEA guided procedure allows specifying up to three different system roles. To take the greatest advantage of SEA analysis we recommend to first plan which systems you intend to analyze and based on this decision to configure each system in scope.

The different system roles are specified as follow:

**System role “custom developments and modifications”**

You specify the system ID (SID) in the second step of the guided procedure. This system is the source system from where the custom code and modification information are taken to calculate the change impact and development effort.

Two different selections are possible here: your development system or your productive system.

The decision depends on your preferences.

- **Production system**: only modifications and custom development objects of the production system are analysed, regardless if there are for example new development projects ongoing not yet in productive use. If productive UPL data are available the picture of used / unused custom code objects and modifications delivers a reliable result as both source data are collected from the same system.
**Development system**: Specify your development system to read all existing modifications and custom developments, even those never transported into production. Select the dev system here if ongoing development projects should be taken into consideration of this analysis run, which are not yet in productive use.

Note: In case you have a bulk on developments which never left the dev system, the total adjustment effort shown in the result analysis might be higher compared to adjustment effort analyzing production system only.

Furthermore note that each and every dev object which only exist in dev system can never have any usage information per default (because this object does not exist in production where the usage information is taken from). Object which only exists in you dev system are displayed in the SEA result analysis in the category “unused” or “unknown usage”.

**Recommendation**: Select the production system that shall be upgraded for this system role. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.

It is possible to run two SEA analysis – one with the dev system and the second run with the production system as source system for custom code and then compare both results.

**System role “read usage statistics”**
This is the system where all statistics about the actual usage of executable programs and transactions and ABAP program objects called by these executables are collected. This system **has to be a production system** because only there valid usage information exists!

**System role “test scope optimization activities”**
On this system the test scope optimization is generated. We recommend using a test or QA system for this role. Note: The technical bill of material (TBOM) required for the test scope optimization will be generated on this system. This calculation will usually generate **significant load** on the selected system. The system should be on an identical SP level as the production system.

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**Possible system role definition**
The table below lists all prerequisites for the different system roles:

<table>
<thead>
<tr>
<th>System role</th>
<th>Recommended selection</th>
<th>Mandatory prerequisites</th>
<th>Mandatory prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom developments and modifications</td>
<td>Production system or Development system</td>
<td>▪ ST-PI 09 (or higher)</td>
<td>SOLMAN_SETUP:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ RFC connection to SolMan</td>
<td>▪ Managed System configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ Custom Code Management configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ For DEV System only: UPL activation not needed</td>
</tr>
<tr>
<td>Usage Statistics</td>
<td>Production system</td>
<td>▪ ST03n data available</td>
<td>SOLMAN_SETUP:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Optional (highly recommended) UPL data available</td>
<td>▪ Managed System configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ RFC connection to SolMan</td>
<td>▪ Custom Code Management configuration</td>
</tr>
<tr>
<td>Test scope optimization activities</td>
<td>Test or QA system</td>
<td>▪ Trusted RFC connection to SolMan</td>
<td>SOLMAN_SETUP:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ ST-PI 09 (or higher)</td>
<td>▪ Managed System configuration</td>
</tr>
</tbody>
</table>

3.3 Mandatory Prerequisites: SAP Solution Manager

1. You have installed Support Package Stack 11 on your SAP Solution Manager 7.1 system.

2. You have implemented SAP Note 1933506 (SAP Solution Manager 7.1 SP11 – Basic function) as part of the SOLMAN_SETUP procedure.

3. After the technical installation of SP11 you have to run through the SOLMAN Setup steps, transaction SOLMAN_SETUP. The following steps are a prerequisite to run SEA:
   ▪ System preparation (all steps)
   ▪ Basic Configuration (all steps)
   ▪ Managed Systems Configuration (for all system roles to be analyzed)
   ▪ Custom Code Management (Steps 1 – 6), for system role “usage statistic” and “custom code” see table above for details.
   Note: the configuration steps of Custom Code Management will set up the custom code structure and activate UPL in the managed system(s). Furthermore the transfer of UPL data between the production system and the SolMan system is configured.

4. Authorization for Scope and Effort Analyzer tool: For working with the Scope and Effort Analyzer, a user needs in the authorization object SM_SEA the authorization for the following activities:
   ▪ Start application in display mode
   ▪ Create an analysis
   ▪ Change an analysis
   ▪ Delete an analysis
The following roles for end-users of Scope and Effort Analyzer are available

- **SAP_SEA_ALL_COMP**: Scope and Effort Analyzer Composite Role (Full Authorization)
- **SAP_SEA_DIS_COMP**: Scope and Effort Analyzer Composite Role (Display Authorization)


5. All managed systems must be maintained correctly in LMDB. More information can be found here: http://wiki.scn.sap.com/wiki/display/SMSETUP/Maintenance+of+Product+in+the+System+Landscape?original_fqdn=wiki.sdn.sap.com. Call transaction code LMDB and check if the managed system you want to analyze with Scope and Effort Analyzer tool is created in the landscape database. Display system details and verify that all data are up-to-date. Refresh data if required. Check for example if the Software Component Versions (menu entry Software) match with the real system versions.


### 3.4 Mandatory Prerequisites: Managed Systems

If you plan to analyze one or several SAP Systems, for example an SAP ERP 6.0 system some technical prerequisites must be given on those systems. If the prerequisites are not given the functionality of Scope and Effort Analyzer will be limited or not given at all. Therefore we group the prerequisites based on the full functional scope.

For full functionality of Scope and Effort Analyzer tool the managed systems should have:

1. **Solution Tool Plug-In ST-PI 2008_1_** xxx **SP09**  
   (Required for UPL data transfer and semi-dynamic TBOM generation)
2. **Minimum required SAP NetWeaver version to activate UPL:**
   a. **SAP NetWeaver 7.01 SP10 or**
   b. **SAP NetWeaver 7.02 SP09 + Kernel 720 Patch 94 or**
   c. **SAP NetWeaver 7.31 SP03 or higher**
3. **Minimum kernel version**
   a. **Kernel 7.20 patch >430 or**
   b. **Kernel 7.21 patch >120**  
   (Required to activate UPL – Usage and Procedure Logging)
4. **RFC/Trusted RFC connection to SAP Solution Manager 7.1 SP11 system (created by SOLMAN_SETUP)**
5. Usage & Procedure Logging data of a representative period to have trustful and reliable results of system usage information. As longer as better. We recommend a period of 3 month (based on your individual system activities).
   **Note:** If UPL data are not available Scope and Effort Analyzer can be used but with limitations based on the missing usage information. Without UPL data it is not possible to
show used or unused custom code objects or modifications and to calculate savings by adjusting only used objects.

In addition, without UPL data, it is not possible to generate semi-dynamic TBOM's. In this case, only static TBOMs can be generated. Static TBOM's might be less effective as semi-dynamic TBOMs.

6. Sufficient system usage data (at least 1 representative month in /ST03N)

Note:
All UPL based prerequisites are given in SAP Note 1828848 Usage and Procedure Logging: Technical prerequisite.

ST-PI 2008_1_xxx SP09 (or above) is mandatory to generate semi-dynamic TBOMs. We recommend to schedule TBOM generation jobs on your test or quality assurance system (to avoid the load on your production system). Therefore, the guided procedure of Scope and Effort Analyzer (Step 2) will ask for “System used for test scope optimization activities” where the test or QA-system can be specified. For static TBOM recording, there are no kernel requirements.

3.5 Prerequisites: Integration with HP QC Testtool

For customers to use Scope and Effort Analyzer tool with HP Quality center, some additional configuration steps are mandatory. The steps required for configuring the same are described in the How-To guide of Business Process Change Analyzer (BPCA) available on the following link and also available under SOLMAN_SETUP – BPCA section:

https://service.sap.com/~sapidb/011000358700000043712014E.PDF

On a high level perspective you have to perform the following steps:

- Run the SOLMAN_SETUP configuration steps as described in this document
- Setup the connection between BPCA and HP Quality Center (as described in the How-To BPCA guide, chapter 6 BPCA Integration with SAP Quality Center by HP).
- Run one initial guided procedure of Scope and Effort Analysis to create a new project ID (thereafter follow the steps in this guide).
- Synchronize the newly created project with HP Quality Center. The procedure is described in the BPCA How-To Guide, chapter 6 BPCA Integration with SAP Quality Center by HP.
- After this initial run delivers a result report, run a second guided procedure of SEA and select in step 3 of the guided procedure the project ID created in the first run. In addition, select now in step 4 of the guided procedure HP Quality center as test management application. Now SEA will read all test management information available in HP QC.

Further information can be found here:


Note: for the integration of SAP Solution Manager and HP Quality Center a special license is required (Name: ”SAP Solution Manager Adapter for SAP Quality Center by HP”). A temporary license for testing purposes might be available on request. Please contact your local SAP account representative for any details about SAP license. For details see SAP Note 1059350.
**Step 4: Step-by-Step Procedure**

This section will explain the step by step procedure for all necessary preparation and configuration steps and the extraction of Scope and Effort Analyzer tool. Prerequisite of this documentation is the technical installation of SP11 on your productive SAP Solution Manager system.

### 4.1 Solution Manager Configuration

After you have implemented Support Package Stack 11 on your SAP Solution Manager 7.1 system you can run through the SAP Solution Manager configuration. Therefore call transaction code SOLMAN_SETUP. Configuration steps of the highlighted areas are required. In the following chapters we will guide you through the configuration steps.

![Menu tree of transaction code SOLMAN_SETUP with relevant configuration areas](#)

#### 4.1.1 System Preparation

The configuration checkpoint *System Preparation* consists of 7 different steps. The field “Update needed” indicates which configuration tasks are required after SP11 installation.

In addition ensure to implement SAP Note 1933506 in Step 4. This note contains all relevant notes with bug fixes to run the guided procedure of Scope and Effort Analyzer tool.
4.1.2 Managed Systems Configuration

The configuration step Managed Systems Configuration ensures that the connection to the relevant system you want to analyze is active and up-to-date. Check all systems where the field “update needed” is marked. For SEA run make sure that at least your productive and Test/QA system are defined in the Managed System Configuration and show green lights on all checks!

Note: In the Scope and Effort Analyzer guided procedure you can specify up to three different SAP system roles of your SAP system landscape (details are covered in the explanation of the guided procedure, STEP 2). Once decided which system roles to select in the guided procedure ensure that these systems are available and set up in the Managed System Configuration step as well.
4.1.3 Custom Code Management

The Custom Code Management setup consists of 9 different steps. To be able to run Scope and Effort Analyzer tool at least steps 1 to 6 are mandatory to configure.

On the following pages we will guide you through the single configuration steps of Custom Code Management. Additional information on each step is available in the Help section of each configuration step. Further very detailed information about the technique behind each single activity is accessible in column “Documentation” Link Display.

4.1.3.1 Step 1 Managing System Preparation

In this step, you technically prepare the SAP Business Information Warehouse (BW) infrastructure for the Custom Code Management scenario. The infrastructure enables all kinds of data providers in the Business Intelligence (BI) client of SAP Solution Manager.

Proceed as follow:
- Switch to change mode by pressing button EDIT.
- Select button EXECUTE ALL
  Make sure that the execution status of the activities is Execute
- In the pop-up window select radio button ALL ACTIVITIES
- Press button REFRESH

After some seconds the status of some activities will display a green light while the BW Content Activation activities still shows a yellow light.

- Select the first activity with a yellow light
Press button EXECUTE SELECTED
The status will immediately switch to a green light, which means that the background job CCMS_BI_SETUP was scheduled successfully.
- Go to transaction SM37 and enter job name CCMS_BI_SETUP
- Monitor the job (expected runtime approximately 5-10 minutes)

After this first job finished with success proceed with all remaining BW Content Activation activities showing a yellow light in the exact same way as done before.

If you want to learn more about the technique behind this content activation or other activities in this first step press DISPLAY of column “Documentation” for each activity. The information will also help in case of any failure of the automatic execution.

Proceed with step number two if all jobs finished with success and all status lights are green.
- Press button NEXT to jump to step number 2

### 4.1.3.2 Step 2 Housekeeping Settings
This step provides three different actions:
- UPL data migration
- Activation of housekeeping job
- Deletion of UPL data in cubes

**UPL data migration: This is a mandatory step if the migration section appears!**
This section will dynamically appear only if UPL data were already found in your system (stored in the day cube 0SM_UPL) and has not been migrated to the new multicube layout (introduced with SP11) yet.

In this case proceed as follow:
- Press button TRIGGER to start the UPL data migration
- Monitor jobs SM:AGS_CC_UPL_MULTICUBE and BI_JOB in SM37
The message log area on the bottom of this window will also give you an update on scheduled tasks, dates and results.

Additional information
The migration of UPL data ensure that all data stored in the BW day cube are migrated to the new multicube layout. This will ensure that SEA is able to read those data (SEA will read **UPL data only from BW month cube by default**)! The migration to the new multicube layout affects to all UPL data found in the SAP Solution Manager system not limited to single managed systems only.

Activation of housekeeping job
The table below this section lists systems where UPL data have been found. To activate the automatic housekeeping for BW Info Cubes (day, week, month and year cube), the table allow you to define residence times per Info Cube for Usage Procedure Logging (UPL). The table contains default best practice housekeeping values, based on our experience. The values for each cube type can be changed at any time, by choosing single or multiple systems and by clicking on the Activate button.

This is an optional step which activates the local housekeeping for UPL Info Cubes. We highly recommend to trigger the housekeeping job for all systems where UPL is active to avoid large database space consumption over time. To schedule the housekeeping job proceed as follow:
- Press button EDIT
- Select one or more systems shown in the list
- Select button ACTIVATE

Note: if you activate UPL on any additional managed system within this Custom Code Management setup the housekeeping job will be scheduled automatically for these systems. If you want to deactivate the housekeeping job for any system change the Job frequency to value NONE and press button Schedule selected jobs.

Optional: How to check if the housekeeping job is active for a specific system?
- Call transaction code SE11
- Display content of database table E2E_BI_DELETE
- Select Contents → all entries
- All SIDs in column LOW and line 0SM_UPL are registered for housekeeping job.
Example: UPL data housekeeping job is active for SAP system with SID XUQ

Deletion of UPL data (optional)
You can schedule a job to delete the data in the related Info Cubes, according to the housekeeping settings above.

Deletion of UPL data: All data older than defined in the cube retention period can be deleted

Start the data deletion using the Start immediately radio button, or the option Schedule at and specify the date and time. Example: the retention time of UPL data day cube is 30 days. Any UPL data in the day cube older than 30 days can be deleted (they are available in an aggregated form in the week/month/year cube) from this cube by running this deletion job.

Continue with the next setup step number 3 to proceed with the configuration.
4.1.3.3  Step 3 Create Template Users

This optional step creates standard template Users in the SAP Solution Manager system. If you use BI Reporting, you need additional standard template users in the BW system/client. If your BW system is in the same client as SAP Solution Manager, the relevant roles are assigned to the standard user in the SAP Solution Manager system.

To create new users proceed as follow:
- Switch to EDIT mode
- Press radio button Create all Users
- Specify new passwords in the popup window and save

The users are successfully created if the light in column status is green.

See the log message area for further details:

Note
The role SAP_SM_S_RFCACL is necessary if you create users in a managed system. The user ID and password must be the same for the SAP Solution Manager system and the BW system.

All users and user roles are only templates. If your user definitions and processes are different, adapt the users and user roles (authorizations) accordingly. For more information, see the Security Guide for SAP Solution Manager at http://service.sap.com -> SAP Components -> SAP Solution Manager.

4.1.3.4  Step 4 Scope Selection

In this step, you select the managed system(s) where you plan to activate UPL and run Scope and Effort Analysis. You must select at least one managed system (where both lights are green) to proceed to the next step.
Note
Make sure that you already run the **Managed System Setup** for all systems you select from the list. When choosing a managed system in this step, the RFC status and the auto configuration status are updated. **You can only select systems with green status.**

- Choose the managed systems that you want to configure.
- To select several systems, use the CTRL key.

Continue by pressing button NEXT.

### 4.1.3.5 Step 5 Client Selection

In this step you specify for each system selected in the previous step the client number as a context for certain activities, for example, scheduling extractors, background jobs, or retrieving status information. For each managed system selected specify one target client (usually the productive client). The client number here must match with the client number specified in the Managed System setup (setup of RFC connections).

Note
Only those client numbers are presented in the drop down list which have active RFC connections available. If a client is not displayed in the list, go back to the Managed System Setup and configure the RFC destinations correctly.

### 4.1.3.6 Step 6 Configure Infrastructure

In this step, you configure the technical infrastructure of data extractors and required background jobs. Click on next without any actions taking here.
4.1.3.7 Step 6.1: SAP Note details

In this step, you check the technical readiness of the selected managed systems for plugin levels and required SAP Notes. The check below is an automated version of the procedure described in SAP Note 1906451, and performs a remote check of the RTCCTOOL infrastructure on your managed systems.

You will get a result log for each system which has been checked in the log area below. The details of each log (show details) list the mandatory SAP notes which are not in each managed system. Implement all essential SAP Notes before proceeding to a next step.

- Press button execute all and check the results displayed

Continue with the next step by pressing button NEXT.
Step 6.2: Activate extractors

In this step, you activate the extractors for the selected systems, by choosing checkboxes. By default, all extractor categories which fulfill the technical prerequisites (!) are selected.

For Scope and Effort Analyzer setup make sure that at least the following extractors are marked: CC Gen, CC Ref and UPL. If those boxes are not marked automatically some prerequisites are not yet given.

Note: Some extractors have technical dependencies. For example, you may need to use the latest ST-PI release, SAP BASIS release, or SAP Kernel version (specifically for the Usage and Procedure Logging, see SAP Note 1828848). If the target system does not fulfill the technical requirements, you cannot select the extractor (for details, see the log).

Activities
- Select one system
- Tick the checkboxes: CC Gen, CC Ref and UPL (mandatory)
- Tick more checkboxes if required
- Choose button ACTIVATE
- Check in the log section that the activation was successful (green lights).

All extractors can only run in one client in a managed system. The same extractor cannot be activated in two clients.

Step 6.3 Schedule Analysis Jobs

In this step you finally schedule some analysis jobs in your managed system. The Schedule Analysis section must show at least the following job names: SDF/UPL_PERIODIC_EXT_JOB and /SDF/CC_REFERENCES.
Activities

- Select job SDF/UPL_PERIODIC_EXT_JOB for the managed system and check that setting for Job Frequency shows value **DAILY**
- Press button **Schedule Selected Jobs**
- Select job SDF/CC_REFERENCES for the managed system and check that setting for Job Frequency shows value **WEEKLY**
- Press button **Schedule Selected Jobs**
- Continue for any other managed system in the list

**Note on Performance**

The **CC_References Job** reads the entire custom code in the managed system (only on the very first start – each additional job is running in delta mode only). The load is produced on the managed system itself – not in the SAP Solution Manager system.

This initial job can produce a moderate load on the managed system and can run for several hours. The job will start in the night after pressing button “schedule selected jobs” or “schedule all jobs”.

**Important**: If you want to include latest custom code objects in SEA analysis (for example after a customer release go live) make sure to refresh the reference information by scheduling this job before starting a new SEA run.

This is the last step of the Custom Code Management setup relevant for running Scope and Effort Analyzer tool. Run through the remaining steps, if you intend to set up further custom code tools, such as the Custom Code Library, for example.
4.2 Additional Recommended Checks

We recommend some additional checks before you start the guided procedure of Scope and Effort Analyzer tool. These checks will ensure that important prerequisites are really given.

1. Check the availability of UPL data
   Verify that UPL data are available for your managed system you intend to analyze. The background job transferring UPL data from managed system to SAP Solution Manager is running per default before midnight on a daily basis.
   NOTE: If UPL data collection was just activated before, perform this check on the next day (after the UPL data transfer job was running at least once).

   To verify that UPL data are available for your managed system perform the following steps:
   - Login to your SAP Solution Manager 7.1 SP11 system
   - Call transaction code RSA1
   - Select option InfoProvider from the left menu
   - Open: SAP Solution Manager → SAP Solution Manager Custom Code Lifecycle Management → UPL Information (Month)
   - Right click → select from menu: Display data
   - In the popup “Characteristic Selection” select entry Select Characteristics and confirm
   - On the next screen select button “Fld Selectn for Output”, then choose button “Select all”
   - Confirm your selection with green check button (tick twice!). Now all UPL data stored in the BW month cube are visible.

2. Check the current ST-PI software component and patch version of your managed system.
   The mandatory version is ST-PI SP09 or higher. If at least you development and test system of your system landscape do not fulfill this prerequisite Scope and Effort analyzer tool will fail to run.
3. Activate the ICF Services as described in SAP Note 1983399
   - Call transaction SICF and search for the following services:
     /sap/bc/webdynpro/sap/ags_sea
     /sap/bc/webdynpro/sap/AGSSEA_ANALYSIS
     /sap/bc/webdynpro/sap/AGSSEA_CREATE_ANALYSIS
   - Activate these services.

4. Check that your SolMan user has sufficient authorizations:
   - To work with Upgrade and /or Test Management workcenter
   - All required authorizations to start SEA analysis (role: SAP_SEA_ALL_COMP)
     See also the SAP Solution Manager Security Guide on SAP Service Marketplace, at
     http://service.sap.com/instguides ➔ SAP Components ➔ SAP Solution Manager ➔
     <current release>.
4.3 Run Scope and Effort Analyzer

In this section we explain in detail how to generate a result report for a maintenance event such as a Support Package installation or SAP Enhancement Package deployment. Prepare some time to run through your very first guided procedure (approximately 20 minutes if no technical issues occur). In addition we recommend to read the Help documentation available for each Step of the Guided Procedure.

Additional information
Once you run through the entire steps of the guided procedure a new analysis is created and you can start the background processing by pressing button “START” displayed in the column “Status & Action” to calculate required data. The background calculation consists of several activities, for example to check the ST-PI version of the managed system or to retrieve the Usage and Procedure Logging data of the managed system. This background processing can and should be proactively monitored. The runtime of the entire background processing can be some hours up to days, depending on the system performance but mostly on the amount of data to be loaded, analyzed and generated.

4.3.1 Start a new Guided Procedure

In this section we guide you how to create a new Scope and Effort Analysis for your managed system. Just follow the steps as described below:

- Login to your SAP Solution Manager 7.1 SP11 system
- Call transaction code SOLMAN_Workcenter
- Select workcenter “Implementation / Upgrade” → “Plan” → Create or view Scope and Effort Analysis. This will open the main screen of Scope and Effort Analyzer.
- By using button Create you can start the guided procedure to run a new analysis. A new window will popup with the guided procedure. Now run through each step as described on the following pages.

Example on how to access Scope and Effort Analyzer start screen in SAP Solution Manager

Note: On this start screen you have access to various functionality of Scope and Effort Analyzer. By pressing the question mark in the upper left corner more information on the provided functionality here are available.
4.3.1.1 Guided Procedure Step 1

Once you select button “Create” the guided procedure will start in a new explorer window. You will automatically access the first step of the guided procedure.

Provide a name for this specific analysis and select the SAP system to be analyzed (aka managed system), for example your productive SAP ERP system where you plan to implement Support Packages or SAP Enhancement Packages.

Note: each step of the guided procedure offers a detailed help information area. You can access the help area by pressing on the question mark icon in each step of the guided procedure.

Press button Next to jump to process step 2.

Process step number one of application wizard Scope and Effort Analyzer: Select Systems
4.3.1.2 Guided Procedure Step 2

In this step you can specify additional systems (system roles) of this analysis run. In total you can specify 3 different systems. Read the instruction below with care to specify the right systems.

Process step number two of Scope and Effort Analyzer: Specification of Additional Systems

System No. 1: Specify system to read custom developments and modifications.
Enter the system ID (SID) of the system from which the modifications and custom developments are selected for the change impact analysis. Note: Basically there are two options which system to specify here: the development system of your landscape or the production system. The decision depends on your preferences.

- **Production system**: only the modifications and custom development objects of your production system are analysed, regardless if there are for example new development projects ongoing not yet in productive use.
- **Development system**: Specify your development system to read all modifications and custom developments. This might be beneficial if ongoing development activities / projects should be taken into consideration (not yet in production) to identify the change impact on these new objects.

Note: If you have a large number of development objects never transported into production, the total adjustment effort shown in the result analysis might be higher compared if you analyze the production system only. Keep also in mind that all custom objects of your development system can’t have any usage information if they do not exist in your production system. These objects are then part of the category “not used” or “unknown usage”.

Recommendation: Usually, you should select the production system that shall be upgraded for this system role. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.

System No. 2: Specify system to read usage statistics.

The application will read parts of the custom code and usage statistics data from the selected SAP Solution Manager business information system. This system will be used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

Note: The selected system is used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

The system is used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

Recommendation: Usually, you should select the production system that shall be upgraded for this system role. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.

System No. 3: Specify system to read system roles.

The application will read the system roles data from the selected SAP Solution Manager business information system. This system will be used to determine the system roles and system IDs required for the change impact analysis. To display the system to read system roles, select it by checking off the check box for the system to read system roles.

Note: The selected system is used to determine the system roles and system IDs required for the change impact analysis. To display the system to read system roles, select it by checking off the check box for the system to read system roles.

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Enter the system ID (SID) of the system from which the modifications and custom developments are selected for the change impact analysis. Note: Basically there are two options which system to specify here: the development system of your landscape or the production system. The decision depends on your preferences.

- **Production system**: only the modifications and custom development objects of your production system are analysed, regardless if there are for example new development projects ongoing not yet in productive use.
- **Development system**: Specify your development system to read all modifications and custom developments. This might be beneficial if ongoing development activities / projects should be taken into consideration (not yet in production) to identify the change impact on these new objects.

Note: If you have a large number of development objects never transported into production, the total adjustment effort shown in the result analysis might be higher compared if you analyze the production system only. Keep also in mind that all custom objects of your development system can’t have any usage information if they do not exist in your production system. These objects are then part of the category “not used” or “unknown usage”.

Recommendation: Usually, you should select the production system that shall be upgraded for this system role. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.

System No. 2: Specify system to read usage statistics.

The application will read parts of the custom code and usage statistics data from the selected SAP Solution Manager business information system. This system will be used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

Note: The selected system is used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

The system is used to determine the custom development modifications required for the modified objects that are active in the selected system. The system is also used to check if the system is available for this process. To display the system to read usage statistics, select it by checking off the check box for the system to read usage statistics.

Recommendation: Usually, you should select the production system that shall be upgraded for this system role. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.
Enter the system ID (SID) for the system from which all statistics about the actual usage of executable programs and transactions and ABAP program objects called by these executables are collected.

Note: This system **has to be a production system** because only there valid usage information exists!

System No. 3: Specify the system used for test scope optimization activities.

Enter the system ID (SID) for the system on which information used for the test scope optimization is generated.

Note: The technical bill of material (TBOM) required for the test scope optimization will be generated on this system. This calculation will usually generate **significant load** on the selected system. Therefore we recommend using a test or quality assurance system for these activities. The selected system has to have the same software configuration (product version, support package and custom developments) as the production system. **Make sure that the system you specify here has the ST-PI version SP09 (or higher) installed! Otherwise the SEA run will fail.**

Once you specified the three systems you can either press button *Perform Checks* or use button *Next*. Both options will trigger the prerequisite check. In case the checks determine errors or warnings, the results are shown in check result tables for each system role on this screen. All mandatory checks must show status “green”, otherwise you can’t proceed. Any red status indicates that one or more steps of the SOLMAN_SETUP procedure described in chapter Solution Manager Configuration is missing or might have failed. Proceed by pressing button *Next*. 

![Image of check result tables for each system role on this screen.](image)
Example of successful check results

4.3.1.3 Guided Procedure Step 3

In this step some information about the business blueprint are necessary. We decide between two different cases:

Case 1 – business blueprint does already exist
A business blueprint for your productive system does already exist. In this case you can select one or more projects or solutions which contain the business blueprint by using button Add Project or Add Solution. Note: the button Add project or add solution becomes active only, if one or more projects in SAP Solution Manager are available. Make sure that a logical component does exist and that the systems selected in the previous step are assigned to this project or solution. (A logical component is created in the SOLMAN_SETUP procedure as part of LMDB setup.)

In addition you can specify, if your selected business blueprint or solution covers all processes used of your productive systems. **We recommend** to select the option *Create a Project and Business Blueprint for executables not covered*. The combination of both approaches (using your existing business blueprint and generate an additional SAP Solution Manager project and business blueprint with the remaining executables in use ensure that any used object not yet part of your blueprint is covered in the analysis.

Case 2 – no business blueprint available
In case that your company has not defined a business blueprint in SAP Solution Manager yet, you can generate a new business blueprint automatically in the background that is organized by SAP Modules. This business blueprint does not provide an end-to-end definition of processes, but defines all used business transactions (based on the usage statistics, ST03N of System No. 2 specified in the previous step) by the SAP Application Component Hierarchy (ACH). In this case the application will generate a new SAP Solution Manager project which contains the generated business blueprint. Select radio button *Create a Project and Business Blueprint for executables not covered*. 
Specify business blueprint – Option create a Project

Once the option Create a project… was selected some additional information are asked:

- **Project ID:** The project ID is created automatically.
- **Project Type:** Specify the project type (in most cases this should be type Upgrade for EHP installations or type Maintenance for pure SP Stack updates)
- **Description:** enter a description for your project
- **Logical Component:** Select the logical component from the list (the logical component must include at least System No. 3 specified in the previous step)

**Button: Show Application Components**
You can exclude executables from blueprint generation by deselecting ACH components via button Show Application Components. More information on this feature and the module based business blueprint generation is available in the help section of this step.

**Recommendation:** this setting is only for advanced usages, in most cases you can take over the default selection.

**Note:** Custom developed executables are detected as well and assigned under a special blueprint node “CUSTOMER – Customer Executables” and structured by development classes, in case they are available.
Specify business blueprint – specify details on new project for business blueprint

Screenshot of transaction SOLAR01, project created by SEA tool based on used SAP transactions

Continue by pressing button Next once you have made you input.
4.3.1.4 Guided Procedure Step 4

In this step you can select your Test Management Application and preferred approach for Test Scope Optimization, which is calculated by Business Process Change Analyzer (BPCA) in the background.

Test Management Application
Please specify your Test Management Application, such as SAP Solution Manager or HP Quality Center. You can flag more than 1 application, in case you are using more than one application for test management.
In case that now 3rd party test applications are used just tick SAP Solution Manager here.

Test Scope Optimization
In case you have already defined an Optimization Approach, you can select it for use during the subsequent background analysis. Please include a test coverage of 100% or less, such as 99% which determines whether all impacted objects shall be included in the test scope.
You can change the test coverage percentage later in the analysis result to see the impact on test effort.

Test Case Recommendation for creating Test Cases
The application can provide recommendations for creation of automated test cases. For this you can specify up to which test coverage percentage automated tests shall be considered. In addition, you can select a rule how to perform recommendations for the remaining percentage to cover 100% test coverage. These values can be changed in the analysis result view later to see the impact of

Continue by pressing button Next once you have made you input.
4.3.1.5   **Guided Procedure Step 5**

This step summarizes all input and selections you made in the previous steps. In case you wish to change some of the input return to the respective previous steps. 

Note: Verify the correct selection of systems SID’s for the analysis run. To calculate optimal results UPL usage data should be available of the productive system.

If your input is correct continue with the definition of the target software version by pressing button *Continue with Target Definition.*
Important information on step Continue with target definition
This function opens the wizard of the Maintenance Optimizer in a new window to define the target software version for your planned Support Package or Enhancement Package installation. The wizard will guide you through the steps to enter the information required to calculate the future software stack and SAP ABAP objects.

Note: To conduct an Scope and Effort Analysis you do not have to process all steps of the Maintenance Optimizer transaction.
It is important that you correctly enter the requested information in steps 2, 2.1 and 2.2. All other steps you can skip by pressing Continue. When reaching step 3 of the Maintenance Optimizer transaction, the required stack.xml file is created. You can close the Maintenance Optimizer at this point. In the start screen of the Scope and Effort Analyzer the analysis status is in column Target Definition should be set to OK.

4.3.1.6 Step Select Files
In this step you can choose how the files for your maintenance are selected. Choose option Calculate Files Automatically and press button Continue to jump to the next step.

Confirm your selection by pressing button Continue.
In the next screen you need to confirm the update option. The preselected option **SAP enhancement package for SAP ERP** is the option you need to select in this step.

Confirm this step by using button *Continue*.

### 4.3.1.7 Step Choose Stack

In this step you have to select the target enhancement package version and support package stack version you plan to install in your landscape. In addition, you have to specify the technical usages you plan to update (either take over the preselection or add further technical usage based on your functional requirements).

Confirm this step by using button *Continue*.
4.3.1.8 **Step Confirm Target**
In this step the maintenance optimizer transaction displays the target selection of all products specified in the previous step. Review the selection and press button *Continue* to jump to the next step.

4.3.1.9 **Step Choose Add On-Products (optional)**
For Scope and Effort Analyzer this step is not required. You can either select Add On-Products you want to install in addition or press button *Continue* to jump to the next step.
Note: The impact of Add On-Products are not yet part of Scope and Effort Analyser. This feature is planned for the next release of SEA.
4.3.1.10  Step Select OS/DB-Dependent Files (optional)
For Scope and Effort Analyzer this step is not required.
You can either select OS/DB-Dependent files or press button Continue to jump to the next step.

4.3.1.11  Step Select Stack Independent Files (optional)
Here you can select further software update packages for your software update. It is possible to include latest i.e. HR Support Packages by using option Include / Exclude files from download baseket. As this is an optional step press button Continue to proceed if no further packages are required.
4.3.1.12  **Step Select Stack-Dependent Files (optional)**

In this step further non stack-dependend files can be selected. Press button *Continue* to jump to the next step after you (optionally) made your selection.

4.3.1.13  **Step Confirm Selection**

Confirm by using button *Continue* that the files are putted into your download basket. This confirmation will create the stack.xml file needed to start the Scoep and Effort Analysis run.
Step Confirm Selection

In step 3 of the maintenance optimizer transaction the stack.xml files are created and exported to the local EPS inbox (SAPTRANS directory). Check the successful creation of those files. Press button Save and Close to leave this screen.

4.4 Start Background Processing

Now you can come back to the start screen of Scope and Effort Analyzer. The new analysis run which was just created shows button START in the Status & Action column. Both columns System Selection and Target Definition shows value “OK”. This indicates that all required information to start the analysis background calculations are made. You can now start the background tasks by pressing button START.
The successful start of the background processing is displayed with a confirmation *Analysis Started*.

Now the status in column *Status & Action* shows the entry *Running* for your newly created SEA run.

You can now monitor the background processing by using the hyperlink *Running*.

### 4.5 Monitor the Background Processing

Go to tab *Processing Log* to monitor the outcome and progress of the background processing. Here you find a list with several steps or checks (mandatory or optional steps). Column *Status* indicates the progress which can be: OK, In Process, Initial or failed.

Ideally the background processing does not stop on error. To retrieve the final result report come back to this screen from time to time to monitor the process and once all jobs finished to collect the result report. Plan some days for the entire background processing jobs to finish.
Troubleshooting

In case one or several jobs part of the background processing show status failed you can find more details on the root cause in column “Recommendation”, for example to check the background job protocol for further details.

Once the issues are solved you can easily restart the background processing by pressing button Restart.

4.6 Collect and Review SEA Result Report

Once all steps of the background processing finished with success the result report is ready. You can display the report by navigating to the main screen of Scope and Effort Analyzer. The Status View Results indicates that the result report is available.
4.6.1 Basic Navigation thought the Result Report

Once the result report is available you can display the same by pressing on Status View Results. Now you can navigate through the information available for your maintenance event. The information is directly accessible by choosing one of the available tabs, for example tab Test Management.

Overview or first level information of Scope and Effort Analysis

The overview information is designed for the Project Management lead to get a good understanding of the major effort building blocks of the planned project.

4.6.2 Access and Review the Detailed Information

In a second step the detailed information can be analyzed by the project team leaders. Therefor all detailed information about the custom code / modification and the Test Management area are accessible by navigating to the PAGE drop down menu.
4.6.3 Guidance on Interpretation of Results
Detailed background information is available by pressing the question mark icon on each side. The information provides will help you to understand and interpret the results in relation to your planned maintenance project.

4.6.4 Close the Result Report
You can close the result report by using button Close on each side of the report. The result report will be available for any further use or view on the central landing page of Scope and Effort Analyzer.
Step 5: Appendix

6.1 View UPL Data on Managed System

Following the steps below will explain how to view the UPL data collected on the managed system.

- Logon to your managed system where UPL data collection was activated
- Open transaction SE38 and start the report program "/SDF/SHOW_UPL"
- Enter the date range and select display options
- Click on execute icon

The output shows the UPL data collected for the given date range.

Important Columns are showing the following data:
- Date: All list entries with the same UPL date were executed at this date.
- Object Type: Describes the type of objects. PROG for programs frames, etc.
- Object Name in Object Directory: Name of the surrounding ABAP repository object.
- Tcode/program: Name of the ABAP Include containing the ABAP procedure.
- Type: Type of ABAP processing block. You are able to distinguish between executions of function modules, class methods, selection screens, user exits, etc.
- Name of Processing Block: The real name of the ABAP procedure.
- Accumulated Executions: Number of real executions.
5.1 Useful Notes
The following list of SAP Notes will help in analyzing and resolving in any issues you might face while implementing and using Scope and Effort Analyzer.

- **1955847** UPL: Activation Procedure and Authorization Handling in SAP Solution Manager
- **1828848** Usage and Procedure Logging: Technical prerequisite
- **1843943** CCLM: Activation of the OSM_CCLM cube fails

5.2 Further Help
For further help on Scope and Effort Analyzer please refer to the following links (some of the links are accessible only to SAP Customers and Partners)

- Scope and Effort Analyzer central information side
  - http://service.sap.com/SEA
- SAP Solution Manager
  - http://service.sap.com/solutionmanager
- Test Management (Presentations, Demos, Whitepapers)
  - https://documents.wdf.sap.corp/share/page/site/SAPtestmanagement/dashboard