Master Guide | PUBLIC
Document Version: SPS 21 – 2025-12-02

Master Guide - SAP Solution Manager 7.2

THE BEST RUN SAP

Content

1 Introduction. 6

2 Implementation. 8

2.1 Implementation Sequence. 8

2.2 Operating System Recommendation. 9

2.3 Installable Software Units. 10

Usage Types. 10

Standalone Engines. 11

Front-End Clients. 13

2.4 Installation of SAP Solution Manager. 14

2.5 SAP Library. 16

2.6 Configuring SAP Solution Manager. 16

2.7 Front-End Client Strategy. 17

2.8 SAP Solution Manager Client Strategy. 19

3 Upgrade and Update of SAP Solution Manager. 20

4 Maintenance Planner. 22

5 SAP Solution Manager System Landscape. 23

5.1 How Many SAP Solution Manager Systems?. 23

5.2 Landscape Data in SLD and LMDB. 28

5.3 Reference System Landscapes. 32

5.4 Agents. 37

5.5 Support Backbone. 38

5.6 Supporting Multiple Customers. 39

5.7 Sizing Your SAP Solution Manager System. 39

5.8 Archiving and Backup Strategy. 39

6 Security. 41

7 SAP Solution Manager Applications. 43

7.1 Overview. 43

7.2 SAP Solution Manager Launchpad. 44

7.3 Business Process Operations. 44

7.4 Custom Code Management. 46

7.5 Change Control Management. 49

7.6 Requirements Management. 55

7.7 Data Volume Management. 55

7.8 IT Service Management. 57
7.9 Test Suite. 58
7.10 SAP Engagement and Service Delivery. 61
7.11 Project Management. 62
7.12 Process Management. 63
Solutions in SAP Solution Manager. 63
Solution Documentation. 63
7.13 Landscape Management. 65
7.14 Application Operations. 65
7.15 SAP Solution Manager Extensions. 68

8 Communication Channels with SAP. 70

9 Useful Links and SAP Notes. 72

10 Questionnaire. 74

Document History

The following table provides an overview of the most important document changes.

Version	Date	Description
7.2 SPS 19	2024-07-01	Updated information in for cross-database comparison.
9.0	2020-12-20	Comprehensive updates in all chapters and of the overall guide structure.
8.1	2020-01-22	Updated minimum version of SWPM to install SAP Solution Manager: Installation of SAP Solution Manager [page 14]
8.0	2019-12-02	Information about the support hub and support backbone has been updated. See Support Backbone [page 38].
7.0	2019-07-01	The Upgrade Guide for the upgrade from SAP Solution Manager 7.1 to 7.2 has been restructured and updated entirely.
6.1	2019-02-05	To be able to exchange data with SAP's support backbone after January 1, 2020, you need to have implemented SAP Solution Manager 7.2 SPS 7 or higher by then. For more information, see Connectivity to SAP's Support Backbone.
6.0	2018-12-06	Information on CA Introscope Enterprise Manager updated. See Standalone Engines [page 11].
5.0	2018-05-14	Make sure that you use version **1.0** of Software Provisioning Manager to install SAP Solution Manager and Diagnostics Agent. Do not use version 2.0. CA Introscope Enterprise Manager version 10.5 available.
4.2	2018-01-17	An external BW is not supported anymore.
4.1	2017-11-03	Information about maintenance planner, the central tool to plan upgrades or new installations for your SAP solutions, was added to the implementation sequence description. In addition, a step for the prepartion of Support Hub Connectivity was added.
4.0	2017-10-16	Minor changes
3.1	2017-09-14	Information about TREX/Embedded Search changed. With SAP HANA, TREX is no longer needed for knowledge base articles. Information on CA Introscope Enterprise Manager corrected.
3.0	2017-05-08	Guide is now relevant for all support package stacks of SAP Solution Manager 7.2. Therefore only one guide is available. Information added about TREX and Introscope Byte Code Adapters.
2.5	2017-02-24	Information added that on SAP HANA, TREX is needed for knowledge base articles.

Version	Date	Description
2.4	2016-11-09	Information about TREX/Embedded Search corrected.
2.3	2016-11-03	SAP LoadRunner not relevant for SAP Solution Manager 7.2 anymore. Information removed.
2.2	2016-10-06	Minor correction
2.1	2016-09-20	CA Introscope Enterprise Manager version corrected. The version relevant for SAP Solution Manager 7.2 SP03 is 9.7 SP01 or higher.
2.01	2016-08-23	Minor changes
2.0	2016-08-15	TREX installation step added to *Implementation* section.
1.25	2016-04-22	Sizing information updated
1.2	2016-04-07	Sizing information changed
1.10	2016-02-01	Corrected http://support.sap.com/usagerights link, minor corrections
1.01	2016-12-17	Minor corrections
1.00	2015-12-11	Initial version Note that the implementation of SAP Note 1750162 is a precondition for a correct indexing in SAP Solution Manager. See also section .

1 Introduction

Use

SAP provides digital support with solutions for autonomous Application Lifecycle Management (ALM) and for service and support delivery. It's intended for all customers and landscapes, integrating the products that make up the Intelligent Enterprise.

There are different approaches to ALM. Some customers prefer to run their applications using a standardized low-cost approach, while others have individual ALM requirements. Some customers use just a few SAP components, while others have landscapes with hundreds of SAP components. Then there are SAP customers that do not have SAP components at all, but only use SAP cloud applications.

To satisfy the different expectations, SAP provides several ALM offerings:

- **SAP Solution Manager 7.2**: On-premise solution with a rich functional portfolio for on-premise applications and hybrid landscapes. Customers can select the required functions and configure them individually.
  With SAP Solution Manager, you explore the value and scope of establishing a single source of truth for SAP solutions within your company.
  It covers aspects of implementation, deployment, operation, and continuous improvement of solutions. As a centralized, robust solution, SAP Solution Manager combines tools, content, and direct access to SAP, to increase the reliability of solutions and to lower total cost of ownership.
  - plus **Focused Build**: Tool-supported methodology to manage requirements and software development for large, agile innovation projects.
  - plus **Focused Insights**: Quickly build and distribute powerful customer-specific dashboards.
- **SAP Focused Run**: Solution for service providers who want to host all their customers in a central, scalable, safe environment. It also addresses customers with advanced needs in system management, user monitoring, integration monitoring, and configuration and security analytics.
- **SAP Cloud ALM**: For customers that use only or predominantly cloud solutions from SAP, and do not want to deploy an on-premise ALM platform.

This master guide provides an overview of information that you need to install, upgrade, and configure SAP Solution Manager. It also provides technical information about the software units and the processes of SAP Solution Manager.

The master guide is a central starting point for the technical implementation of SAP Solution Manager. SAP Solution Manager includes the SAP Solution Manager Enterprise Edition, which is activated automatically.

SAP Solution Manager supports heterogeneous on-premise system environments. It must be operated on-premise, within your SAP landscape, in the intranet, to restrict public access.

The extent to which you can use SAP Solution Manager depends on the type of maintenance contract you have. For information, see SAP Solution Manager Usage Rights.

> **Note**
>
> The SAP Solution Manager guides, for example the security guides, are available at SAP Solution Manager - Implement (SAP Help Portal).

Please use the documents available there because they are updated regularly.

2 Implementation

The general sequence for the initial, green field implementation of an SAP Solution Manager system is as follows:

1. Plan your SAP Solution Manager implementation, that is, you design the layout of your SAP Solution Manager system landscape, determine the applications you want to run, select appropriate hardware, and so on.
2. Install the software components of your SAP Solution Manager system.
3. Configure your SAP Solution Manager system.
4. Set up the connections to the systems managed by your SAP Solution Manager (called "managed systems" in the following).

The implementation of the SAP Solution Manager system is based on the standard *Software Provisioning Manager* (SWPM). It must be used exclusively for SAP Solution Manager. No other components, other than add-ons, can be installed on top of SAP Solution Manager. The system is updated through support package stacks. SAP Solution Manager doesn't necessarily require separate hardware. You can install it as a separate instance on existing hardware.

After installation, further configuration is required. Execute the configuration settings in the guided procedures of *SAP Solution Manager - Configuration* > *Configuration - All Scenarios* (transaction `SOLMAN_SETUP`).

During this configuration, you connect the managed systems to SAP Solution Manager.

If you want to use the diagnostics capabilities for your managed systems, see SAP Note 1472465 (Diagnostics – Setup of Managed Systems).

2.1 Implementation Sequence

Step	Description	Details
1	**Size** your SAP Solution Manager	Determine the hardware requirements of your SAP Solution Manager system. See Sizing Your SAP Solution Manager System [page 39]. The sizing depends on your selection of SAP Solution Manager Applications. See SAP Solution Manager Applications [page 43].
2	**Plan** the implementation of the SAP Solution Manager system landscape	See the following information: • SAP Solution Manager System Landscape [page 23] • Reference System Landscapes [page 32] • *System Landscape Directory (SLD) Strategy* section in Interoperability of Central SAP Solution Manager Systems [page 28]

Step	Description	Details
3	**Install** your SAP Solution Manager	Plan and execute the installation of the core software components. See Installation of SAP Solution Manager [page 14].
4	**Install** additional software components	SAP host agents, diagnostics agents, TREX (if you do not use HANA as a database) See *Installation Guide* > *Installation and Update Guide - SAP NetWeaver Standalone Engine Search and Classification TREX 7.1 Single Host* at SAP NetWeaver 7.4. See also the Agents [page 37].
5	Design and implement **security concept**	See the *Users and Roles* chapter in the *Authorization Concept Security Guide* at SAP Solution Manager - Implement.
6	**Configure** SAP Solution Manager	Follow the *Configuration Guide* at SAP Solution Manager - Implement.
7	Plan and execute the restart of **managed systems**	Necessary for the Java system (CA Introscope Enterprise Manager Byte Code agent activation)
8	Plan **trainings**	For system administrators, operators, and end users of SAP Solution Manager: See *Training & Certification* at https://wiki.scn.sap.com/wiki/x/CBkMDg and SAP Enterprise Support Academy published on the SAP site Expert-Guided Implementation.

> **Note**
>
> SAP Solution Manager is a centralized application for planning, administration, and operation of a customer's SAP landscape. Therefore we do not recommend to copy SAP Solution Manager, because this may cause more effort and introduce unexpected negative side effects. If you must really copy your SAP Solution Manager and require assistance, open an incident on component SV-`SMG-INS-CFG`.

2.2 Operating System Recommendation

SAP Solution Manager runs on 64-bit systems only.

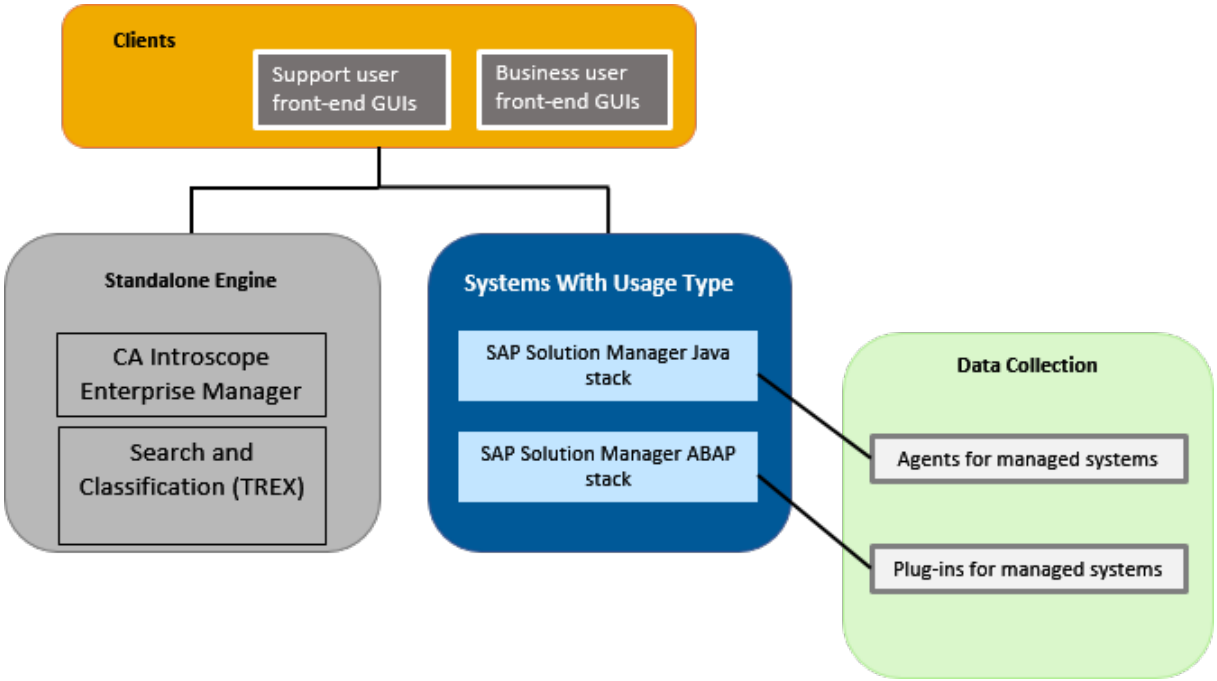
For more information, see https://support.sap.com/pam.

We recommend running SAP Solution Manager on Unicode. All new SAP Solution Manager installations must be on Unicode. For customers who have upgraded from previous releases of SAP Solution Manager and are not yet on Unicode, we recommend migrating the Application Server ABAP to Unicode, although there are currently no technical limitations to the processes if the system is not on Unicode.

2.3 Installable Software Units

The following figure shows the types of installable software units for SAP Solution Manager that are described in the following sections. These units comprise the following:

- Systems that are configured for a specific purpose, indicated by one or more usage types
- Standalone engines that provide one specific (server) function in combination with SAP Solution Manager
- Clients used by (many) people on their local front-end PCs, to access functions offered by SAP Solution Manager or standalone engines, in the system landscape



Installable Software Units

2.3.1 Usage Types

The following are the usage types for SAP Solution Manager:

- ABAP System in SAP Solution Manager
  Purpose: The ABAP system in SAP Solution Manager provides the ABAP foundation of SAP Solution Manager.
  It includes the SAP CRM add-on, so the tasks and procedures for a standard SAP NetWeaver system generally also apply to SAP Solution Manager. For more information, see SAP Note 781448 (Support Package levels for SAP Solution Manager installations/upgrades).
- Java System in SAP Solution Manager
  Purpose: The Java system in SAP Solution Manager provides the Java foundation of SAP Solution Manager.

2.3.2 Standalone Engines

Standalone engines provide specific (server) functions in combination with SAP Solution Manager.

Standalone engines do not have a usage type. They do not run on AS ABAP or AS Java.

The following standalone engines can be required, if you run scenarios on SAP Solution Manager that use them:

- CA Introscope Enterprise Manager
- Embedded Search: Search and Classification (TREX)

CA Introscope Enterprise Manager

CA Introscope (previously CA Wily Introscope) is a software component that collects performance data and other system-related data, mainly from non-ABAP components in your system landscape.

For SAP NetWeaver AS Java systems, the *Managed Systems Configuration* scenario of *SAP Solution Manager Configuration* configures the Introscope Byte Code Adapter remotely. The Introscope Byte Code Adapter version used for the remote configuration depends on both the Java virtual machine version for the managed systems, and the ISAGENT_MIN_J5 software component version deployed on the SAP Solution Manager Java system, as shown in the table below.

> **Note**
>
> Make sure that both the ISAGENT (release 8 of Introscope Byte Code Adapter) and ISAGENT_MIN_J5 (release 10.7 or higher of Introscope Byte Code Adapter) software components are deployed on the SAP Solution Manager Java system.

Java Virtual Machine Version		1.4	1.5	1.6	1.7	1.8
SAP NetWeaver Version on Managed System		04, 7.0, 7.0 EHP1, EHP2, EHP3	7.1 EHP 1	7.20, 7.30, 7.3 EHP1, 7.40	n/a	>=7.5
Introscope Byte Code Adapter	8 ISAGENT	■				
	9.7 ISAGENT_MIN_J5		■	■	■	■
	10.1 ISAGENT_MIN_J5			■	■	■
	10.5 ISAGENT_MIN_J5			■	■	■
	10.7 * ISAGENT_MIN_J5			■	■	■

Compatibility Matrix for Introscope Byte Code Adapter and Java Virtual Machine on Managed Systems

* see SAP Note 2909673 (Introscope 10.7. Release Notes).

> **Note**
>
> When you are installing SAP Solution Manager 7.2, also plan to download and install the latest release of the CA Introscope Enterprise Manager and Management modules. If you are upgrading from SAP Solution Manager 7.1, you also need to plan the upgrade of the CA Introscope Enterprise Manager and Management modules. If you are already using Introscope Byte Code Adapter version 9.7 or higher, you can schedule the upgrade of the CA Introscope Enterprise Manager and Management modules during the SAP Solution Manager maintenance timeframe or at a later point in time.
>
> If you no longer plan to configure Introscope Byte Code Adapters for SAP NetWeaver 7.1 EHP1 managed systems (based on Java 1.5), consider deploying the latest release of the ISAGENT_MIN_J5 software component on your SAP Solution Manager system by using the same release as your CA Introscope Enterprise Manager. As a result, previously-installed Introscope Byte Code Adapter versions are replaced step-by-step by the latest version.

> **Note**
>
> CA Introscope BCI VIA SM 8 has been part of the Java stack until SAP Solution Manager 7.2 SPS 11. Because the component is out of maintenance and there is no successor, it is no longer part of the stack as of SPS 12.
>
> When you're updating or upgrading to SPS 12, and SUM asks you how to proceed with the component, choose Delete.
>
> If you still need to use CA Introscope BCI VIA SM 8, even though it's long out of maintenance, please create an incident on component XX-PART-Wily.

More information:

- SAP Note 797147 (*Introscope Installation for SAP Customers*), incl. the SAP Notes for each release.
- *CA Introscope Setup Guides* at Introscope (SCN Wiki).

Embedded Search

SAP Solution Manager uses Embedded Search as the technology for searches. Embedded Search allows you to search all data in an application in a unified way. In SAP Solution Manager, you can use Embedded Search for Quality Gate Management, Change Request Management, Service Delivery or IT Service Management. For Process Management and its Solution Documentation, Embedded Search is mandatory.

Learn more about the possible combinations of search technologies and databases for Solution Documentation in the Product Availability Matrix.

There are two variants of Embedded Search, depending on the search technologies and databases, as Embedded Search runs either on SAP HANA or TREX:

- For SAP Solution Manager on SAP HANA, no additional components are needed.
- SAP Solution Manager systems running on any other database need the standalone engine Search and Classification (TREX).

> **Note**
>
> If you use SAP HANA as a database and want to search for SAP Knowledge Base Articles in IT Service Management, follow the instructions in SAP Note 2400327, 2397249, and 2528038.

Connecting TREX to More than One Application

In principle, you can connect one TREX system to more than one application. However, the TREX system must have appropriate dimensions so that it can process the load of all the applications. You must take organizational measures to ensure that the applications use separate index namespaces.

> **Note**
>
> You need to install a separate TREX 7.10 system that is used exclusively by Embedded Search, if several applications use TREX simultaneously. Otherwise you might experience performance problems.

For information about the sizing of TREX, see the Quick Sizer tool. To access the information, proceed as follows:

1. Choose *Classic version* and create a new project.
2. In the project, choose the *How to fill in the questionnaire* link.
   In the *SAP Solution Manager* section, see the information about how to fill the questionnaire for TREX sizing.

For more information, see SAP Note 2196916 (*How to schedule cron job for merging delta indexes*) and SAP Note 2344042 (*How to execute python script check_esh.py*).

2.3.3 Front-End Clients

Clients are additional installable programs or tools. They either reside on local front-end PCs accessed by users, or on back-end systems where they are client programs within an SAP Solution Manager system landscape.

SAP Solution Manager requires the following front-end clients:

- Web browser
  For information on the Web browser supported by the SAP Solution Manager 7.2, see the Product Availability Matrix.
- SAP GUI FOR WINDOWS 7.40 CORE
  Can be downloaded from SAP Support Portal, under *SAP Solution Manager 7.2* > *Support user Frontend GUIs*.

Front-end clients and tools, which you might need in addition:

- Microsoft Office
- NETWEAVER BUSINESS CLIENT 5.0
- WILY INTROSCOPE WORKSTATION 9.7 or higher

The release you need, depends on the Introscope Enterprise Manager version you use. For more information, see SAP Note 797147.

2.4 Installation of SAP Solution Manager

The current support release (SAP Solution Manager 7.2 SR2) is based on SAP Solution Manager 7.2 SPS 12.

The standard procedure for new, green field installations of SAP product versions incl. SAP Solution Manager 7.2 is as follows:

1. Use Maintenance Planner to plan your new installation and to generate an XML that provides the input for the actual deployment tool.
2. Deploy SAP Solution Manager 7.2 on your host system using Software Provisioning Manager (SWPM), usually with Software Update Manager (SUM) in order to quickly reach the target stack of SAP Solution Manager 7.2.

SWPM can also be used straightaway, without reference to a Maintenance-Planner-generated XML, but it is better to use it together with Maintenance Planner, for example, because this also enables the convenient co-use of SUM. For more information, see the Maintenance Planner and Implementing a New System Installation using SWPM.

Use at least SWPM 1.0 SPS28. This enables you to update to the latest SPS of SAP Solution Manager smoothly, minimizing efforts with required SAP Note implementations.

To install SAP Solution Manager, see User Guides for System Provisioning with Software Provisioning Manager. You can filter according to database and operating system platform. For the product release, choose *SAP NetWeaver 7.X-based*.

You can start installation through the Software Download Center section of the Product Availability Matrix for SAP Solution Manager 7.2.

Install SAP Solution Manager as follows:

1. Plan ABAP and Java system installation with the Maintenance Planner.
   Alternatively, you can also try to directly install a current SPS (anything equal to or above SPS 9) by using SAP Note 2884721, followed by working through the Support Backbone Update Checklists.
   If you're installing SAP Solution Manager 7.2 after January 8, 2020 (the date SAP switched off its legacy connectivity infrastructure - see SAP Note 2874259) you may have to use workarounds. These are described in SAP Note 2287046 or SAP Note 2855951.
   These workarounds enable you to upload system data to the maintenance planner when patching up through the support packages until you reach at least SPS 5 (SPS 8 for VAR scenarios) where you can reestablish connectivity to SAP by applying the Support Backbone Update Checklists.
2. Install the SAP Solution Manager 7.2 ABAP system with the `stack.xml` file generated by the Maintenance Planner and the latest Software Provisioning Manager (SWPM).
3. Install the SAP Solution Manager 7.2 Java system with the `stack.xml` file generated by the Maintenance Planner and the latest SWPM.
4. Establish a connection between the installed ABAP and Java systems.
5. Connect the managed systems with SAP Solution Manager using the SAP Solution Manager Configuration (transaction SOLMAN_SETUP).

For more information about the installation process, see SAP Solution Manager - Implement.

The SAP Solution Manager installation steps are listed in the following table.

The customer organizational roles for this process include Application Management (`AP`), SAP Technical Operations (`TEC`), and the IT Infrastructure (`IT`) organizations. These roles correspond to those described in the SAP standards for solution operations, at https://support.sap.com/supportstandards.

Step	Description	Details	Relevant Processes	Role
1	Estimate hardware requirements for SAP Solution Manager 7.2.	See Sizing Your SAP Solution Manager [page 39] or the Quick Sizer.	All	AP, TEC, IT
2	Install SAP Solution Manager 7.2 ABAP system	For the **ABAP** system, use the guides for SAP systems based on the application server **ABAP** at Software Logistics Tools ▶ *System Provisioning* ▶ *Installation Option of Software Provisioning Manger 1.0* ▶ *Guide for Systems Based on SAP NetWeaver 7.1 and Higher* ▶.	All	
3	Install SAP Solution Manager 7.2 Java system	For the **Java** system, use the guides for SAP systems based on the application server **Java** at Software Logistics Tools ▶ *System Provisioning* ▶ *Installation Option of Software Provisioning Manger 1.0* ▶ *Guide for Systems Based on SAP NetWeaver 7.1 and Higher* ▶.	All	TEC, IT
4	Install SAP Library or setup an online connection to SAP Help Portal	See SAP Library [page 16].	All	AP, TEC, IT
5	Connect all managed systems to SLD or LMDB	See Registering Technical Systems Automatically by Data Suppliers and Handling Technical Systems' Data - System Landscape Directory. Update the content of SLD to the latest model and content version, see SAP Note 669669.	All	TEC, IT
6	Install Diagnostics Agent and SAP Host Agent on all managed systems, , implement missing software required on managed systems	See https://wiki.scn.sap.com/wiki/x/yoEtCg, Usage Types [page 10], and SAP Note 2248724 (Root Cause Analysis in SAP Solution Manager 7.2).	Root cause analysis	TEC, IT
9	Ensure Support Hub Connectivity	See Support Hub Connectivity.	Support Hub Connectivity	TEC, IT

Step	Description	Details	Relevant Processes	Role
10	Prepare System	Preparation of the SAP Solution Manager system in SAP Solution Manager - Configuration (transaction SOLMAN_SETUP) *Mandatory Configuration* > *System Preparation*). See also SAP Solution Manager Setup (SCN Wiki) and Configuring SAP Solution Manager [page 16].	All	TEC, IT

Since SAP Solution Manager is an integrated installation, it is not possible to update product instances independently. All product instances in the system are updated by support package stacks; it is not possible to update only parts of your SAP Solution Manager system. Some product instances may require additional licensing.

For more information, see the Landscape Management Database (LMDB) and the Maintenance Planner.

2.5 SAP Library

SAP Library is an HTML-based solution for documentation. It provides the basis for context-sensitive application help. The SAP Library can be displayed in a Web browser on all front-end platforms supported by SAP.

For more information about SAP Solution Manager, access the SAP Library from one of the following locations:

- Online, in the SAP Help Portal:
  Select the required release and support package stack as well as the language.
- To set up the documentation in your system landscape, you have the following options:
  - Set up an online connection to the documentation (recommended)
  - Install the documentation package on-premise.

  For information on both options, see the installation guide for SAP Library.
  Select the appropriate guide and first read the chapter *Variants of SAP Library*.

2.6 Configuring SAP Solution Manager

When you have installed the software components, you can perform the configuration centrally from the managing system, depending on your requirements (with the exception of the agent installation and the post-configuration activity, which both require OS access).

The following table describes the configuration steps:

Step	Description	Details	Access to Operating System Required	Relevant Processes	Role
1	Mandatory configuration in SAP Solution Manager	Perform the *Mandatory Configuration* step in *SAP Solution Manager Configuration* (transaction `SOLMAN_SETUP`). For more information, see the guided procedures related to this step.	No	All	AP, TEC
2	Set up managed system	Perform the *Managed Systems Configuration* step in *SAP Solution Manager Configuration*. For more information, see the guided procedure of this step. **Note** For the content activation of the *Solution Documentation*, there are the following additional minimal requirements: • `ST-PI 2008_1_700: SP 0008` • SAP Note 2127305 • SAP Note 1994934 • SAP Note 2083831	Yes	All	TEC
3	Configure the SAP Solution Manager processes	Configure the SAP Solution Manager processes you require, for example, Change Control Management, depending on your business processes.	No	All	AP, TEC, IT
4	Restart SAP Solution Manager and the managed systems	This is necessary for the Java systems (CA Introscope Enterprise Manager byte-code agent activation).	No	All	TEC
5	Check the implementation	Perform the *Managed Systems Configuration* step in *SAP Solution Manager Configuration*.	No	All	AP, TEC

2.7 Front-End Client Strategy

Front-End Client Strategy

When accessing SAP Solution Manager, there are several client options.

Web Browsers

SAP Solution Manager follows SAP's overall web browser strategy for desktop and mobile applications.

SAP GUI

SAP GUI is SAP's universal client for accessing SAP functionality in SAP applications such as SAP S/4HANA, SAP ERP, SAP Business Suite, and SAP Business Warehouse. SAP GUI functions like a browser. It gets information from the SAP server, such as what, where, when and how to display contents in its window. The members of the SAP GUI family have attributes to make them suited to different user environments. SAP GUI comes in the following three different flavors.

- SAP GUI for Windows
  SAP GUI for Windows is an implementation designed for the Windows operating system, providing a Windows-like user experience, and integration with other applications based on Object Linking and Embedding (OLE) interfaces or ActiveX controls.
- SAP GUI for HTML
  SAP GUI for HTML automatically maps the screen elements in SAP transactions to HTML, using HTML business functions in the SAP Internet Transaction Server. A web browser is sufficient to access almost all transactions.

SAP NetWeaver Business Client

The SAP NetWeaver Business Client (NWBC) is a rich desktop client. The SAP NetWeaver Business Client offers a unified environment for, and a single point of entry to, Web Dynpro applications and other SAP business applications and technologies.

Suited to run business application content through its multiple rendering engines, the SAP NetWeaver Business Client provides a solution for hosting classical dynpro/SAP GUI user interfaces (UIs), Business Server Pages (BSPs), portal pages, and other content. In addition to the basic capabilities detailed above, the SAP NetWeaver Business Client leverages its desktop footprint benefits, to provide highly integrated and attractive business applications, with high fidelity of user experience and operational quality.

Content Types for the NWBC

In addition to its multiple rendering engines, its unique protocols and its desktop capabilities described above, the NWBC incorporates generic desktop integration functions such as drag and drop, and dialog boxes, through the use of application programming interfaces (APIs). The result is an efficient, modern and appealing client environment, optimally embedding into the new rich client.

As mentioned previously, the NWBC offers different rendering engines to host different content types. These content types include:

- HTML web content
- Dynpro, BSP, SAP GUI content
- Web Dynpro content

2.8 SAP Solution Manager Client Strategy

SAP delivers a client with a standard configuration for SAP Solution Manager, as part of the installation process. Client 000 is the initial configuration client, and client 001 is provided for productive use. Additional clients can be created if desired.

3 Upgrade and Update of SAP Solution Manager

Software has to be maintained regularly, to ensure the smooth and reliable operation of a solution. This includes major updates, corrective packages (such as support packages or SAP Notes), software patches (such as kernel and database patches), and enhancement packages (EHPs) to activate new functionality without an upgrade.

As of SAP Solution Manager 7.2, the maintenance optimizer tool in SAP Solution Manager has been replaced by the Maintenance Planner. Here, you can visualize maintenance dependencies between technical systems, plan updates, upgrades, and new installations, and create download files that can be consumed by the installation tools. The maintenance planner uses the technical system information provided by SAP Solution Manager.

Scope and Effort Analyzer

With the scope and effort analyzer, you can analyze the scope of activities and test effort before you start the physical deployment of enhancement packages (EHP) and support packages (SP). The scope and effort analyzer provides you with a comprehensive analysis with minimal input. All analysis steps of the scope and effort analyzer are performed in the background after you have entered the necessary input data. With the scope and effort analyzer analysis results, you can determine the change impact on custom code and modifications and estimate the rework effort for custom code and modifications as well as the effort for regression tests of impacted business processes.

Upgrade to SAP Solution Manager 7.2

For detailed information on the upgrade from SAP Solution Manager 7.1 to 7.2 (which is the only possible upgrade option), refer to the Upgrade Guide.

Update from a Lower to a Higher Support Package

To update from a lower support package version to a higher one, see SAP Note 1595736.

To set up a new SAP Solution Manager system (green field approach), see Implementation [page 8].

For upgrades (from 7.1 to 7.2) and updates (from a lower to a higher support package within 7.2), you should use Maintenance Planner together with SUM. The SPAM/SAINT tool can also be employed, even without the Maintenance-Planner-generated XML, but this is not the recommended option. SAP Note 1803986 provides a comparison of SUM vs SPAM/SAINT.

Also note that the software logistics tools discussed above all have special features and extras that can be of interest to you. For example, SWPM also supports copy, rename, dual-stack split and uninstall, SUM can be used for database migration and Maintenance Planner for hybrid landscape visualization. For more information, see Software Logistics Tools.

SAP Solution Manager is a centralized application for planning, administration, and operation of a customer's SAP landscape. Therefore we do not recommend to copy SAP Solution Manager, because this may cause more effort and introduce unexpected negative side effects. If you must really copy your SAP Solution Manager and require assistance, open an incident on component `SV-SMG-INS-CFG`.

More Information

For more information about planning topics, relevant SAP Notes, and how to access the SAP Library, see SAP Library [page 16] and Useful Links and SAP Notes [page 72].

4 Maintenance Planner

Software has to be maintained regularly, to ensure the smooth and reliable operation of a solution. This includes major updates, corrective packages (such as support packages or SAP notes), software patches (such as kernel and database patches), and enhancement packages (EHPs) to activate new functionality without an upgrade.

As of SAP Solution Manager 7.2, the maintenance optimizer tool in SAP Solution Manager is replaced by the maintenance planner in SAP Support Portal, at https://apps.support.sap.com/sap/support/mp. Here, you can visualize maintenance dependencies between technical systems, plan updates, upgrades, and new installations, and create download files that can be consumed by the installation tools. The maintenance planner uses the technical system information provided by SAP Solution Manager.

Innovation Discovery and Transformation Navigator

The maintenance planner is integrated with tools used for planning changes on a functional level: It provides data of the current landscape to the transformation navigator and links updated versions to descriptions in the innovation discovery tool.

Scope and Effort Analyzer

With the scope and effort analyzer, you can analyze the scope of activities and test effort before you start the physical deployment of enhancement packages (EHP) and support packages (SP). The scope and effort analyzer provides you with a comprehensive analysis with minimal customer input. All analysis steps of the scope and effort analyzer are performed in the background after you have entered the necessary input data. With the scope and effort analyzer analysis results, you can determine the change impact on custom code and modifications and estimate the rework effort for custom code and modifications as well as the effort for regression tests of impacted business processes.

5 SAP Solution Manager System Landscape

This chapter contains information about how to plan the system landscape for your SAP Solution Manager.

5.1 How Many SAP Solution Manager Systems?

For tight functional integration, we recommend running all processes on the same SAP Solution Manager system. The SAP Solution Manager functionality (such as change request management, root cause analysis) should be executed on one system. This is because it is best to have all solution information (systems, business processes) and documents (incidents, issues, change requests) accessible to the entire support organization, for the most efficient management of the production solutions.

Some productive managed systems should also be connected to the quality SAP Solution Manager or development SAP Solution Manager, for testing purposes.

In some customer situations, however, multiple productive SAP Solution Manager systems have been used with complete segregation of business units. This approach may restrict the collaboration between these business units. Some customers have implemented separate solutions (as defined in SAP Solution Manager Process Management [page 63]) for their business units, which allows for more open sharing of process and message information between business units, while still providing security through authorizations.

You can run SAP Solution Manager as a separate instance on the same hardware as other SAP systems.

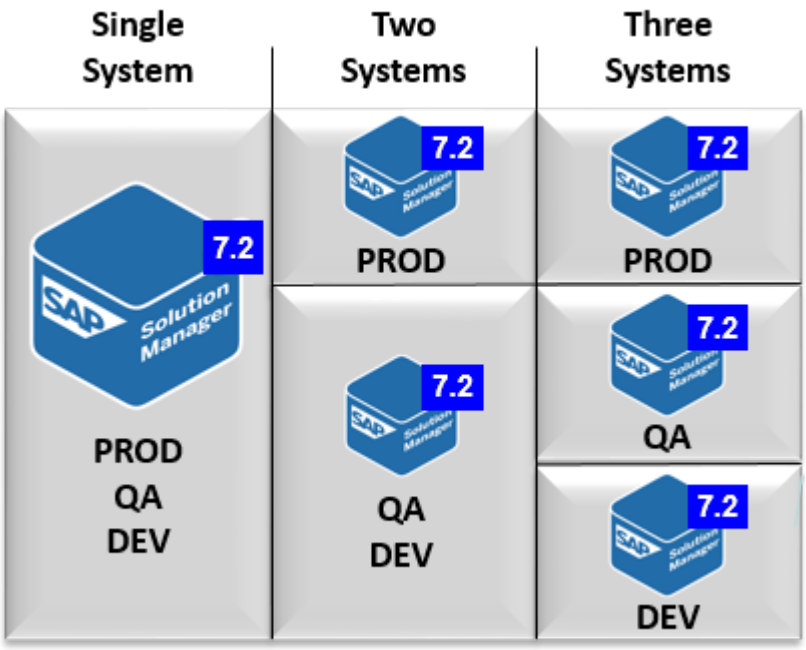
When you run SAP Solution Manager, you gather information about your system landscape and enrich this data in the landscape management database (LMDB). Using the Maintenance Planner [page 22], it is mandatory to upload system data to SAP Support Portal, so that landscape changes can be planned.

Therefore, you need to plan the topology of SLD, SAP Solution Manager, and the connection to the customer data in the customer profile: How many SLD and Solution Manager systems do you need and how can the system data be distributed?

More information:

- Importing Landscape Data, CIM Model, and CR Content to the LMDB
- Landscape Management Process (SAP Support Portal)
- Data and Topology of SLD, LMDB, and Customer Profile – How to Get Reliable Landscape Data in SAP Support Portal as a Basis for Planning (SAP Community)
- Uploading, accessing, and trouble-shooting system data in the customer profile used for planning changes in your IT Landscape (SAP Community)

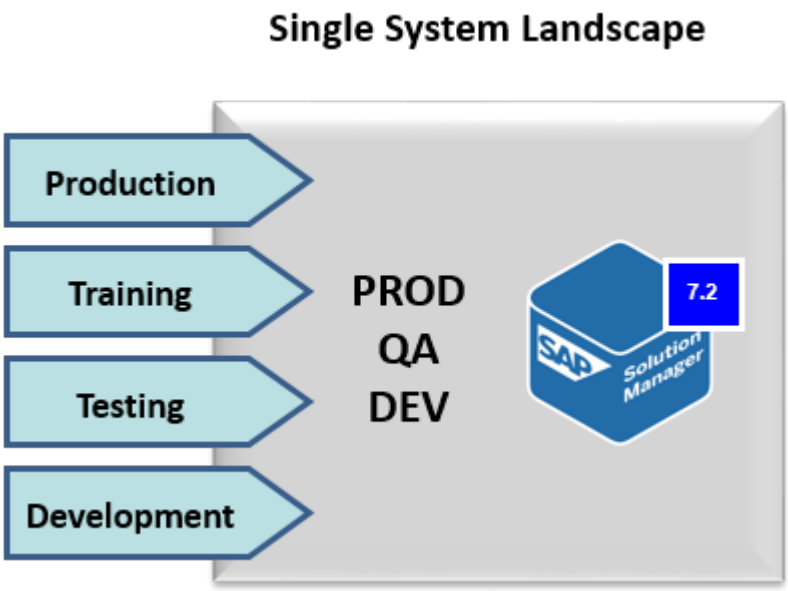
This section describes the pros and cons of having one, two, or three systems in the SAP Solution Manager landscape.



Three Options for the Landscape: a single SAP Solution Manager system for production, test, and development systems, or two systems (one for production and one for test and development), or three systems (one for production, one for test, and one for development).

In a single-system landscape, all roles are hosted on the same system. For a two-system landscape, development (DEV) and quality assurance/test (QA) functions are on one system, and production (PRD) on another. In a three-system landscape, each role has its own system.

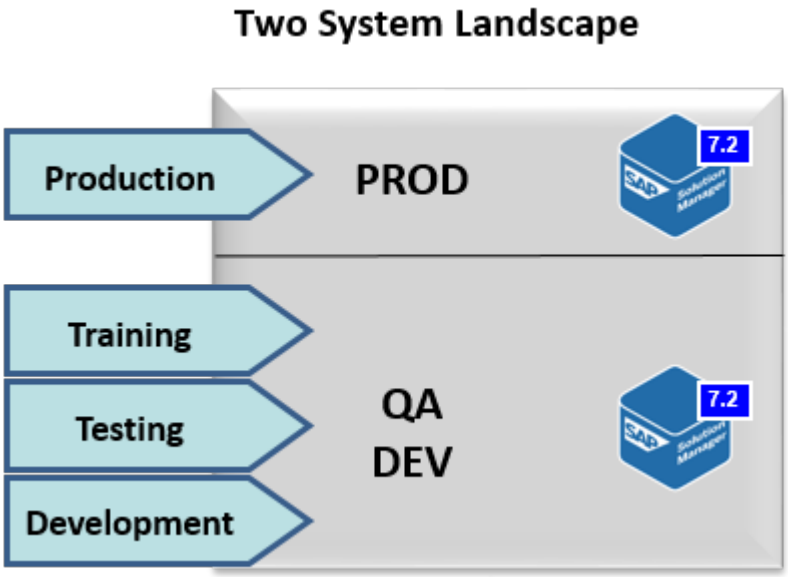
Single-System Landscape



Single-System Landscape

In this constellation, development, testing and production operations all run in parallel in one system. The advantage of this is mainly in the reduction of hardware and support costs, and that existing hardware can be used, but it does involve some serious problems and risks. With all activities occurring in one system, all customizing and development is done in the production system, and new support packages and SAP Notes are applied directly in production. Testing and training also take place in the production system. SAP Solution Manager does not support the client concept (as many functions are cross-client), so test and training data are mixed with production data, and there is a high risk of conflicts.

Two-System Landscape



Two-System Landscape

The two-system landscape constellation overcomes some of the risks inherent in the single-system option, by segregating production from the test and development environments. Testing and training are now separated from production, resulting in the separation of test and training data from production data. New requirements, optimization tasks, and support packages and SAP Notes, are also created in the development environment first. This approach leads to a more stable system, and provides a higher-quality support infrastructure for the customer.

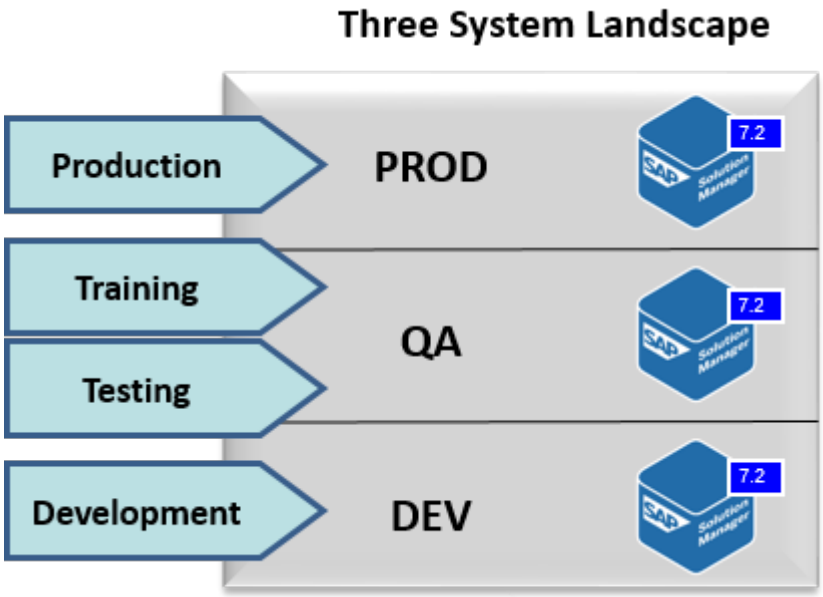
The drawbacks of this option are that testing and training activities take place in the development system. Since SAP Solution Manager does not support the client concept, it is not possible to completely separate development activities and data from testing and training activities.

Example

A sample scenario in which a two-system landscape would be sufficient:

- No significant development, testing and training activities occur at the same time in the combined DEV/QA system
- Only few modifications to SAP standard
- A limited number of concurrent users on the DEV/QA system

Three-System Landscape



Three-System Landscape

In this constellation, all development, training, test, and productive activities, and their data, are fully separated, in dedicated systems.

This option presents the least risk, as all activities can be performed in parallel in their respective systems. New development is separated from the test and production environments. Production system downtime is minimized, so the SAP Solution Manager system has higher availability and stability. We recommend this constellation for **all** SAP systems, if the business processes are used daily. SAP Solution Manager is normally used for projects, monitoring, testing, change management, and other key lifecycle management activities, and so meets this criterion. If the customer uses processes such as change request management, or makes a lot of customizing changes to SAP Solution Manager, a separate test system is essential, to validate these changes. For more information, see SAP Note 952859 (System infrastructure recommendation: Change Request Management).

The downside of this constellation is higher infrastructure and administration costs.

> ⓘ Note
>
> With the two and three-system options, the production systems change setting should be *no changes permitted*.

Additional Landscape Information

This section gives an overview of the steps required to determine your technical system landscape for SAP Solution Manager.

1. Determine the SAP Solution Manager processes that you want to implement.

2. Determine which installable software units (systems with product instances, standalone engines, and clients) are required for these processes.
3. Determine your system landscape by deciding how many systems you require and how you want to use each of them. You should use three-system landscape for mission-critical processes.
4. Together with your hardware partner and technical consultant, map the required systems and stand-alone engines of SAP Solution Manager to hosts.
5. Implement your SAP Solution Manager system landscape.

5.2 Landscape Data in SLD and LMDB

SAP Solution Manager interacts with many other SAP systems and components to provide its lifecycle management functions. For example, data from managed systems, such as performance metrics and incidents, is sent to SAP Solution Manager. This information can be forwarded to SAP Global Support Backbone for analysis or incident resolution. Incidents are handled in the SAP CRM component; monitoring, business intelligence, and root cause analysis use SAP NetWeaver functions. This interoperability allows SAP Solution Manager to leverage existing SAP functions for day-to-day lifecycle management tasks.

System Landscape Directory (SLD) and Landscape Management Database (LMDB)

Many functions in SAP Solution Manager, like monitoring and alerting, diagnostics, and system maintenance, need up-to-date landscape data. The main landscape management tools are the SLD, which gathers system data from the landscape and hands it over to its client applications and to SAP Solution Manager, and the LMDB in SAP Solution Manager, which works on that landscape data to enable monitoring, maintenance etc.

- **Remote SLD** (optional)
  The technical system data is collected by self-registration of technical systems in a central, remote SLD. As of SAP Solution Manager 7.2 SPS 6, the LMDB can directly process the data supplier information on its own, **without an SLD** as the source.
  The SLD contains information on installable software (updated from SAP Support Portal) and technical system data, mostly sent by these systems using data suppliers. Additionally, data such as Business Systems for SAP Process Integration is created manually in the SLD.
  The minimum SLD versions are listed in SAP Note 2175739.
  For new installations of SAP Solution Manager, an SLD is no longer mandatory. Data suppliers can send their information directly to the LMDB. Also the SAP CIM model and SAP CR content can be imported directly and automatically to the LMDB. For more information, see Using the LMDB in SAP Solution Manager without SLD [page 31].
- **LMDB**
  The data from the SLD is replicated into the LMDB of SAP Solution Manager. The LMDB is a central, built-in repository for all SAP Solution Manager applications that access landscape data. It shares the CIM model with the SLD via the full automatic content synchronization mechanism, so that all data provided by the SLD including the model and SAP CR content is replicated into LMDB, without user interaction. Data can be enriched manually in the LMDB. Applications which use this data include SAP Solution Manager Diagnostics and PI Monitoring.

The LMDB retrieves data from a source SLD via full automatic content synchronization.

More information:

- Setting Up the Landscape Management Infrastructure
- *Planning* under System Landscape Directory

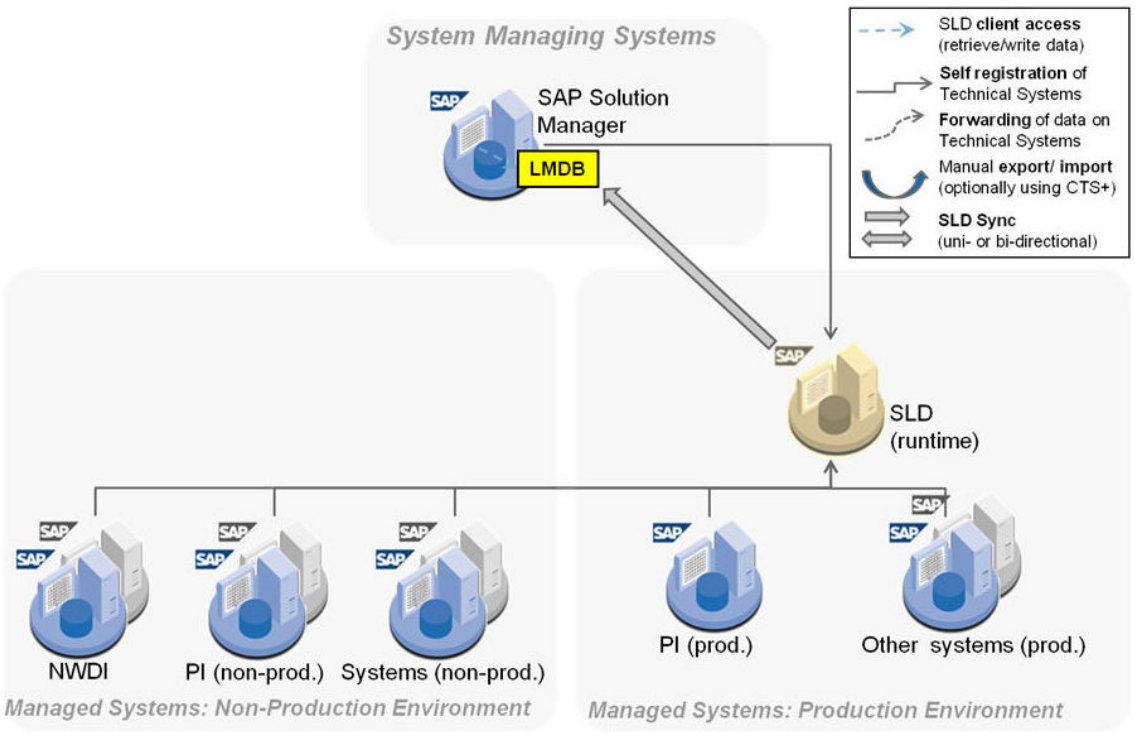
Manual Creation of Landscape Data

Do not manually create system landscape data in SAP Solution Manager if SLD data suppliers are available. Best practice is a central SLD in which all systems register themselves, directly or indirectly, via another SLD. This SLD can forward technical system data to other SLDs. For further details, see *Planning* under System Landscape Directory.

Connect the central SLD which gathers the technical system data as the source of the LMDB, to SAP Solution Manager. All SLD data is synchronized to LMDB automatically.

For new installations of SAP Solution Manager, an SLD is no longer mandatory. Data suppliers can send their information directly to the LMDB and also the SAP CIM model and SAP CR content can be imported directly and automatically to the LMDB. For more information, see Setting Up the Landscape Management Infrastructure.

Landscapes with SAP NetWeaver PI or Web Dynpro Java Applications



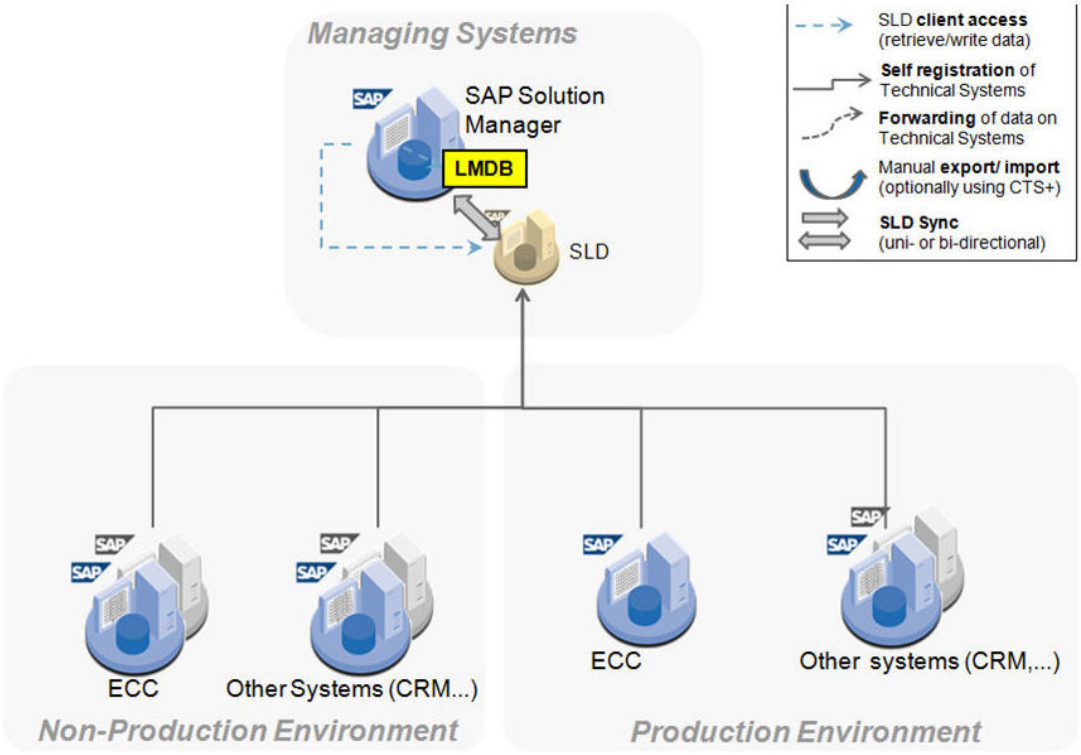
Using Several SLDs in a Landscape

If several SLDs are in use as a target for data suppliers, their landscape information can be forwarded to a central SLD, and then to SAP Solution Manager. This forwarding has to be configured manually for each productive system.

Using the Local SLD in SAP Solution Manager

As of SAP Solution Manager 7.2, the LMDB replaces the functions of the local SLD in SAP Solution Manager. Use the local SLD only if there is no central SLD outside SAP Solution Manager with which LMDB communicates.

For landscapes with **no** productive Java stack outside SAP Solution Manager (as would be the case for PI and Web Dynpro Java), implementing the SLD in SAP Solution Manager's own Java stack would be an alternative to connecting all SLD data suppliers:



Using the LMDB in SAP Solution Manager without SLD

It is possible to register the managed system landscape directly in the SAP Solution Manager LMDB without the use of an SLD. This approach can make sense if the sole purpose of the SLD in your landscape is to provide the landscape data information for SAP Solution Manager.

> ⓘ Note
>
> This approach is not recommended if there is any other component in your system landscape that requires the SLD, such as an SAP NetWeaver PI. In this case, see *Landscapes with SAP NetWeaver PI or Web Dynpro Java Applications* for more information.
>
> To avoid ambiguity about the existing components in your landscape, it is not recommended to register some systems in an SLD and other systems directly in the LMDB. The LMDB does not support data supplier forwarding to the SLD. Hence, this setup would lead to inconsistent landscape information between the SLD and the LMDB.
>
> The LMDB-only setup is only supported for new SAP Solution Manager installations. Migration from an SLD-based infrastructure to an LMDB-only setup is not supported.

Software Lifecycle Manager (SLM)

The Software Lifecycle Manager in SAP Netweaver simplifies software logistics tasks (such as the installation of support packages) in your system landscape, by providing services to SAP Solution Manager, which helps to manage the life-cycle of your SAP solutions and products.

Business Warehouse (BW) Strategy

BW provides important reporting functions, such as system and service level reporting, and change analytics, to the various SAP Solution Manager processes. There are three main ways of using BW in your system landscape:

- BW in the Productive SAP Solution Manager Client:
  In this scenario, BW is used in the same productive client as SAP Solution Manager. This makes configuration simpler, and isolates the BW activities for solution life cycle management from the data on a production BW instance. This is the SAP recommendation.
- BW in a Separate Client on SAP Solution Manager:
  In this scenario, BW activities are performed in a separate client on the SAP Solution Manager system. This scenario provides increased security, as user access is more restricted. However, you must maintain users separately, and this increases your administration effort. There is no technical benefit.
- BW in a Separate BW System:
  This scenario is no longer supported.

SAP NetWeaver Development Infrastructure (NWDI)

The SAP NetWeaver Development Infrastructure (NWDI), together with the SAP NetWeaver Developer Studio, provides a complete Java development environment for developers, administrators, quality managers, and testers. Occupants of each role find everything they need for the software creation process in NWDI's central services. The main benefit for developers of working in a central development environment, is having direct access to all development objects for the specific project, in the correct version, including both sources and archives, pre-defined or recently created. For administrators, the centralized approach means they can set up and control different development projects in one application. For the quality manager, changing the state of the test environment follows a well-defined process.

SAP Solution Manager does not have direct integration with NWDI, but objects created in NWDI can be put in transport requests, which can be tracked and released by the change request management scenario of SAP Solution Manager.

5.3 Reference System Landscapes

You have to decide which system landscape directory (SLD) you want to use as your central SLD and which SLD you want to use to synchronize with the landscape management database (LMDB) in SAP Solution

Manager. In some cases you need to decide which system roles in the landscape (DEV, QA, PROD, etc.) are to be connected to which SAP Solution Manager system (if you use several SAP Solution Manager systems).

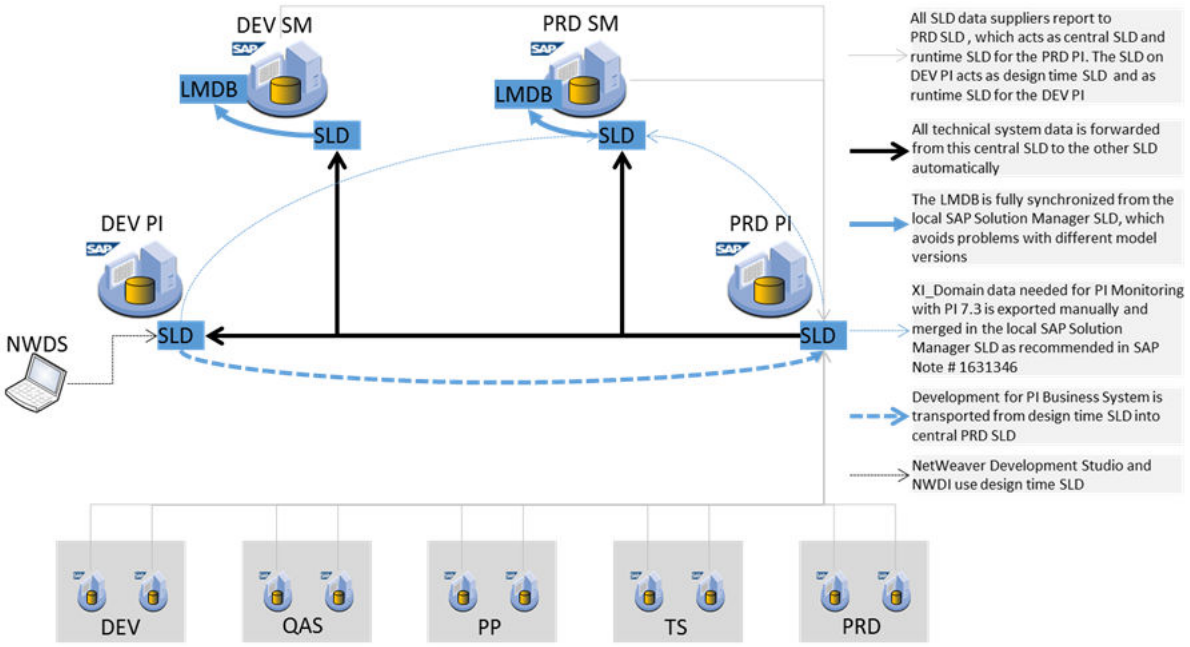
> **Note**
>
> For new installations of SAP Solution Manager, an SLD is no longer mandatory. Data suppliers can send their information directly to the LMDB. Also the SAP CIM model and SAP CR content can be imported directly and automatically to the LMDB. For more information, see Setting Up the Landscape Management Infrastructure.

Planning the SLD Landscape

SAP Solution Manager always needs up-to-date SLD information to keep the LMDB up-to-date. The landscape information in the LMDB is the basis for almost all SAP Solution Manager functionality, but especially for tools like the maintenance optimizer, you need to make sure that your landscape information is not outdated. So the SLD must be regularly updated for SAP Solution Manager.

- If you run other Java systems in your landscape (for example, if you are using SAP NetWeaver Portal, PI, Web Dynpro, SAP Employee Self-Service or SAP Manager Self-Service, in your SAP ERP 6.0 application) these applications need a runtime SLD to perform their activities.
- To synchronize with an SLD, the LMDB requires a minimum version of the CR content and CIM model in the SLD. If this content is too old, LMDB sends warnings and prompts you to update the CR content. Depending on which SLD synchronizes with which LMDB, this can be a problem. As mentioned before, several Java applications need an SLD to run at all times, to perform their activities, (such as SAP PI), so a CR content update might not be possible without extensive maintenance planning.
- To avoid conflicting information (e.g. if one system moves from one SLD to another), use one central SLD in which all systems in the landscape register. The technical system information in all SLDs should be synchronized by SLD bridges.

The graphic below shows a possible set-up with the recommended, central SLD. Still, the LMDB synchronization is uncoupled from the central SLD, to avoid dependencies between the CR content requirements on LMDB and the productive Java-based systems.



Customer landscape containing other Java components

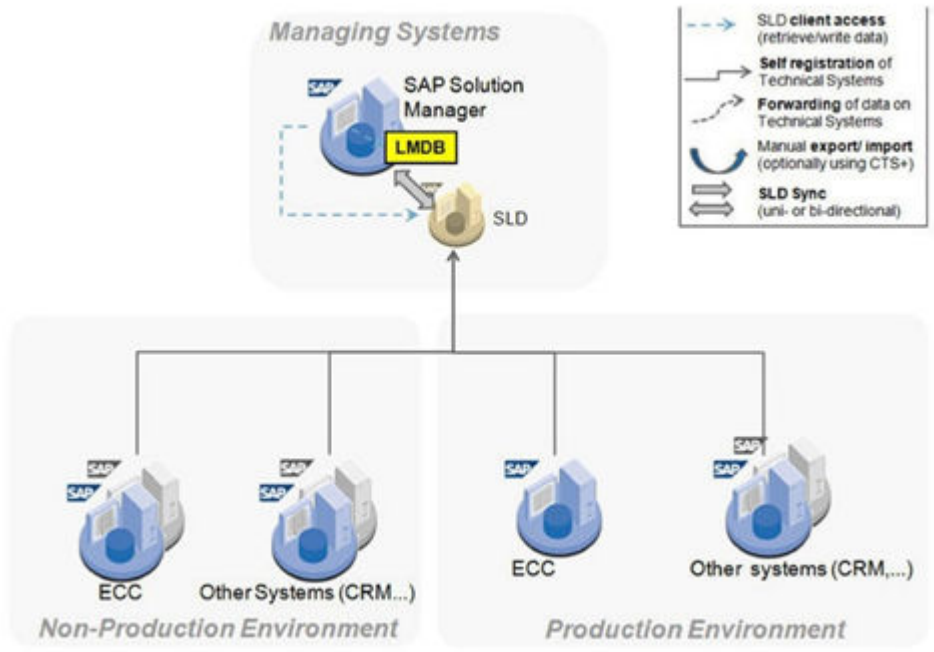
The central SLD doesn't need to be the SLD of the productive SAP PI system. It can also be a stand-alone Java system, or any other Java system in your landscape. By using the local SLD of SAP Solution Manager, you decouple the CR content requirements of the LMDB from the required CR content version for the productive Java landscape. CR content is usually downward-compatible, but even though updating CR content (SAP Note 669669) is usually save, something could still go wrong. So you need to plan the maintenance of your productive SLD carefully.

The SAP Solution Manager itself can still work if the SLD is offline for a short time. It shouldn't be a permanent state, but the SAP Solution Manager is much less dependent on the SLD than an SAP PI system would be. So if the customer patches the CR content of SAP Solution Manager local SLD to accommodate the requirements of LMDB, this is less risky. As mentioned before, the CR content should be downward compatible, so having a newer content version in SAP Solution Manager than in the central SLD has no negative impact on the SLD bridges from central SLD to SAP Solution Manager.

Special Case: Pure ABAP Landscape

In the rare case that you run a pure ABAP system landscape, deciding which SLD to use is simple.

The ABAP-based systems still need to be defined in SAP Solution Manager, so you still need an SLD in the landscape. However, the SLD can be installed on the SAP Solution Manager system itself because no other systems have dependencies with the SLD.



Customer landscape with ABAP systems only

Large Customer Landscapes

Large customers, who have large and distributed landscapes, administered by different groups, or separated for security reasons, can distribute their operations. In contrast to the centralized landscape for small and midsized customers, large customers can put parts of their central management functions on extra hosts or systems, for performance or policy reasons.

- You can set up an extra system or client for Central User Administration (CUA).
- The Change and Transport System (CTS) can be run on an extra system, although it is not performance or data-intensive.
- You can put CA Introscope Enterprise Manager on a separate host, and also set up a scale-out Manager-of-Managers (MoM) scenario.
- The other considerations described above for small and medium customers (such as the setup of the SLD) also apply to large customers.

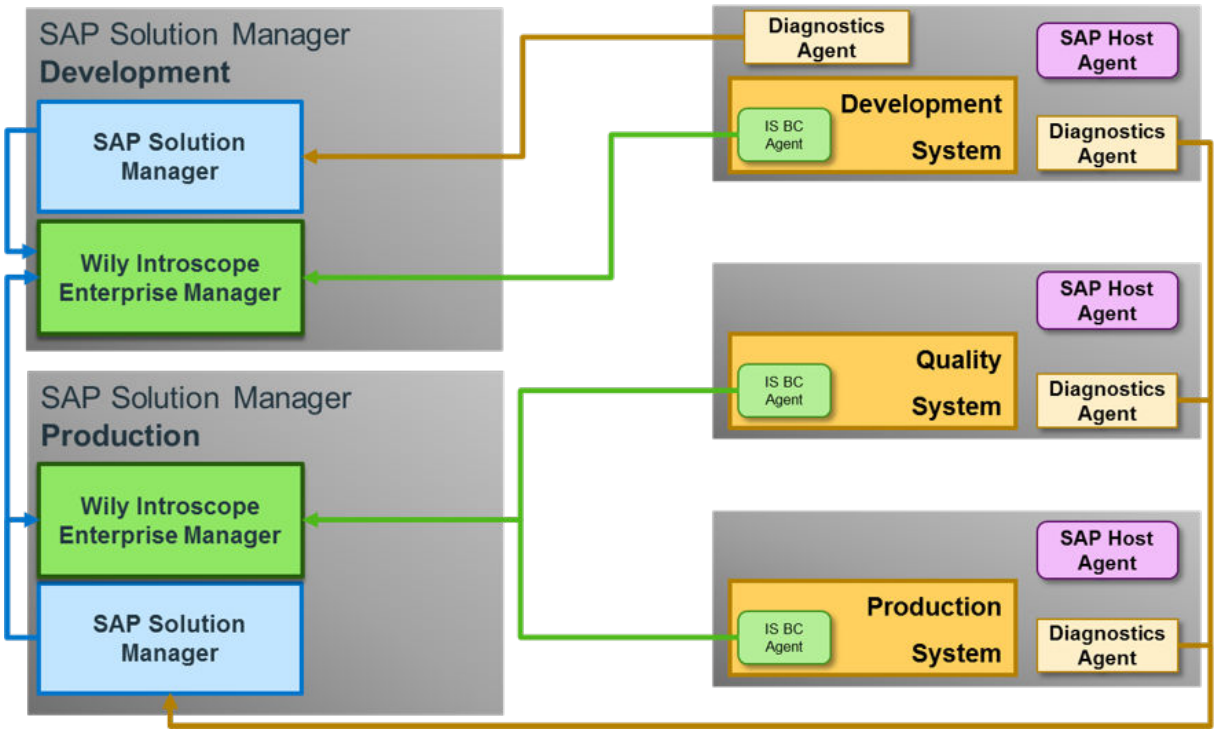
Connecting Managed Systems to SAP Solution Manager

In a multi-SAP-Solution-Manager-system landscape, you can connect a managed system landscape to SAP Solution Manager, and still ensure the following:

- All cross-landscape scenarios, like change diagnostics, configuration validation etc., are supported.
- You still have systems in their development and quality SAP Solution Manager to test changes made to the system (SAP Note implementation, support packages, or configuration changes).

> **Note**
>
> Main principle for connecting systems to SAP Solution Manager:
>
> All managed systems, DEV, QA or PROD, should be connected to the productive SAP Solution Manager system. Additionally, some selected managed DEV or QA systems should also be connected to the development and quality SAP Solution Manager system(s), for development and testing purposes.

The following diagram shows this principle at the example of a two-system SAP Solution Manager landscape:



Two system SAP Solution Manager landscape

Only this setup ensures that change diagnostics and configuration validation, in which you can compare the configuration of different systems, work correctly.

The main job of a PROD SAP Solution Manager is to manage the system landscape, and this means the whole landscape, not only the productive part of it.

The additional connection of the managed systems in the DEV and QA landscape to the DEV and QA SAP Solution Manager is required to ensure that changes in the SAP Solution Manager system can be tested. Particularly if you use SAP Solution Manager as the central monitoring system for the whole landscape, you don't want to jeopardize this by implementing anything directly in production. You don't have to connect the whole DEV and QA landscape, but only some selected systems that allow you to test all used scenarios.

The second connection has to be established by installing a second set of diagnostics agents on the servers of the DEV and QA systems that are also connected to the DEV and QA SAP Solution Manager.

5.4 Agents

The root cause analysis and system and application monitoring scenarios in SAP Solution Manager are based on a central agent infrastructure on each managed system.

Diagnostics Agents on Managed Systems

The SAP Solution Manager Diagnostics Agent (Diagnostics Agent) is the remote component of the diagnostics infrastructure in SAP Solution Manager. It uses a connection between SAP Solution Manager, as the managing system, and the managed systems, to gather information. This information from the managed systems is then reported to the SAP Solution Manager system for analysis.

> **Note**
>
> In cases where the SAP or third-party systems to be managed have been set up using virtual host names, **install one Diagnostics Agent instance per virtual host name**, not per physical host.

For all agents reporting to one SAP Solution Manager system, use the same SID (by default: `DAA`, for the first agent installed on a host) and the same administration user (by default: `daaadm`). This is because if the agent relocates (clustered environments), the connection of the Diagnostics Agent to the SAP Host Agent is authenticated with the user name. The password of the Diagnostics Agent administration user should be same on all hosts, for support reasons.

If you want to connect an SAP system to more than one SAP Solution Manager, install one Diagnostics Agent for each SAP Solution Manager system on all virtual hosts of the system to be managed. E.g. DAA reporting to SM1, DAB reporting to SM2.

More information on the Diagnostics Agent:

- https://wiki.scn.sap.com/wiki/x/eYYqCw
- SAP Note 1365123
- SAP Note 1858920 (Diagnostics Agent installation with SWPM

Install a Diagnostics Agent on each physical or virtual host and use the “Agents-on-the-Fly” option to deploy agents on all additional IPs (logical hosts) of these hosts dynamically. The agent installation is part of the *Software Provisioning Manager* (SWPM).

Use at least SWPM 1.0 SPS28. This enables you to update to the latest SPS of SAP Solution Manager smoothly, minimizing efforts with required SAP Note implementations.

SAP Host Agents on Managed Systems

The SAP Host Agent supports several processes for software lifecycle management in an SAP system, such as monitoring and administration. The main tasks of the SAP Host Agent are monitoring and management on operating system level. It runs once per host, and is the data provider to several SAP monitoring and management solutions.

The SAP Host Agent provides access to the following resources:

- Usage of virtual and physical memory
- CPU utilization
- Utilization of physical disks and file systems
- Resource usage of running processes
- OS and DB information
- Log file monitoring

Some of the web services that provide access to resources used by SAP Solution Manager are protected for security reasons. Therefore, establish a trusted connection between the Diagnostics Agent and the SAP Host Agent, by adding the user name of the Diagnostics Agent to a profile parameter of the SAP Host Agent. It needs to be done for each physical host.

See the documentation under *SAP Solution Manager Configuration* > *Mandatory Configuration* > *Infrastructure Preparation* > *Setup Connectivity*.

> **Note**
>
> Set up the auto-update function of the SAP Host Agent, as described in SAP Note 1473974.

5.5 Support Backbone

The support backbone is the infrastructure that SAP uses to provide you with technical support. Your systems connect to the support backbone to exchange information, such as support incident data, maintenance planner data, and SAP EarlyWatch Alert data.

Due to the increasing demand placed on the support backbone, SAP has recently updated the infrastructure so that it can continue to provide you with the support you require. As part of this process, the way in which systems connect to SAP has been redesigned to include the following changes:

- The HTTPS protocol is now used instead of RFC.
- A technical communication user handles the data transfer instead of generic users.
- There is no generic inbound interface.
- Applications send data asynchronously unless the data is sent manually.

The legacy support backbone infrastructure running in parallel to the updated support backbone will be turned off on January 1, 2020. Therefore you must have prepared your SAP Solution Manager for SAP's support backbone update prior to that date. In SPS 11 this can be achieved by following the instructions in SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`) *System Preparation* > *Set Up Connections to SAP*.

For more information, see the Support Backbone Update Guide. This guide provides additional information about preparing managed systems for the support backbone update.

5.6 Supporting Multiple Customers

SAP Solution Manager is flexible enough to support multiple customers at the same time, as in a value-added reseller (VAR) scenario. When creating solutions for VARs, a separate solution be created for each customer. This allows the VAR to restrict access to the customer data and isolate each customer's projects and monitoring information. When connecting customer systems to SAP Solution Manager, you can use more than three characters for system IDs (SIDs). This prevents conflicts, for example, if the customers being supported all have production (PRD) systems in the VAR's SAP Solution Manager system.

IT Service Management for SAP Solution Manager can also support multiple customers, and dedicated network connections to SAP allow each customer's incidents to be forwarded to the support backbone for processing.

For more information, see SAP Support Portal, at http://support.sap.com/solutionmanager and https://support.sap.com/en/alm/partners/service-providers.html.

5.7 Sizing Your SAP Solution Manager System

One of the key issues that you must address for your SAP Solution Manager system, at an early stage, and throughout the product lifecycle, is the system resources required. The sizing of your hardware is a precondition for good performance. Sizing is the determination of the hardware requirements of your SAP Solution Manager system. This depends on which processes you want to use and on the data load for the system. Your SAP Solution Manager system needs to be able to handle peak loads, and to behave predictably, as it is your key solution lifecycle management platform. For sizing and performance, the database and application layers (services, for example dialog, update, and batch) are the most important for CPU, main memory and disk space. This depends largely on the processes you use and the number of users.

To size your SAP Solution Manager system as part of a Greenfield approach, proceed as follows, depending on your situation:

Greenfield installation

If this is a new installation of SAP Solution Manager, use Quick Sizer. For more information on initial sizing, see the sizing information for SAP Solution Manager (classic) and for SAP Solution Manager (SAP HANA). Check out the project samples for the classic version (*SOLMAN V42 F*) and the SAP HANA version *(SOLMAN V246 F*). To do this, go to Quick Sizer and choose either *Classic version* or *HANA version*.

5.8 Archiving and Backup Strategy

SAP Solution Manager has limited archiving functionality. Service sessions such as SAP EarlyWatch Alert Reports and Service Level Reports can be archived, if necessary. SAP Note 546685 *(Archiving in Solution Manager (operation))* describes the archiving process in SAP Solution Manager for operations activities.

Even though SAP Solution Manager does not include a comprehensive archiving function for most processes, you can still minimize database growth. Before any data is deleted, however, you must consider whether there

is any other way to preserve it, for example putting the objects in a transport, or moving them to a separate file server.

Business Partners

Invalid business partners can be deleted with transaction BUPA_DEL if they are not already assigned to a service transaction.

BW Data

Data loaded from SAP Solution Manager into the BW system (SAP EarlyWatch Alert Reports, SAP EarlyWatch raw data, system and application monitoring data, LMDB data, root cause analysis data, business process monitoring data) can be deleted using the standard process in the BW system. For data such as the root cause analysis, automatic housekeeping handles the metrics collected hourly, and aggregates and deletes data after 30 days, and data collected in minute intervals after 24 hours. For System, Test Workbench and Incident Management reporting, this default can be changed.

CA Introscope Enterprise Manager Data

If the root cause analysis in SAP Solution Manager is used, it must be backed up separately. Since CA Introscope Enterprise Manager does not have its own backup method, the folder /usr/sap/ccms/apmintroscope on SAP Solution Manager must be backed up regularly.

In addition, the following folders should be backed up regularly:

- ../data contains the data collected by the agents
- ../traces contains the trace data

6 Security

Information about user management and authorization that is relevant for SAP Solution Manager is described in the following security-relevant guides for SAP Solution Manager:

- Authorization concept security guide
  Contains all information on the security mechanism used in SAP Solution Manager and the concept of authorizations
- Secure configuration guide
  Contains all information on security and authorizations and users for setting up the system landscape and SAP Solution Manager
- Application-specific security guide
  Contains all security and authorization information relevant for applications within SAP Solution Manager

For more information, see the security guides under SAP Solution Manager - Implement.

SAP Solution Manager uses the user management and authentication mechanisms provided by the SAP NetWeaver platform, in particular the SAP Web Application Server ABAP. If you use diagnostics in SAP Solution Manager, the user management and authentication mechanisms provided by the SAP Web Application Server Java are also applied. The security recommendations and guidelines for user administration and authentication, provided in the security guide for SAP NetWeaver Application Server ABAP and the security guide for SAP NetWeaver Application Server Java, also apply to SAP Solution Manager. For more information, see the security guide at SAP NetWeaver 7.4.

Network and Communication Security

Network Topology

A well-defined network topology can eliminate many security threats based on software flaws (at both the operating system and application level) or network attacks, such as eavesdropping. If users cannot log on to your application or database servers at the operating system or database layer, there is no way for intruders to compromise the machines and gain access to the back-end system database or files. If they cannot connect to the server LAN (local area network), they cannot exploit well-known bugs and security holes in network services, on the server machines. The network topology for SAP Solution Manager is based on the topology of the SAP NetWeaver platform. The security guidelines and recommendations described in the security guide for SAP NetWeaver 7.4 also apply to SAP Solution Manager.

Remote Supportability

The following summary illustrates remote supportability with SAP Solution Manager. For an incident that has been sent to SAP, the service engineer must access the customer solution landscape, to perform root cause analysis. This connection is established from SAP to the customer environment, securely and reliably. The service engineer enters the customer environment at the defined central location, and can access the customer's SAP Solution Manager.

This single point of access already provides an overview of the entire landscape, and navigation in it. Information, such as log data or configuration data, is consolidated in SAP Solution Manager, for reference.

Applications in SAP Solution Manager provide a graphical user interface which presents the information in a uniform format and style, so that it is intuitive and easy to get to the relevant information and to the root cause of the problem.

Through this support infrastructure, the service engineer can observe the environment and display, and even download relevant information to solve the issue. He or she cannot make changes in the customer solution landscape.

There are several different connection types. The customer releases the required connection types once per system. The most important connection types are the following.

- SAP GUI-based connection
- HTTP Connect – URL access provides access to http-based applications
- Application sharing methods or access to operating system level and collaboration

For a list of all connection types, see Remote Support at SAP Support Portal.

7 SAP Solution Manager Applications

This chapter introduces all applications in SAP Solution Manager. For more information about each applications, see SAP Solution Manager 7.2 Processes and the Planning Landscape Changes - Best Practice Guide.

Disclaimer

The SAP Solution Manager applications and the processes they represent are just examples. Their behavior in your system landscape depends on your requirements, infrastructure, setup, and more.

7.1 Overview

SAP Solution Manager enables customers to manage their SAP and non-SAP applications in a better way. It allows to centralize, enhance, automate, and improve the management of the entire system landscape, thus reducing total cost of ownership. SAP Solution Manager also supports customers in adapting the landscape to new requirements, for example implementing new business processes.

SAP Solution Manager covers the entire application lifecycle:

- Identification and documentation of as-is critical business processes for SAP solutions, including partner components, custom code, and interfaces
- Identification of business needs, and preparation of realization via collaborative processes
- Alignment of new requirements with enhancements delivered by SAP and partners
- Specification of custom developments and documentation of code developed, definition of unit test requirements for custom code
- Configuration of project scope, adaptation of standard SAP process documentation to custom solution, definition of unit test requirements
- Definition of integration testing requirements and test scope, based on change impact analysis, development of automatic and manual test cases, management of testers, and comprehensive reporting of test progress and results
- Synchronize technical objects from the development to the production environment, across the technology stack
- Analysis of the potential impact of solution updates on key solution performance indicators, such as stability and performance
- Continuous control of mission-critical processes, interfaces, components, and jobs, based on business-driven key performance indicators (KPIs)
- Integrated solution-oriented incident management, from customer to SAP and partners, via the SAP Global Support Backbone, backed by service level agreements (SLAs)

- Technology-independent isolation of problems within a solution context, based on a unified SAP analysis framework
- Comprehensive management of SAP support services, from automatic alerting of service requirements, to delivery and follow-up, with a specific focus on continuous quality checks (CQCs) and support advice
- All capabilities for **end-to-end monitoring**, **alerting**, **analysis and administration of SAP solutions in heterogeneous system landscapes**. Lifecycle management of corrective software packages, from discovery and retrieval to test scope optimization and optional automatic deployment in the production environment
- Fully supporting the transition to SAP S/4HANA.

> **Note**
>
> For more information, see SAP Support Portal and the full documentation of the SAP Solution Manager.

7.2 SAP Solution Manager Launchpad

The SAP Solution Manager launchpad is the common entry point to SAP Solution Manager. The launchpad displays a home page with tiles, which can display live status indicators, such as the number of open tasks. Each tile represents an SAP Solution Manager function or application that the user can launch. This includes SAP Fiori apps for SAP Solution Manager, Web client UIs, and related information. The launchpad is role-based, displaying tiles according to the user's role.

The tiles on the home page are arranged in groups. You can personalize the layout of the home page, by grouping, moving, and removing tiles. You can also add, delete, rename, and reorder groups. To add tiles to groups, the launchpad provides a tile catalog, which displays all the tiles that are available to a user.

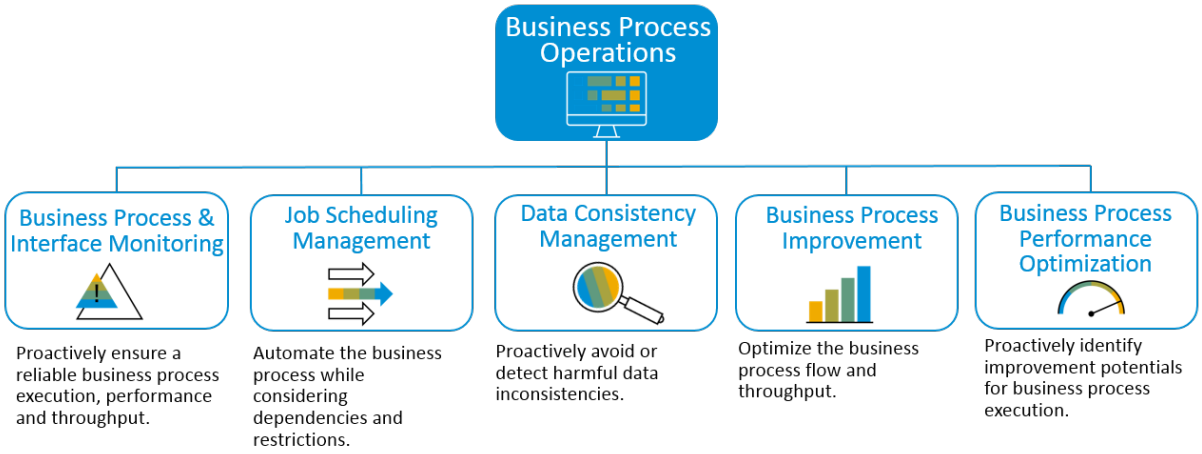
See also the following tutorials:

- Using the SAP Fiori Launchpad in the SAP Solution Manager
- SAP Fiori Launchpad in SAP Solution Manager – Creating Your Own Tile Catalogs, Groups, and Roles

7.3 Business Process Operations

The business process operations component covers all business process-related operations procedures. Instead of dealing with system-related issues such as high CPU utilization it deals with issues directly related to the execution of the core business processes, for example the long runtime of a business critical job or a high

document backlog in the business process execution. The business process operations component provides the following tools:



Requirements and Constraints

A solution containing the relevant systems should exist or be planned before you can use the business process operations tools in SAP Solution Manager. This can already be planned during the implementation phase, but the realization happens only when the installation is finished.

Business Process and Interface Monitoring

The business process and interface monitoring is used for the central automatic monitoring of a company's core business processes. According to the business requirements, critical situations in the business process execution are identified and automatically alerted. Alerts are handled by alert processors via an alert inbox and according to the assigned guided procedures and making use of the tool available for the alert details, for example the detail list displaying all objects that contributed to the alert. Alerts can be forwarded to the incident management process. Once an alert situation is solved, the respective alert can be confirmed

For more information, see the Business Process Monitoring Wiki on SAP Help Portal.

Job Scheduling Management

Job scheduling management manages your background operations centrally. It comprises several applications to establish standardized, formal processes in order to support the management of centralized end-to-end solution wide background operations. It can also be integrated with external scheduling tools.

Data Consistency Management

Data consistency management ensures correct and up-to-date data at all times. As business decisions are based on this data, data inconsistencies can lead to increased costs, and business processes that include

inconsistent data can lead to downtime of your solution, until the root cause is identified and the data is corrected. You can protect your daily business operations by preventing and detecting data inconsistencies, as early as possible, using defined error handling procedures.

For further information, see the Data Consistency Management Wiki on SAP Help Portal.

Business Process Improvement

Business Process Improvement for SAP solutions maximizes the value of the currently implemented SAP solution. You can identify inefficient and ineffective processes based on a given SAP data model, show deviations from known best practices, and more.

The basis for Business Process Improvement are 1.300 out-of-the-box key figures available as content for different SAP solutions. SAP solutions supported are SAP Business Suite, S/4HANA, industry specific add-ons, CRM and SRM. An up-to-date list of all key figures and supported SAP solutions can be found in the KPI catalog in the SAP support portal. Customer-specific enhancements can be realized via a customer exit framework.

For more information, see

- Business Process Improvement Overview (http://events.sap.com/teched/en/session/26544)
- Business Process Improvement Wiki (https://help.sap.com/docs/SUPPORT_CONTENT/sm/3518048222.html)

SAP Business Process Performance Optimization

The SAP Business Process Performance Optimization service analyzes and optimizes business processes by transactional performance. The service can be applied during the test phases of an implementation or upgrade project, and during the operation phase of the SAP solution. If you have problems like long response times, deadlines that are not met high system resources consumption or problems with transactions, the SAP Business Process Performance Optimization service will assist you.

Important links:

The complete documentation of Business Process Operations in the SAP Help Portal.

7.4 Custom Code Management

We support you in the management and optimization of your custom code and the individual enhancements to your SAP standard solutions. We provide numerous tools that you can use effectively as part of the custom code management process. Using these tools, you can analyze the usage of specific custom code and

enhancements in your systems, and thus have a complete overview of your custom developments. Based on the results of an analysis, you can identify the custom developments that are actually used, and structure and control them better using the functions provided by SAP Solution Manager. The main objective is to improve your technical system implementation, while reducing the quantity and potential impact of enhancements on other objects. This helps you achieve sustainable cost reductions regarding the operation and maintenance of your SAP system landscape.

The main custom code management capabilities are:

Custom Code Lifecycle Management

Custom code lifecycle management (CCLM) was developed to accompany your ABAP enhancements and custom developments throughout their entire lifecycle. This cycle begins when you create an object (program, transaction, table, class, etc.), continues through its usage in production systems, and extends to the retirement of the object in case of disuse or a reorientation of the development.

The heart of the application is a generic, flexible library model with which you can classify and manage custom-code objects developed by your organization. Custom code objects, modifications and enhancements, as well as additional information about the usage of the objects, their quality, and their current lifecycle status are automatically collected from the managed systems. For this, you have a central application that provides a complete overview of your custom code, as well as recording the code's behavior in a complex landscape without any additional manual effort.

The generic central library is used by SAP as the central data source for all information on custom objects. You benefit from the ability to individually assign responsibilities and contracts, consolidate developments within an organization, and control new developments. It is possible to assign any object or list of objects to a contract or other predefined attributes.

This application offers an overview of your custom code situation in the managed systems, shown as a 3D-city model. The three dimensions of the city model are: quantity, severity and criticality of your custom code objects. In addition, the model also gives an overview on usage and quality of your custom code.

Custom Code Applications

SAP offers the custom-code app tool, which can help you resolve the fundamental custom code problems. This supports diverse use cases, such as clone finding, modification tracking, dynamic interface-analysis determination, obsolete-reference detection, service-pack stack impact, cross-system code comparison including versioning, and top-20 analysis. Without SAP Solution Manager, these tools can be executed in any SAP system, to ensure seamless transparency. Elements of these analyses are included as self-collection data providers in the CCLM.

Usage Logging

Usage Logging by Usage and Procedure Logging (UPL) or its successor ABAP Call Monitor (SCMON) is a tracking functionality available in any ABAP-based system directly integrated into the SAP kernel. It is used to

log all called and executed ABAP procedures and units, such as programs, function modules down to classes, and methods. The logging information of the managed systems is controlled by, extracted to and centrally store in SAP Solution Manger and it is fully integrated in the CCLM.

The ABAP Test Cockpit

The ABAP Test Cockpit (ATC) is a new ABAP check toolset that allows you to run static checks and unit tests for your ABAP programs. In order to ensure a smooth migration and comparable check results throughout your company, the ABAP Test Cockpit is compatible with the SAP Code Inspector. This means you can reuse your checks and variants in the ABAP Test Cockpit. It is fully integrated in the CCLM.

Decommissioning Cockpit

The decommissioning cockpit is a lifecycle tool for managing custom code based on your custom code library. The cockpit helps you to identify redundant or obsolete custom code objects and to retire them from your systems. You create decommissioning analyses, work lists, collect additional information, and monitor the usage of identified custom code objects for a defined time frame. With the integrated blocklist monitor, you can also block and log usage of an ABAP report or transaction in the managed system directly out of the SAP Solution Manager. This information enables you to decide if an object needs to be deleted or if it can be kept in the system.

Quality Cockpit

The quality cockpit helps you to improve the quality of your custom code. You can create specific analysis to identify custom code objects, of which the code quality needs to be improved. The quality decision is made on checks defined in your ABAP Test Cockpit. Within the quality cockpit, you can track the progress of your code quality projects as the results of the respective ATC runs are collected in the SAP Solution Manager and are assigned to the custom code objects in CCLM.

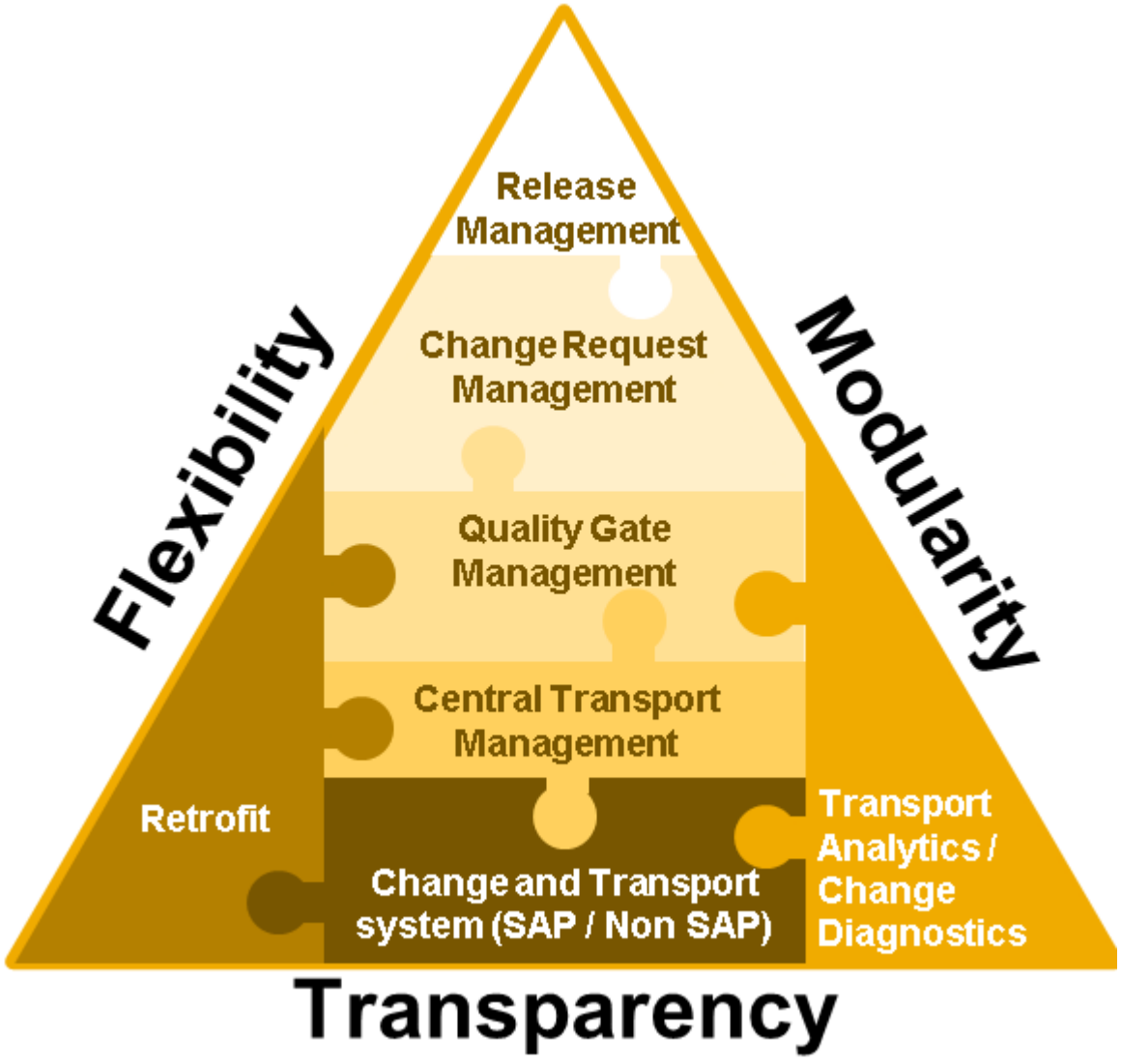
Custom Code Reporting

Custom code reporting allows you to analyze your custom code data in CCLM in detail. You can use it, for example when you want to get an overview on all used objects in general or in a specific time frame or when you want to check how many objects have been created in a specific time frame.

7.5 Change Control Management

Use

Change Control Management coordinates all changes in a software landscape, to ensure that they do not conflict with each other. It also ensures that changes are made without disrupting the ongoing business. This results in improved software landscape quality, a higher availability of IT solutions, and a lower total cost of ownership. Change Control Management ensures that the changes made are transparent and traceable. With it, you receive an overview of methods and tools for managing functional and technical solution changes with the modularity of the change-control functions. Change Control Management goes from the technical layer up to the process layer, highlighting the new features in the different change-control areas.



Overview of Change Control Functions

Change and Transport System

Moving developments and changes across a system landscape requires the management of transport. In response to this need, SAP offers the Change and Transport System (CTS) for ABAP transports and the

Enhanced CTS (CTS+) for non-ABAP as well as non-SAP applications. CTS helps you to transport software changes between the systems in your transport landscape.

CTS together with CTS+ enables the management of ABAP and non-ABAP objects, including combined transports for mixed objects like ABAP and JAVA.

CTS and CTS+ are fully compatible with SAP Solution Manager, and can be used in SAP Solution Manager's Quality Gate Management and Change Request Management functionality.

In addition, central CTS serves as a technical infrastructure for enhanced flexibility functions in Quality Gate Management and Change Request Management. See also section *Central Change Transport System (cCTS)*.

Details on CTS can be found on the SAP Community Network SCN:

- CTS: http://scn.sap.com/docs/DOC-7643
- CTS+: http://scn.sap.com/docs/DOC-8576

Transport Execution Analysis

The self-service transport execution analysis (TEA) analyzes the transport behavior in a productive system and creates and uses indicators for the quality of software changes. It collects data in the development, test, and production system. This data is sent to the SAP Solution Manager and processed by macros into a Microsoft Word document report. The report contains the measured values with evaluations, as well as best-practice recommendations on how the transport behavior can be improved. These recommendations are individually adjusted to the analyzed transport landscape. This enables a technical quality manager to identify improvement areas in the current change processes, and to take corrective actions by changing technical settings or introducing process changes.

The self-service transport execution analysis for projects (TEAP) analyses transport requests proactively before they are imported into a test or production system. It identifies transport-related problems like import or sequence errors before the import is done. It also predicts the import times and identifies problems due to different software versions in the export and import systems. It also provides best-practice recommendations for avoiding these errors. As a result, the import is more robust, and the stability of the production system is improved.

Both self-services are available in the launchpad group SAP Engagement and Service Delivery.

Change Diagnostics

Change-diagnostics capabilities within SAP Solution Manager are comprised of end-to-end change analysis and change reporting and configuration validation, with the configuration and change database as central configuration-item repository.

End-to-end change diagnostics provides many benefits to you. It is the central entry point for analyzing changes in a solution. You can drill down from overviews to detailed lists of changes, using BI methods.

Change analysis also provides additional hints for determining root cause analysis, by supplying the application with data and trends. Change analysis improves analysis results by providing accurate system information, such as configuration parameters or database parameters, including their history. It allows you to understand if detected changes originate from change requests, or if new incidents could be caused by recent changes.

Configuration validation helps you to standardize their solution configuration and improve their security. By controlling the versions of configurations in use, you are able to validate configuration items: if they are configured consistently and in accordance with existing requirements and policies. It supports you in setting up compliance reporting in different areas like security or software versions.

Central Change Transport System (cCTS)

The central Change and Transport System (cCTS) is the basic infrastructure for Quality Gate Management (QGM) and Change Request Management when it comes to transports. The evolution from CTS to the enhanced CTS (CTS+) for non-ABAP and non-SAP content led to the requirement to manage transports across technology tracks, which gave birth to a new central transport foundation layer known as cCTS. It provides essential features like synchronized transports or the basic algorithms for downgrade checks. Integrated into tools like QGM and Change Request Management, cCTS provides a unique transport infrastructure for SAP's process tools and transport administrators. You use it to manage your transport landscapes in your development, test, and productive non-ABAP (like Java, portal, and HANA) systems, and it can link them to your existing ABAP transport landscapes. To manage your projects that involve different development teams working on different systems, the respective systems can be linked together. All development activities relevant for your project are automatically connected and everything can go to production in one step – no one has to remember all the tracks: The tools do this for you.

For the process layer (QGM, Change Request Management and Release Management) that is based on CTS, the introduction of the new cCTS layer offers a wide array of opportunities and possibilities with regard to flexibility, status-driven change, and transport management. The benefits of the new transport request-based bundling concept even across parallel transport tracks are clear when it comes to flexibility. If some parts of your development have to wait before they can go live, you can retain them, or move them to another project. Even after having released a transport request or a change, you can still move. Downgrade checks make sure that you do not overwrite newer functionality. Inside QGM and Change Request Management, you can find information about what is happening on the transport side, while staying inside your change control tool; and execute what you have to do, and find the information you need.

In addition, you can protect systems with several options that are provided in the infrastructure: you can define locks to stop imports for a certain system, or you can even switch off your local CTS to make sure that imports are only possible through a managed process with approval steps in between. With cCTS, you get an enhanced lock management with a free lock definition, project-specific locks, and the avoidance of CTS tunneling, in case a process tool is used on the customer side.

Retrofit – Dual Landscape Synchronization

When doing larger implementation or upgrade projects, SAP recommends using a dual- or phased-system landscape, to better differentiate between maintenance developments and new implementations.

A dual-system landscape consists of a regular system landscape (for example, 3 tier), and an additional project or implementation landscape (for example, 2 tier). All maintenance activities can be done without any disruption through the implementation projects, which might be touching many objects that are frequently used in the productive environment and that have a big demand for maintenance. On the other side, all the implementation efforts are independent of the maintenance activities, making it easy to change the existing implementation and develop new functionality, without endangering the productive landscape.

However, by using such a landscape, all changes in the maintenance landscape must be manually reimplemented in the development landscape. This means additional manual effort. In addition, if the retrofit process is not supported by a tool, there is a high risk that it will not be done completely. This leads to missing synchronization between the maintenance and development landscape, and causes problems during the later cutover and go live.

The retrofit tool in SAP Solution Manager automatically captures all changes in the maintenance landscape and transfers them into the development landscape.

You can use the retrofit tool as a standalone tool or in combination with Quality Gate Management or Change Request Management. With this tight integration, the retrofit tool becomes part of your overall change management process.

Quality Gate Management

Quality Gate Management (QGM) is an out-of-the-box solution that ensures consistent and synchronized transports of ABAP and non-ABAP changes throughout the system landscape.

QGM provides an integrated and consistent quality process for all operational units, across the various organizations of your company. It ensures full control and transparency of all software change processes.

A major benefit of SAP Solution Manager's Quality Gate Management functionality is fast access to a project, and a status overview of the various change projects. It provides a central administration interface for all types of transports and system landscapes. QGM integrates the various development workbenches into a central transport and change control system.

With Quality Gate Management, you can benefit from SAP's transport best practices, to reduce the number of transport requests, and the number of versions in your productive system. To mitigate the risk of downgrades and inconsistencies in your productive systems, QGM provides downgrade protection checks through the entire change process. These checks monitor the object changes, and the export and the import process.

Further benefits are the synchronized distribution of software in different software stacks, synchronized changes to business processes that run in ABAP and non-ABAP (with CTS+), and the control of the software change quality by defining quality gates.

With the introduction of the newly developed central change & transport infrastructure (cCTS), you can benefit from unprecedented flexibility. Transport requests can be assigned, or decoupled from or to a development project or between projects, independent of the status (modifiable/released) and the current stage. The underlying cCTS infrastructure also provides the possibility to assign and integrate external transport requests (external SID) into your change process.

The combination of flexibility and risk mitigation will help you to react faster at any time on their business requirements, and can guarantee a better quality for the changed business processes.

Change Request Management

Change Request Management is a flexible tool that helps you check developments and changes to your entire system landscape centrally in SAP Solution Manager: this includes changes to SAP-related systems, as well as changes to any other kind of IT equipment.

Change Request Management uses two types of documents: the change request and the change transaction. The "Request for Change" is the initial document in which the requirement or change to be made is documented and described for the first time. It also documents the approval of the request. As soon as you have approved a change request, one or more change transactions are generated as follow-on documents, with direct reference to the original request. Change transactions distinguish between different types of changes. The type depends on whether a change is a change to a system or an IT component (for example, a printer), and the urgency of the change. In the change transaction, you can document and execute all activities that are necessary for making this change.

You can use the Change Request Management functions to manage releases and projects in a number of ways. Within a given project, you can plan any changes that are to be implemented over a certain period, and monitor their implementation. You can also efficiently document and resolve changes that are not part of a project plan, but call for swift attention (*urgent changes*), for instance, if an error occurs that could jeopardize a production environment.

Another option for managing releases using Change Request Management is the integration with SAP PPM, the SAP project-planning and management tool. Your organization can record and plan all the changes that must be implemented in an *SAP PPM* project plan as "tasks" that can then be integrated into the actual change documents from SAP Solution Manager's Change Request Management. You can plan resources and also

establish a connection to the back end, for example, to the *cross-application time sheet* (CATS) component for recording working times. The project plan is integrated in the project in SAP Solution Manager, which passes through several phases in what is known as a *project cycle*. The project cycle represents the release, and its phases are controlled centrally from SAP Solution Manager.

The purpose of the request for change is to document the requirement and the approval, whereas the change transaction is the place whre the real change is performed. The Change Request Management scenario lets you track all transports relating to a specific project, enabling you to check where they were created and into which systems they have been imported. From SAP Solution Manager, you can navigate to the transport logs and import queue, as well as to the project plan (if it exists and if it is linked) and the connected systems. Each change transaction provides an overview of all transports and transport tasks created for it. From there, you can monitor the status of transports at any time, and also branch directly into the log file.

With the introduction of the newly developed central change & transport infrastructure (cCTS), customers can benefit from unprecedented flexibility. Transport requests can now be assigned or decoupled from or to a change document, independent of the status (modifiable/released) and the current stage. The underlying cCTS infrastructure also provides the possibility to assign and integrate external transport requests (external SID) into your change process.

Change Request Management is designed to support the processes in the *IT Infrastructure Library* (ITIL). The ITIL defines the objective of change management as ensuring that changes are made economically and promptly, with minimum risk. Change Request Management includes the processes *Change Request Management*, *project management,* and *change logistics*.

In addition, Change Request Management enables your company to use these processes in an easy way by offering predefined processes. It also helps you meet audit requirements, for example, for Sarbanes Oxley Act (SOX). It does so by forcing all users to make the changes centrally using the defined change-management processes in SAP Solution Manager.

The workflows are based on SAP's experience with change and transport management, and influenced by numerous customer projects. Change Request Management supports regular implementation and maintenance activities (normal change, standard change, defect correction, git-enabled change, also administrative change), as well as fast changes outside of projects (urgent change), and changes to IT components such as printers or mobile devices (general change).

SAP also provides a range of predefined roles and authorization profiles. These roles and processes can initially be used to create a feasibility report using Change Request Management. Later on, they can serve as the basis for adjusting Change Request Management to the individual requirements or change-management processes of your company.

To summarize: Change request management offers the following benefits:

- Comprehensible documentation of planned and implemented changes and their consequences
- Complete coverage from change request to technical transports
- Consistent documentation of all change requests
- Improved efficiency of change-management projects
- Workflow support
- Reduced workload for IT specialists
- Minimized business disruptions
- Enhanced transparency of your solution
- Effective and efficient change-management processes
- Higher quality of change

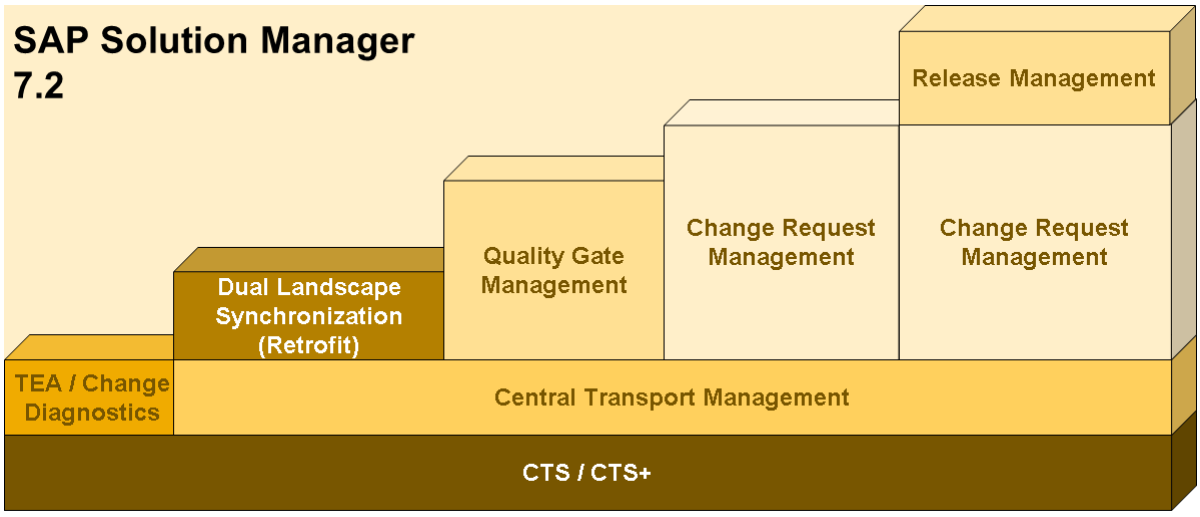
Release Management

With Release Management, the Change Control Management portfolio has been extended to support all possible change and release management strategies.

It is integrated with the capabilities of Change Request Management in SAP Solution Manager. Processes like Change Management, Requirements Management, or even Process Management and Project Management can benefit from this new functionality. Release management is a new and fast growing discipline within software engineering whenit comes to the ITIL service lifecycle. Complex software products are typically in an ongoing cycle of development, testing, and release, often running on progressing platforms with growing complexity. These systems require dedicated resources to oversee the integration and flow of development, testing, deployment, and support.

Release Management contains the planning, design, build, configuration, and testing of software releases to create a defined set of release components. The SAP Release Management tool allows release teams to plan, manage, and control the release schedule and track the status of each release to ensure production quality and stability. It also provides the added benefit of applying central governance and auditing over releases before decision-makers approve releases to production.

The major difference between managing projects and managing releases is that Release Management creates a new dimension, when planning deployments of software or IT solution components on top. This new “release” dimension works in parallel to the classical project or change management dimension. Release Management only defines dates, schedules, and procedures for the successful deployment of the IT solution, including a complete integration test. The functional implementation and development processes, including a functional test, are governed by the Change Management – which interfaces with the Project Management of a company. Ultimately, this means that the Change Management process is linked to the Release Management. There happens a handover from “changes” to the release, where it is the duty of the Release Management process to deploy this package successfully to production.



Change control combination options

More Information

For more information about Change Control Management, see SAP Support Portal, at http://support.sap.com/solutionmanager *Support Programs & Services* *Methodologies* or the full documentation at Change Control Management.

7.6 Requirements Management

The Requirements Management functions position business requirements, IT requirements, and requests for changes, as follows:

- Business requirements define what must be delivered to provide value. They are defined and evaluated by business staff in a prototype environment.
- IT requirements and requests for changes define how the business requirement is to be delivered. They cover a feasibility study, system prerequisites and required effort, which is estimated by the IT staff in an innovation environment.

The scope of IT requirements and requests for changes is split into one or more change documents to distribute the tasks between the developers after approval. In Requirements Management, business and IT requirements define the initial scope, and requests for changes define scope changes. Business requirements, IT requirements and change documents are interdependent, as well as requests for changes and change documents are. Each of these business transactions addresses the needs of specific user groups, focusing only on the information relevant for their specific tasks. To provide transparency to all user groups, the status updates are synchronized across the business transactions.

To define and confirm a project scope and scope changes in a simple way and to exchange data across different organizations, customers can easily create and approve business requirements with an SAP Fiori app.

You can use Requirements Management and project management as an integrated scenario. Project managers can assign IT requirements and request for changes to any structure elements of a project. If a change document is used instead of a request for changes, the change document can also be assigned. The resource assigned to the structure element is transferred to the relevant IT requirement or request for change. The effort of the architect or developer spend on the IT requirement, the request for change, and the change document, is recorded and sent to the PPM task by a background job .

The Business Context Viewer provides ad-hoc reporting in one click, which informs you about the status, and the planned and confirmed effort of the assigned structure elements. In addition, SAP Solution Manager provides a project analysis dashboard, which showes all project-related and scope-related data in one view. The project analysis dashboard displays the integrated information to the customer in one consolidated view.

7.7 Data Volume Management

In complex system landscape environments and with growing data volumes, it is important to have a landscape-based view of the data within your environment. The key is to identify the source of your data and to determine strategies for managing and controlling it.

Data Volume Management is a framework that balances the need between having to access large amounts of data, and the efforts to monitor and control data growth and to minimize data volume. It consists of best practices, tools, and services along all stages of the Data Volume Management lifecycle. From the initial identification of the challenges all the way through to continuous improvement. It also supports the deployment and operation of a Data Volume Management strategy.

Data Volume Management covers the following concepts:

- Data discovery (monitoring)

- Data profiling (analyzing)
- Data management and data archiving to reduce data volume size and growth (managing the information lifecycle)
- Efficient data storage utilization (database management) in accordance with legal requirements and corporate policies

Major Capabilities of the Data Volume Management

- **Prioritize Objects**
  With the prioritized objects list, you determine which objects consume the most data in your systems. The system sorts a list of database tables by your specific requirements.
- **Reorganization and Compression – Incl. SAP HANA Sizing**
  The reorganization and compression application simulates technical data volume reduction processes, such as reorganization and compression of database tables and indexes. It also simulates the impact of migrating your database to SAP HANA.
- **Data Reduction Potential**
  Analyzing the savings potential is a central feature of Data Volume Management. Reduce your data with one of the following methods: Archiving, Deletion or both.
  This is the driver for your data volume management activities and also the basis for discussion with business stakeholders and application teams. The system comes with pre-delivered SAP Best Practice residence times as a starting point. If you have implemented a data volume management policy, you can also define your own residence times to detect backlogs.
- **Data Volume Forecasting**
  With the forecast and simulation dashboards, you simulate a possible future size of a system based on the collected historical data. After reduction activities like archiving, migration to SAP HANA or database reorganization and compression, the simulation generates a forecast on system growth and cost savings to support efficient decision making.
- **Data Allocation Statistics**
  This application provides reporting, evaluation, and trend analyses across all business and technical levels. Various dashboards show the distribution of data in the entire landscape. The history of data size and growth enables you to identify areas of high disk space allocation and where to start with data reduction measures.
  The time-based data distribution tells you how old your data is. Decide whether your data is due for archiving or deletion
- **Archiving Information**
  The tool monitors archiving and related deletion activities in the system. It provides landscape-wide reporting about technical achievements in terms of archiving statistics
- **Service Sessions**
  Reduce your data load by generating a best practice document that describes how to handle largest data objects using the methodologies of data avoidance, summarization, archiving, and deletion.
- **Unused Data**
  Check the managed systems for data that has not been used, accessed or changed during the analysis period. You can sort by application area, document type or tables data, by application area, document type, or data table.
- **Savings Potential**
  A variety of applications enable you to save storage space. Simulate the savings potential of compression and reorganization. Decide if you want to compress or reorganize tables and indices to save space on your

database. Check the SAP Business Information Warehouse systems for unused InfoProviders and data to archive them in near-line storage systems or delete temporary and administrative data to free up space in the database.

Important Links

- **DVM Dashboard**: Visit the Data Volume Management Dashboard in the SAP ONE Support Launchpad.
- Follow our **Step-by-step guide** to the supported managed systems and setup that are described in SAP Note 2716655.
- The complete documentation of Data Volume Management in the SAP Help Portal.

7.8 IT Service Management

Incidents during mission-critical applications can cause severe business loss if they are not properly managed, their root cause identified, and their effects minimized by immediate corrective action. The incident management standard defines the process and tools to manage the collaboration required between the parties involved, to resolve incidents quickly.

When a disruption occurs that prevents end users from performing their tasks in the IT solution, the end user has to describe and prioritize the incident in a ticket. In SAP solutions, this can be done directly in the application. Context data is automatically attached, and the ticket is sent to the SAP Solution Manager Service Desk.

Key users provide first level support. They search for an existing solution in the customer solution sources and in the SAP Notes database. If the first level support cannot resolve the incident, the ticket is forwarded to the customer's IT support organization.

IT support performs an end-to-end root cause analysis, to identify the root cause. If necessary, other parts of the customer IT organization take over, to resolve the incident. If the customer IT organization cannot resolve the incident, it forwards the ticket for in-depth analysis, to SAP or to the provider of a third-party application that caused the incident. The status of the incident is transparent at all times.

Incidents can also be assigned to composite problem messages. Problem Management allows you to further investigate the cause of the incident, which may have already been fixed. Another use case for Problem Management is to collect multiple incidents in one problem, because all incidents have the same cause, so one solution can be proposed for all incidents assigned.

The SAP Solution Manager Service Desk is SAP's tool to manage incidents efficiently across the customer business unit, customer IT, SAP, and SAP partners whose applications are integrated in the customer solution. In addition, the Service Desk has an open bidirectional interface to send and receive incidents to and from other ticket systems. This might be required if a part of customer IT has been outsourced or out-tasked to service providers who use their own help desk.

Various people and roles are involved in the incident management process flow. There are the creators of a support message, end users working in a managed system, and key users creating messages for end users.

There are also the message processors in IT Service Management, supported by other groups in the IT organization. Depending on the number of levels of the support organization, these groups of people may consist of employees with different levels of expertise.

One of the major benefits of using SAP Solution Manager IT Service Management is the integration into SAP's support backbone, to report customer incidents to SAP and receive remote support from SAP experts, through SAP Solution Manager.

Incident management is also integrated into other processes in SAP Solution Manager, such as managing test errors in Test Management, managing alerts in Business Process Monitoring, or using change control processes as follow-up activities to an incident.

Incident Management Use Cases

- SAP collaboration with IT Service Desk (-> key user)
  The scenario is mainly used for the end user to report to the key user, and to forward incident messages to SAP support. It enables all resolution mechanisms provided by SAP Support. The configuration effort is minimal.
- IT service management with SAP Solution Manager (-> customer IT support)
  Holistic IT service management for SAP and beyond SAP solutions (with additional license), with incident, problem and change management processes, according to ITIL recommendations.
- IT service management for SAP-centric solutions (-> SAP CCoE)
  SAP Solution Manager Service Desk is used as the SAP Expert IT Service Management tool in second-level support. The primary tool for all IT incidents could be a third-party help desk.
- IT service management for service provider (-> hosting partner)
  Service Desk is the central IT service management platform for service providers who handle the incidents of multiple customers.
- Third-party integration with Service Desk (-> customer service desk solution)
  Service Desk is used in several SAP Solution Manager capabilities, wherever a message flow-based resolution process is to be established. It is integrated into Test Management, BP Operations, Project Blueprint, Change Request Management, and Technical Alerting.

More Information

See the full documentation at IT Service Management.

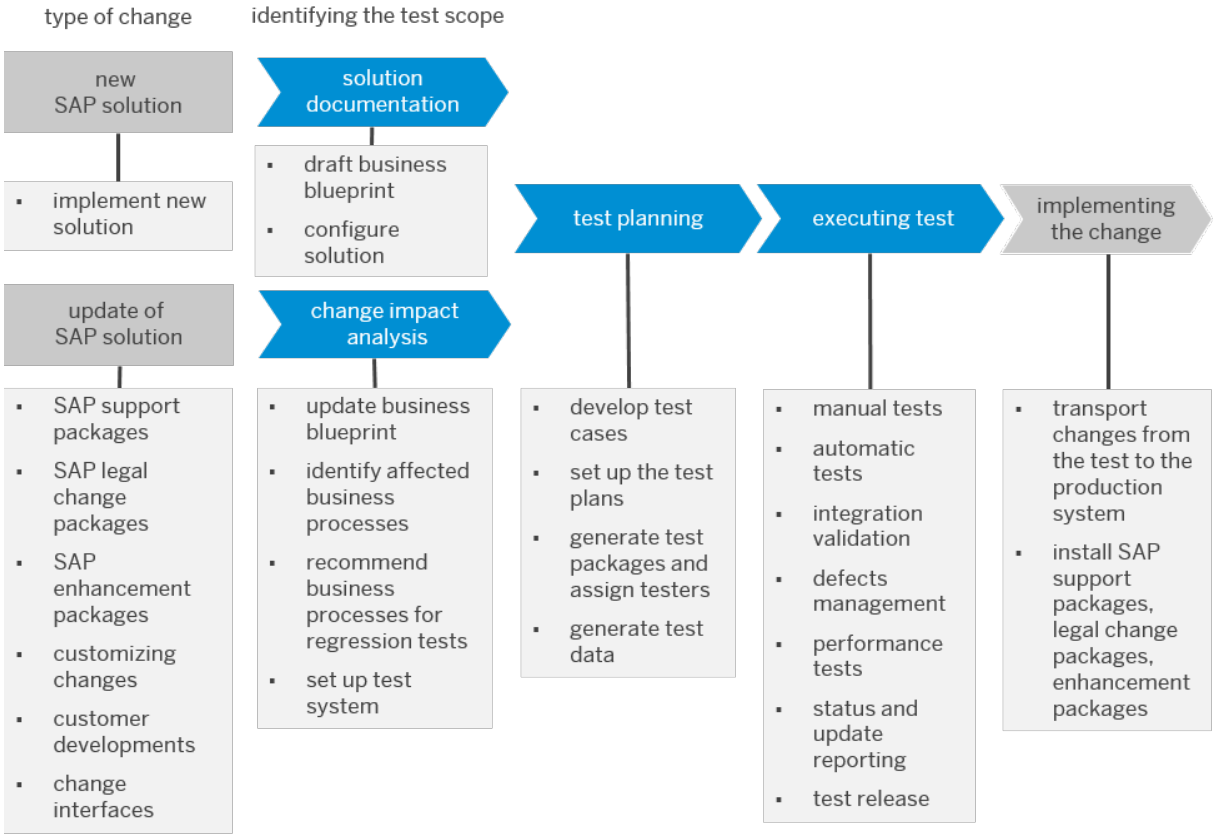
7.9 Test Suite

The Test Suite is tightly integrated into the software change process. For a new SAP solution, this process starts with the business process descriptions in the Solution Documentation [page 63].

When updating an existing solution, you analyze the change impact on existing business processes.

A **Change impact analysis** indicates the areas on which to focus testing, to allow the specification of a risk-based test scope. Tests can be performed manually, based on a test case description, or automatically, in automatic test scripts.

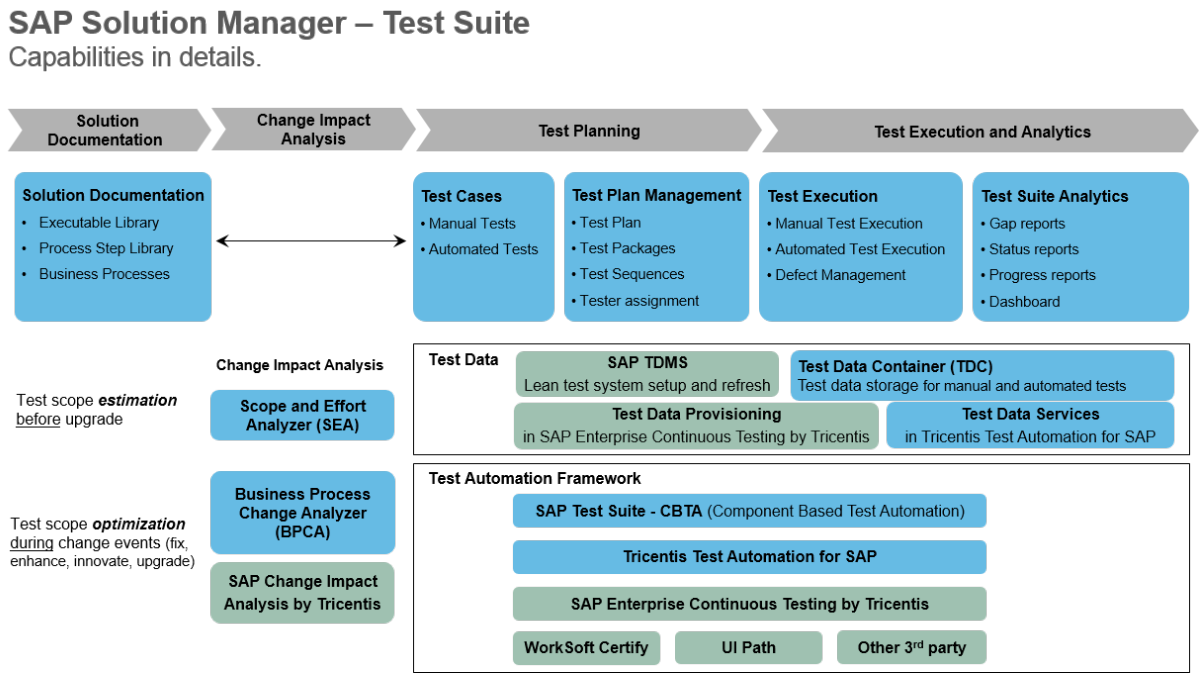
The test coordinator or project lead has transparency of test progress and error resolution. When the overall test is successfully finished, the change can be applied to the productive system



Test Options

Customers can use a combination of the SAP Solution Manager test capabilities, and solutions from partners or third-parties. SAP Solution Manager 7.2 offers end-to-end test management of SAP solutions.

It supports the entire testing process, including solution documentation, change analyses, test requirements, planning and execution, problem handling, quality gate management, and transporting the changes to the production system. In all scenarios, SAP Solution Manager plays a pivotal role in bringing together technical and business aspects.



Risk-Based Test Scope Identification

With the business process change analyzer (BPCA) in the SAP Solution Manager Enterprise Edition, you identify business processes affected by a planned software change. This helps the customer's change team to decide which support packages, SAP enhancement packages and transports to apply to the productive SAP system.

The BPCA supports the generation of the technical bill of material (TBOM) via automatic test cases and workflow items between test coordinators and business users.

Capabilities of the Test Suite and Test Automation Framework

Test Planning

Create test plans with all test cases relevant to your implementation, upgrade project or for other planned changes that are based on the solution documentation and the assigned test cases.

Manual Test Execution

After planning the tests and releasing the test plan, all testers are notified via e-mail about the start of the test, if the email notification is set on test plan level. If there is a defined test sequence, a notification is also sent when the test case can be tested. After the test, the testers document the results in a test note and set the status. In case of an error, they create a support message in the service desk which is integrated into the test suite.

Automatic Test Execution

SAP Solution Manager SAP Solution Manager features a Test Automation Framework that allows customers to select the test automation capability. The new framework integrates SAP and third-party test automation products via open interfaces. Third-party test tool vendors can certify their products for this purpose.

Reporting

Using Test Execution Reports, you can perform reporting on different levels: Test Plan and Test Package. To document all test activities, and to ensure traceability for external audits, you can also create a test report based on a test plan that contains all details such as test case description, test results, test data used, test system information in one document.

Scope and Effort Analyzer

With the scope and effort analyzer, you can analyze the scope of activities and effort, before you start the physical deployment of enhancement packages and support packages. The scope and effort analyzer provides you with a comprehensive analysis with minimal customer input. All analysis steps of the scope and effort analyzer are performed in the background, after you have entered the necessary input data. With the scope and effort analyzer analysis results, you can determine the change impact on custom code and modifications and estimate the rework effort for custom code and modifications and the effort for regression tests of impacted business processes. For more information, see Maintenance Management [page 22], section *Scope and Effort Analyzer*.

More Information

- See the full Test Suite documentation in the SAP Help Portal.
- See the Test Suite overview in the Overview of ALM processes.

7.10 SAP Engagement and Service Delivery

SAP Solution Manager is the central platform for the delivery of SAP services for the following areas: risk minimization, optimization of SAP solutions, and knowledge transfer.

SAP services in SAP Solution Manager are services which help you to monitor and optimize the performance and availability of your system landscapes, and minimize your system operation risks.

After you have sent your solution description to SAP, a service plan is tailored to your individual needs. This service plan is a schedule describing which SAP services are to be carried out for which systems in your solution, at what time. It is transferred to your SAP Solution Manager. The service plan contains services delivered either remotely or by an SAP consultant on-site.

During these on-site and remote services, SAP consultants perform their analysis based on data that is collected automatically from managed systems, and processed by checks in the SAP Solution Manager. They generate a report with the results, that is stored locally.

The SAP service consultant creates Issues in the issue management of SAP Solution Manager, which is an interface between your support organization and SAP Support. Issue tracking is available to support the follow-up of the outcome of the SAP services. Issues are descriptions of problems that have to be solved by your organization.

If you need help from SAP to solve an issue, you can generate an on-demand message in the issue management. This requests a consulting service, which provides SAP experts to fill your short to medium-term needs.

Besides these SAP-delivered services, there are also guided self-services and automatic services, such as SAP EarlyWatch Alert, available in SAP Solution Manager. SAP EarlyWatch Alert is scheduled for single systems and for solutions, and its data can be forwarded to SAP for further analysis. An SAP EarlyWatch Alert report indicates areas of optimization potential that can be addressed by carrying out guided self-services, or requesting SAP-delivered services in an SAP service request.

More Information

SAP EarlyWatch Alert is a prerequisite for all SAP services.

For more information about SAP Engagement and Services Delivery, see the documentation on SAP Help Portal, at http://help.sap.com/solutionmanager.

See the full documentation at SAP Engagement and Service Delivery.

7.11 Project Management

Project managers can easily fulfill their respective tasks along the project lifecycle as follows:

- Project creation and project structuring
- Resource management by project manager or line managers
- Project calculation and accounting object assignment
- Project baseline creation and release of project for execution
- Task execution and time recording
- Project reporting and adjustment and project closure

If you have used project management roadmaps in SAP Solution Manager 7.1, you can transform the roadmap structure and assigned resources into a project template, or into a project in the project management of SAP Solution Manager 7.2.

The project management in SAP Solution Manager is fully integrated in the implementation process of SAP Best Practice packages, which provides the following content types:

- Implementation content, which will be uploaded into the new process management functionality
- Project management content, which will be uploaded into project management

During the SAP Best Practice Package import, a project is created automatically and linked to Solution Documentation. Thus the project manager can benefit directly from a predefined work breakdown structure, task duration and assigned roles, to plan and align his project with the customer.

7.12 Process Management

Process management connects solution documentation with project management and requirement management.

7.12.1 Solutions in SAP Solution Manager

Solutions in SAP Solution Manager 7.2 comprise all systems, processes, and solution documentation in a customer's business. Technically, a solution is the root of a structure that contains all of those objects.

In SAP Solution Manager 7.2, the granularity of solutions is much coarser than it was in 7.1, because solution size, performance limitations, and authorization issues, which in SAP Solution Manager 7.1 sometimes forced users to artificially split solutions into smaller chunks, no longer apply.

From a process perspective, a solution covers all the company's business processes. From a system perspective, a solution covers all productive systems that are connected by interfaces.

As solutions are relatively closed entities, with limited access to functionality outside of themselves, there is typically only one productive solution per company. Even for an international multi-site company one solution will generally be sufficient. Multiple productive solutions typically cover the use case of a service provider running multiple productive solutions for different clients.

For more information, see Solution Documentation [page 63].

7.12.2 Solution Documentation

Solution Documentation, consisting of technical landscape and business process documentation, is the basis for all other SAP Solution Manager capabilities. It describes a customer's technical components (SAP and non-SAP), its core business processes, and interfaces, it includes custom code/modification documentation, and links to supporting technical objects, such as transactions and programs.

The correct use of implementation projects automatically produces sufficient solution documentation in the operations and optimization phase. If you start with the documentation in the operations phase, redocument your core business processes in SAP Solution Manager. Only a subset of the information required for a complete implementation project is then needed.

Solution Documentation can be continuously enriched along the SAP Solution Manager lifecycle phases:

- Design: Create global business process templates and specifications, for example, for later roll-out of regional implementation projects.
- Design/Build: Create or adjust business process structure, locally, during your regional implementation project.
- Build/Test: Extend business process documentation during solution configuration, for example, with custom code documentation, configuration information, and test cases.
- Operate: Redocument or adjust your business process documentation during operations, for example, adjust process documentation after go live.

- Optimize: Verify your business process documentation before upgrades, for example, delete obsolete information and unused custom code.

Solution Documentation Benefits

Solution Documentation is the basis for the entire lifecycle. It makes customer's solution landscape and business processes transparent, and fully exploits the potential of SAP Enterprise Support.

The best documentation is worthless if it is not up-to-date. SAP Solution Manager allows you to update your Solution Documentation cost-efficiently and under control.

Solution documentation is a key enabler for business and IT alignment. Its transparency can accelerate IT activities and improve their results. SAP Solution Manager enables the documentation of SAP Solutions. Solution Documentation documents the following key elements:

- core business processes
- related technical objects, such as transactions, programs, custom code, background jobs, and interfaces
- related (non-SAP) system and software components

The documentation (project) should be in English. Enterprise Support requires a permanently available English-speaking CCoE. This CCoE contact can translate the information in SAP Solution Manager if necessary. However, internal and external communication is generally more efficient with English as the default project language.

Solution Documentation Detailed Definition

Solution documentation contains two types of documentation: Technical landscape documentation and business process documentation that are maintained by different experts, depending on the documentation content.

Technical landscape documentation is mainly created during the basic configuration of SAP Solution Manager, and documents systems, servers, databases, and software components. It is written by system administrators and technical SAP Solution Manager experts. The data is displayed and maintained in *SAP Solution Manager Administration* and in the *Landscape Management* application.

Business Process Documentation relates this technical documentation to business information. It documents (core) business processes, project documentation, test cases, interfaces, and custom code. It is maintained by solution architects, for example, for custom development and interface specifications, business process experts, to document (core) process flow, project members, to document test cases and project-specific customizing, and functional SAP Solution Manager experts, for simple transfer, if good process documentation is available. The data is displayed and maintained in the *Solution Documentation* application.

Technical Landscape Documentation

The technical documentation is part of the technical configuration of the SAP Solution Manager. This process comprises the following phases:

- Providing central, reliable, and up-to-date system landscape information for SAP Solution Manager applications and third-party tools
- Collecting information on technical systems, hosts, databases, products, software components, and transport domains in the landscape management database (LMDB).

7.13 Landscape Management

Landscape Management comprises the installation of new systems and the modification of existing systems. Successful landscape management involves a set of tools handled by several roles in one process:

- Handling data of the existing landscape
  - Gathering and providing information on systems and dependencies in the landscape
  - Implementing changes in the landscape
- Planning changes on a functional level
  - Evolve current business processes with new functions and capabilities
  - Search for new options and trigger IT to adapt the landscape to changed requirements
- Planning changes on a technical level
  Define ways to implement features and functions requested with lowest effort and risks

These functions are provided by SAP Solution Manager on-premise installations and as services in SAP Support Portal. Included in these functions are the following tools such as the landscape management database (LMDB) and tools, which support the process, for example also test effort estimation with the scope and effort analyzer. For more information on landscape management, see https://support.sap.com/en/tools/software-logistics-tools/landscape-management-process.html.

The LMDB in SAP Solution Manager gathers data from the existing landscape by bringing together data from the system landscape directory (SLD) and agent data from the technical systems. The LMDB provides this data, which is uploaded to the SAP Support Portal customer profile. The data is therefore mandatory in this process as is the maintenance planner, which provides the required stack.xml files for system installation, update and upgrade and download basket.

For new installations of SAP Solution Manager, an SLD is no longer mandatory. Data suppliers can send their information directly to the LMDB and also the SAP CIM model and SAP CR content can be imported directly and automatically to the LMDB.

For more information, see Setting Up the Landscape Management Infrastructure.

7.14 Application Operations

Application Operations comprises all functions for monitoring, alerting, analysis, and administration of SAP solutions, and reducing customer TCO with predefined content and centralized tools for all aspects of SAP

Solution Manager operations. The Application Operations component provides integrated analytics functions, either out-of-the-box, or personalized by customers.

System and Application Monitoring

The central monitoring and alerting capabilities in SAP Solution Manager are the foundation for reliable and stable operation of complex heterogeneous system landscapes. Central configuration capabilities, in conjunction with system landscape-aware predefined monitoring templates, significantly reduce the TCO for the setup and operation of the monitoring landscape. One major challenge is the avoidance of alert flooding. This is achieved by an intelligent alert calculation engine that supports event correlation, summarization and propagation, across all monitored objects. The following capabilities are available:

- **System Monitoring, SAP HANA and Database Monitoring and Host Monitoring**
  Supported for all SAP technologies, databases and operating systems (including virtualization data)
- **User Experience Monitoring**
  Includes the monitoring of performance and availability from an end user perspective, with synthetic probes.
- **Interface and Connection Monitoring as Part of Integration Monitoring**
  Ensures that interfaces and connections within your landscape (SAP and non-SAP) as well as communications, for example with SAP's public cloud components, are reliable and efficient.
- **SAP NetWeaver PI Monitoring as Part of Integration Monitoring**
  A specialized monitoring application in SAP Solution Manager for SAP NetWeaver PI systems to evaluate the status of communication channels and messages.
- **Message Flow Monitoring as Part of Integration Monitoring**
  Enables you to investigate and trace dedicated message flows through the PI landscape on the level of single message instances.
- **Business Intelligence Monitoring and Job Monitoring**
  Summarizes monitoring features for BI as a platform. This application provides centralized transparency for all types of jobs (BW process chains, ABAP jobs, SAP BusinessObjects jobs, SAP Data Services jobs)
- **SAP Solution Manager Self-Monitoring**
  Comprises the monitoring of the SAP Solution Manager, and all infrastructure components needed, such as CA Introscope Enterprise Manager, diagnostics agents, and SAP NetWeaver BW.

System and application monitoring has the following advantages:

- Reduced TCO by central maintenance and distribution of preconfigured content templates from SAP, that can be further changed and extended by the customer.
- Avoid alert flooding by using propagation and correlation capabilities
- One open infrastructure for all SAP technologies
- Central Alert Inbox with personalization and filter capabilities
- Open data consumer interface, to allow integration into service desk, notification management and auto reaction methods
- Integration into existing SAP Solution Manager processes such as incident management, notification management (SMS and e-mail), root cause analysis, downtime management and technical analytics.

Root Cause Analysis and Exception Management

In today's complex solutions, with multiple technology stacks, locating the root cause of an incident requires a systematic top-down approach. End-to-end root cause analysis gives you all the tools and the methodology, needed to perform cross-component root cause analysis, and component-specific root cause analysis by experts. End-to-end root cause analysis in SAP Solution Manager is based on a central diagnostics database that is filled by the Diagnostics Agents running on each managed system. They continuously collect exceptions (such as critical log entries, dumps, and queue errors), configuration snapshots, and workload data, including operating system and database statistics, from each managed system. The information is kept across all stacks, and is available from a central console in SAP Solution Manager.

End-to-end diagnostics can support root cause analysis for components implemented in ABAP, Java, C(++), or that run on the Microsoft .NET framework. End-to-end root cause analysis in SAP Solution Manager standardizes and systematically aggregates the following:

- Performance and resource metrics
- Access to technical configuration
- Exceptions, such as logs and dumps (program terminations)
- Traces (recording the activity of a single user or process)
- Tracking changes to software (code), configuration, or content

You can access the cross-component diagnostics applications *End-to-End Workload Analysis*, *End-to-End Change Analysis*, *Configuration Validation*, *Change Reporting*, *End-to-End Trace Analysis* and *End-to-End Exception Analysis* and component-specific diagnostics tools centrally from SAP Solution Manager, by clicking the *Root Cause Analysis* tiles on the launchpad. These tools can be run from any SAP workplace, when customers open an SAP connection, allowing customers and partners to use the same standardized SAP tools, such as primary support and development support. SAP Solution Manager's standard role assignment gives SAP employees read-only access to diagnostic data in SAP Solution Manager and the managed systems.

One major tool is the unique end-to-end trace capability, which isolates single user requests throughout complete landscapes, and identifies the component, which caused the problem. This tool can locate the component that took the most time in a long-running request, which spans multiple systems running on multiple technology stacks.

Exception management is the central place to monitor, analyze and resolve critical technical and application-related exceptions on a single instance level. It thereby supports ABAP as well as Non-ABAP components.

Technical Analytics and Dashboards

Technical analytics and dashboards in SAP Solution Manager consists of the following layers:

- Application-specific (embedded) dashboards
- Cross-application dashboards

Application-Specific Dashboards

The dashboards are directly integrated into the corresponding monitoring application (for example, system monitoring, interface monitoring, and connection monitoring). They provide reports over metrics in the context of the monitoring application regarding availability, performance, exception status, capacity and usage for all supported managed objects. It is possible to adopt the SAP delivered standard dashboard visualization, regarding displayed metric, time frame and other specifics via the build-in personalization feature.

Cross-Application Dashboards

You can access these dashboards via the Dashboard Builder. The Dashboard Builder enables you to create reports by simply configuring the report title, subtitle, description, size, graphical format and data source. You can take over meta data definitions (for example, data source name) directly from the KPI catalog, which is a cloud-based, central KPI documentation tool. The Dashboard Builder supports the following data sources:

- BW queries
- Function modules
- Business process analytics

Technical Administration

Technical Administration comprises tools and capabilities to support the Technical Management and IT operations management teams in the efficient planning, implementation, execution, and reporting of the day-to-day operational activities. Cross-landscape tools and central access to tools on the managed systems, are available in SAP Solution Manager. As a result, the systems are stable and run efficiently.

The IT task management applications and the IT calendar can be used to plan and document your operational tasks (for example, daily tasks, downtime management, and event planning).

The tools included in the guided procedures framework, support the IT operator during the execution of his daily operational activities with the following:

- Step-by-step execution
- Detailed activity description
- Central access to required managed system functions
- Automatic steps
- Logging of every activity
- Central documentation of operational expertise

The *Service Availability Reporting* application, as part of technical administration, can be used to configure, maintain and evaluate service level agreements related to the availability of the entire managed system landscape.

More Information

For more information about application operations, see http://wiki.scn.sap.com/wiki/display/TechOps/Home.

7.15 SAP Solution Manager Extensions

- SAP Central Process Scheduling application by Redwood

The SAP Central Process Scheduling application by Redwood schedules and monitors jobs in current and old releases of AS ABAP systems (as of basis release 3.1), centrally. It is fully integrated in SAP NetWeaver. Depending on the business needs, SAP business applications trigger scheduled activities. You can now manage jobs and job chains conveniently, using a graphical user interface. For test or demo purposes, you can run SAP Central Process Scheduling on the AS Java of SAP Solution Manager. For production use, run SAP Central Process Scheduling on a dedicated system, as it is mission-critical.

- Solution Manager Scheduling Enabler (SM-SE) for SAP Solution Manager
  SAP Solution Manager integrates SAP Business Process Automation by Redwood, and other certified external schedulers, via the SM-SE adapter for SAP Solution Manager. It ensures efficient control and maintenance of background activities, 24 hours a day, using the advantages of SAP BPA, such as event driven scheduling, or management of business process chains.
  SM-SE also integrates the OEM version of the scheduler delivered on Java SAP NetWeaver stack, which is SAP Central Process Scheduling (SAP CPS) by Redwood.

8 Communication Channels with SAP

The following channels are used to collaborate with SAP, to exchange information between the SAP Solution Manager system and SAP.

SAP EarlyWatch Alert

SAP EarlyWatch Alert is an automatic service running in SAP Solution Manager and monitoring the essential administrative areas of an SAP system. It is enabled for productive systems by default. By identifying bottlenecks and configuration issue, and by monitoring system performance, SAP EarlyWatch Alert enables you to act proactively to preserve a healthy system.

When your SAP EarlyWatch Alert data is sent to SAP, SAP support analyzes your system's status and contacts you to discuss possible actions to be taken to solve the issues. For each system, you can activate or deactivate the function of sending data to SAP.

Incident

If you can neither process an incident yourself, nor find a solution for it in SAP Notes or in your solution database, you can forward it to SAP Support. You can search for SAP Notes in the SAP Support Portal, from an incident.

You can send updates to SAP, and any updates from SAP are automatically pulled into the incident in SAP Solution Manager, by a background job.

Service Plan

The service plan consists of SAP-delivered services, and is created at SAP. It is replicated into your SAP Solution Manager system, and enables the delivery of SAP services for your solution. The services are performed in your SAP Solution Manager system. Updates of the service plan are automatically pulled from SAP.

Top Issue

You can send top issues to SAP. After this initial sending, any update of the top issue is automatically sent to SAP. However, SAP does not update a top issue.

Synchronize System Data with SAP Support Portal

The system data in the landscape management database (`LMDB`) and in the SAP Support Portal is automatically synchronized. Depending on the customizing settings, the system data in the SAP Support Portal can be refreshed automatically for all systems, periodically (for example daily), or manually, as required.

KPI Catalog

The KPI catalog is a cloud service offered by SAP. It contains the definitions, technical documentation and comprehensive descriptions of KPIs (key performance indicators) and associated metrics that are available to you in SAP Solution Manager. This consists of both technical information such as how a KPI is measured, as well as information on the significance of the KPI for your enterprise. The KPI catalog is thereby the central point of storage and reference for all of your business-relevant key figures.

You can call the KPI catalog both as a standalone application and integrated in various SAP Solution Manager applications that use the KPI catalog. Whereas you typically select individual KPIs in a technical context (for

example, a managed system) when calling the KPI catalog from applications to perform certain functions, you call the KPI catalog as a standalone application when you require application-independent general information on the available KPIs and you want to search through the entire catalog.

SAP's Support Backbone

SAP's support backbone is the set of applications which manage the customer relationship and provide services to the customer and partner ecosystem. The support backbone hosts basic information on customer's installations and products and processes used, and the partner ecosystem. The support backbone gives SAP experts access to the customer network, by remote connection, to collect the technical information required to solve customer issues, when the required information is either not available in the support backbone, or may be out-of-date. By integrating the partner ecosystem into this scenario, these capabilities can be extended.

SAP Solution Manager is connected to the support backbone by HTTP connections. It transmits SAP EarlyWatch Alert data (for production systems), and support messages to SAP. The HTTP connection also accesses SAP Support Portal from SAP Solution Manager. Examples of this connection would be to search SAP Notes from within a support message in IT Service Management, downloading maintenance certificates, and planning updates and upgrades with the maintenance planner.

9 Useful Links and SAP Notes

The links and SAP Notes listed in here provide additional general information about SAP Solution Manager and other SAP solutions.

Useful Links

Content	Link
This platform contains information on new features, installation, upgrade and use of SAP Solution Manager, its configuration, operation, and security.	SAP Help Portal
General information about SAP Solution Manager. Contains Wikis,Slides and Tutorials.	Support Portal
Released platforms and technology-related topics, such as maintenance strategies, upgrade information and language support	Product Availability Matrix
Information about support package stacks, latest software versions and patch level requirements	System Landscape Directory (SLD)
SAP Solution Manager Setup Wiki	SAP Solution Manager Setup & Configuration
The Maintenance Planner is the central tool to plan updates, upgrades, or new installations in your system landscape.	Maintenance Planner
Information about creating error messages in case of incidents.	Product Support
SAP Software Download Center. All about installations, upgrades, patches and more.	Software Download Center
Learning material, Demo environments,	Media Center and Demo Systems
Information on SAP GUI - Guides, Tutorials and Wikis.	SAP GUI
System Landscape Directory (SLD) - Basics, Scenarios & Best Practices	System Landscape Directory
Software Logistics: Tools to install, upgrade or update SAP Systems	Software Logistics
SAP Interactive Forms by Adobe: The on-premise solution for print forms and interactive forms	Adobe Forms

Content	Link
Documentation for System Landscape Management – LMDB	Landscape Management Database (LMDB)
Planning Landscape Changes (Best Practice Guide)	Planning Landscape Changes

Useful SAP Notes

SAP Note Number	SAP Note Title
628901	Order SAP Solution Manager or its installation number
2771041	Support package stack levels of SAP Solution Manager 7.2
394616	Release strategy for SAP Solution Manager (ST)
1109650	SAP Solution Manager extension add-ons
1472465	SAP Solution Manager 7.1 and 7.2 - System Landscape Setup Guide
2248724	Root Cause Analysis in SAP Solution Manager 7.2

10 Questionnaire

SAP Solution Manager Implementation Planning Check

The following questionnaire helps you to collect all the relevant data for your implementation. We recommend to download this page (choose *Download PDF* > *Create Custom PDF* > *Questionnaire* > *Create PDF* and tick off your selections.

Systems to be managed	-
<SID 1>	SAP Component (for example SAP NetWeaver Portal): <Product Name> Production Status: Prod/Dev/QA/Test System ID (SID): <System ID> Instance Number: <Instance Number> Installation Number: <Installation Number> SP Stack: <SP Stack> DB: <DB System + Version> OS: <Release + Version>
<SID 2>	SAP Component (for example SAP NetWeaver Portal): <Product Name> Production Status: Prod/Dev/QA/Test System ID (SID): <System ID> Instance Number: <Instance Number> Installation Number: <Installation Number> SP Stack: <SP Stack> DB: <DB System + Version> OS: <Release + Version>

Status (General Information)

What status has your monitored landscape?

- PROD
- DEV
- QAS
- TEST

Is your SAP Solution Manager system setup on Unicode?

- YES (recommended)
- NO

How many system landscapes do you have for SAP Solution Manager?

- One (productive only)
- Two (at least recommended)
- Three

Sizing

Which processes do you plan to use with SAP Solution Manager?

- Change Request Management
- Change Control
- Incident Management
- Solution Monitoring
- Implementation of SAP Solutions
- Upgrade of SAP Solutions
- SAP Engagement and Service Delivery
- Root Cause Analysis
- System Monitoring
- Test Management

How many users will use which feature? _____

How many **physical** machines are going to be managed in your landscape?

- 1-50
- < 100
- < 500
- > 500

Did you perform sizing for your implementation?

- Yes
- No

Application

Does your SAP Solution Manager system fulfill the prerequisites in SAP Note 1010428 (End-to-End Diagnostics)?

- Yes
- No

Do your managed systems fulfill the prerequisites in SAP Note 1010428 (End-to-End Diagnostics)?

- Yes
- No

Which SAP products are you planning to manage with root cause analysis?

Do you plan to implement a root cause analysis in an existing SAP Solution Manager system?

- Yes
- No

If so, what is the support package level of this SAP Solution Manager system?

Do you plan to set up a high availability scenario for your SAP Solution Manager implementation?

- Yes
- No

Sizing: Which type of CA Introscope Enterprise Manager setup do you need for your implementation?

- Only 1 Collector Enterprise Managers (EMs)
- Multiple Collector Enterprise Managers (EMs)
- Manager of Managing (MOM)

Do you plan to install BW on a system **other** than SAP Solution Manager?

- Yes
- No (recommended)
  For more information, see SAP Note 1487626.

Are you using a central user administration environment for your SAP Solution Manager system and your managed systems?

- Yes
- No

If you plan the implementation in a central user administration environment, did you request all required users, as described in the security guide at https://help.sap.com/viewer/p/SAP_Solution_Manager?

- Yes
- No

Infrastructure

Provide a high-level overview of your SLD strategy.

Is your managed landscape already registered in a central SLD?

- Yes
- No

If not, do you plan to set up a central SLD for the connected systems?

- Yes
- No

Is your managed landscape separated from your SAP Solution Manager instance by a firewall?

- Yes
- No

If so: Are all necessary ports opened, according to the security guide at https://help.sap.com/viewer/p/SAP_Solution_Manager?

- Yes
- No

Agents

Do you already have a system based on the SAP NetWeaver 7.40?

- Yes
- No

If so: Are the agents connected to your central SLD?

- Yes
- No

How do you plan to install the agent for the managed systems?

- Manually, interactive
- Manually, silent mode
- Automated deployment (recommended)

Have you installed your managed systems using virtual hosts?

- Yes
- No

Have you installed an SAP Host Agent on all physical hosts?

- Yes
- No

Implementation process

Depending on the system type of your managed system, a restart may be necessary to activate all changes made during the setup or the connection of a managed system. (For more information, see Implementation Sequence [page 8].)

Did you include this restart in your maintenance planning?

- Yes
- No

In case of incidents or missing components: Will it be possible to implement SAP Notes and patches during productive time (for SAP Solution Manager)?

- Yes
- No

Are the systems connected to SAP Support Portal?

- Yes
- No

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.
About the icons:

- Links with the icon  : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
  - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
  - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon  : You are leaving the documentation for that particular SAP product or service and are entering an SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Videos Hosted on External Platforms

Some videos may point to third-party video hosting platforms. SAP cannot guarantee the future availability of videos stored on these platforms. Furthermore, any advertisements or other content hosted on these platforms (for example, suggested videos or by navigating to other videos hosted on the same site), are not within the control or responsibility of SAP.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.
The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Bias-Free Language

SAP supports a culture of diversity and inclusion. Whenever possible, we use unbiased language in our documentation to refer to people of all cultures, ethnicities, genders, and abilities.

www.sap.com/contactsap

THE BEST RUN SAP