Planning Landscape Changes
With Landscape Planner and Maintenance Optimizer
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1  About This Document

This is the best practice guide for planning landscape changes with the landscape planner tool and maintenance optimizer. The latest version of this document is available at https://scn.sap.com/docs/DOC-55040.

The guide for planning landscape changes with the maintenance planner tool is at https://scn.sap.com/docs/DOC-63420.

Table 1: Document History

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<tbody>
<tr>
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Note

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Table 2: Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ALM</td>
<td>application lifecycle management</td>
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<tr>
<td>FQDN</td>
<td>fully-qualified domain name</td>
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<tr>
<td>LMDB</td>
<td>Landscape Management Database</td>
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<tr>
<td>LoB</td>
<td>Line of Business</td>
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<td>LVM</td>
<td>Landscape Virtualization Management</td>
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## Abbreviations

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<tr>
<td>PAM</td>
<td>Product Availability Matrix</td>
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<td>SEA</td>
<td>Scope &amp; Effort Analyzer</td>
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<td>SLD</td>
<td>System Landscape Directory</td>
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<td>SMD</td>
<td>SAP Solution Manager diagnostics</td>
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<td>SUM</td>
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<td>SWPM</td>
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<td>TU</td>
<td>technical usage</td>
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<tr>
<td>UDA</td>
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2 Introduction and Scope

This document describes how to find new functions for SAP Business Suite (SAP ERP 6.0 EHP4 and higher) and to plan their implementation in an existing IT landscape, from the perspective of SAP lifecycle management.

Although the installation of other products, such, for example, SAP NetWeaver, are not described, many of the tools described here are also used to handle changes to those systems.

The process described here is the recommendation default approach. You can add steps that are not described here, or omit others if you already know their result (for example, if you already know which function you want to implement, you can skip the SAP product innovation discovery).

The following figure shows an overview of the tools involved, their connections, and the roles that use them. The distribution of roles is not mandatory - this guide only makes suggestions. For example, the line of business manager, IT architect, and basis administrator described in this document may have slightly different tasks or titles in different companies.

SAP creates software products and describes them in the SAP software catalog. Software and the software catalog data describing it, are delivered mostly via the SAP Service Marketplace (SMP), which also contains the SAP Support Portal. Customers connect to the SAP Support Portal for software delivery, including the catalog data and upload data to consume services hosted in the SMP, in all three roles:

- Line of business finds innovation (1).
- The IT architect checks the feasibility, based on the landscape information delivered by basis admin and the SAP product catalog, and creates a landscape plan (2).
- The basis admin implements the new software according to the landscape plan (3).

The steps in landscape data management shown in the circle, are described in detail the Maintenance Planning Guide for SAP Solution Manager 7.1.
Note
Other processes running on a higher level – such as steps from project management in SAP Solution Manager – are not part of this guide. The same applies to, for example, the handling of custom development on top of the software delivered by SAP.

A more detailed view of the steps is shown in figure 2 (update and upgrade) and figure 3 (new installation), which show the main steps of the process, as performed by the three roles mentioned previously. You will also see that in some cases, you use tools in parallel, and that the basis administrator acts at the beginning and the end of the process.

Update or Upgrade Existing Installations

Tools and activities involved in innovation adoption to update or upgrade installations of SAP Business Suite products:

Changes to existing software are triggered either by the line of business manager finding innovations, or by the IT architect, who keeps track of the release and upgrade information in the SAP Service Marketplace. Mandatory tools are marked with an asterisk (*). All other steps help you to manage this process better, and are therefore recommended.
Implementation of New Installations

Tools and activities involved in innovation adoption by new installations:

To illustrate the process, example screenshots in this guide show the adoption of an innovation delivered with EHP7 for SAP ERP 6.0, and installed for the same system setup of an SAP ERP 6.0 system E00 including EHP5 using a portal system P00, which is reused by a CRM system C00.
3 Prerequisite: Landscape Data

You must register managed systems in a central System Landscape Directory (SLD), because many tools and processes (such as Process Integration) require system data. For processes such as updates and upgrades in application lifecycle management (ALM), this data needs to be available in the SAP Solution Manager landscape management database (LMDB).

Technical systems register in the SLD, to send data regularly. This information is synchronized to the LMDB. The technical system information from the LMDB is also uploaded to the SAP Support Portal.

Using this data, you enrich the technical information in the LMDB to create landscape data: You create product systems, for example, to describe the dependencies of technical systems in maintenance processes.

More information:

- SAP product model, and all tools that describe the landscape (SLD, LMDB, verification,...): Landscape Descriptions
- There are several places to view and manage landscape information (SLD, SAP Solution Manager, Landscape Planner, ...): How to get an overview of Your IT landscape
- The Maintenance Planning Guide for SAP Solution Manager 7.1 and Special Cases in Installation and Update contain more details of the prerequisite steps.

Perform the following activities to provide all required landscape information.

3.1 Register Systems (SLD)

As a basis administrator, one of your tasks is to provide the system data for ALM processes. The preferred way of collecting system landscape information is automatic system registration by SLD data suppliers, which are implemented on most system types. The data suppliers send the SID (in most cases) and information on hardware and installed software to the SLD, which provides it to many client applications and synchronizes the information 1:1 to the LMDB.

For more information, see SAP Notes 1842956 (Check Data Supplier Completeness for Technical System) and 1018839 (Registering in the System Landscape Directory using sldreg).

Follow the topology recommendations for SLD and LMDB in your landscape:

- SLD Topology: How to Gather and Distribute SLD data in your IT landscape?
- SLD-LMDB Topology – Connections, Valid, and Invalid Data Exchange Between SLD and LMDB of SAP Solution Manager
3.2 Synchronize SLD and SAP Solution Manager (LMDB)

As a basis administrator, it will also be your task to make system data available in the LMDB. It must receive as much system information as possible from an SLD, automatically and frequently. This data is enriched by the SAP Solution Manager Diagnostics (SMD) Agent (Outside Discovery), which writes directly into the LMDB.

In the LMDB, dependencies between systems are described in technical scenarios (for monitoring) and product systems for maintenance processes. For more information, see Integration of System Landscape Management and SAP Note 1669649 (SLD/LMDB synchronization: principle of the clear path). To connect the SLD to SAP Solution Manager, see Connecting LMDB to System Landscape Directory (SLD).

Do not edit technical system information from the SLD manually: It prevents further updating by the SLD, can become out-of-date, and can be incorrect. Some information can, however, only be added by manual editing, for example additional attributes. For more information, see Completing Technical System Information Manually.

The data you collected in the SLD and created in the LMDB are the basis for the following steps.

More information:

- Landscape Management Database (LMDB)
- Documentation for System Landscape Management - LMDB
- SLD-LMDB Topology – Connections, Valid, and Invalid Data Exchange Between SLD and LMDB of SAP Solution Manager
- Agent Data in the SAP Solution Manager LMDB

3.3 Create Product Systems in SAP Solution Manager (LMDB)

Product systems are used to maintain and plan installations of product versions in the system landscape. A product system groups technical systems on which one product version is installed. It is the basis for
maintenance transactions, which consider the product instances that are assigned to one product system, addressing all technical systems involved.

As a basis administrator, you must create product systems in SAP Solution Manager manually, for example directly in transaction LMDB, or in the guided procedure for technical systems in the Managed Systems Configuration of the SAP Solution Manager: Configuration work center.

Before you start a maintenance transaction, verify the product system in the editor for product systems. For more information, see Performing Verification Checks.

The screenshot shows an example of a product system in the LMDB. The assigned technical systems and product instances are displayed, and the verification confirms that the product system can be used in Maintenance Optimizer (green traffic light icon).

More information:

- Managing Product System Information
- Products, Product Systems, Product Instances, Technical Systems, and Landscape Patterns in the SAP Solution Manager
- New in SP05: Product System Editor in the Landscape Management Database of SAP Solution Manager 7.1

3.4 Upload to SAP Support Portal (LMDB)
As the basis administrator, in this phase you have to provide the technical system information from the LMDB for the customer profile, which is in the SAP Support Portal, for support purposes, for example, for the Early Watch Alert, or to establish service connections. This data is now also used to plan changes in your company’s landscape with Landscape Planner and innovation discovery.

The most important, required system information is the following:

- installed software component versions
- installed product (only if unique; multiple installed products are not supported)
- technical instances with host details like fully-qualified domain name (FQDN)
- database attributes with host details like FQDN

Technical system information in the LMDB is by default synchronized to the SAP Support Portal, daily. If you want to transfer changes from the LMDB immediately, you can trigger this for selected technical systems.

More information:

- Synchronizing with SAP Support Portal
- SAP Note 993775 (Synchronizing system data with SAP Support Portal)
4 Finding Innovations

As a manager of a line of business (LoB), you keep track of the latest functions and features for your business needs, and discuss their technological aspects with the IT architect.

**Note**

Another reason for planning changes in your landscape would be a technology-driven update. In that case, the information used in the planning process could be derived, for example, from [https://support.sap.com/swdc ➔ Release & Upgrade Info / Release Strategy](https://support.sap.com/swdc), and the process starts – with the same prerequisite steps – in the Landscape Planner. The role to drive that update would be the IT architect.

Innovation discovery for SAP products provides a new access to SAP Business Suite products. Innovation discovery for SAP products in SAP Support Portal can be used by LoB, the IT architect, and end users at the customer, including SAP partners and consulting. Here, we will focus on the LoB and the IT architect.

As a manager of an LoB, you can use innovation discovery to search for new ways of improving business processes:

- Innovation discovery is a self-service tool, hosted by SAP on the SAP Service Marketplace, that simplifies your search for new functionality SAP has delivered (as enhancement packages, support packages, add-ons, or improvement notes).
- An innovation contains one or more product features, which are delivered as enhancement packages, add-ons, or stand-alone products.
- Innovation discovery analyzes only SAP Business Suite systems.
- If you have the required authorizations for the systems in which you are interested, and if your company authorizes SAP to use Early Watch Alert data, system-specific information is available, in addition to the generic information available to all SAP customers.
You can select innovation types, or search using filters. The home screen of innovation discovery has different entry points to find innovations:

4.1 Search for Innovation Options (Innovation Discovery)

In innovation discovery, you can select groups of innovation on the start screen, but you will usually filter for your line of business:

Select innovations by filtering by Industry > Areas of Responsibility > Solution Areas > Solution Capabilities.

All innovations found are to be checked by the IT architect for technical feasibility and implementation options.
4.2 Hand Over Search Results to IT Architect (Innovation Discovery)

As an LoB manager, communicate the search result in innovation discovery to your IT architect. He can evaluate the feasibility and cost of a change. You can directly send the result of your search from innovation discovery by e-mail. On the tab for technical details of a selected innovation, you find the e-mail service:

An e-mail is created by innovation discovery. It includes a link to the innovation:

```
Hi Tom,

I found this new function for FI reporting: Direct cash flow statement for actual data.

https://apps.support.sap.com/innovation-discovery/Index.html#innovation/IHLT_000871

Could you check out if we can implement this soon?

Best regards,

Chris
```
5 Planning Requested Changes

For the concrete planning of an enhancement, the following tasks are performed, which are described in the following sections.

5.1 Investigate Requirements for Change (Innovation Discovery)

The LoB has communicated a planned change to the IT architect.

As the IT architect, take over the information from the LoB for further investigation: The e-mail from innovation discovery contains a link to the search result page of an innovation.

Go to the Technical View tab and note the product version and business function.

You need this information for the following process, in which you answer the following questions:

- When are new functions available?
- What is the upgrade path?
- What are the landscape recommendations?
- What is the scope of change, and which target systems are involved?
5.1.1  Check Availability (PAM)

As the IT architect, carry out the next steps in the Product Availability Matrix (PAM) at https://support.sap.com/pam. Enter the product version in the search field, and select the product version from the result list.

You can also jump directly from innovation discovery to the related PAM entry, by clicking the product version link on the Innovation or Product Features tab:

Direct cash flow statement for actual data

- Characteristic "partner company" added to enable consolidated, direct cash-flow statements
- Functionality to include additional custom-specific characteristics for direct cash-flow and liquidity planning without requiring technical modifications
- Easier configuration of the assignment of payments to liquidity items

Product Features

Customers can include additional customer-specific characteristics.

Easier configuration of Direct Cash Flow Reporting in Customizing.

In the PAM, under General Information Details & Dates for a selected product, check the general availability (standard release) and end-of-maintenance of the product version. The Related Links on the same page direct you to documentation, such as master guides and release notes. These documents provide important information about the installation and prerequisites of the selected product version.
5.1.2 Check the Upgrade Paths (PAM)

In the PAM, under under General Information Related Product Versions, check the supported upgrade paths from previous releases to the desired target release, and the product versions on which the new product version depends.
5.1.3 Check Landscape Recommendations (PAM)

As the IT architect, you are also responsible for the way new functions are implemented, and answer questions such as “will a system be reused in a hub or sidecar scenario?” A ‘hub’ is, for example, if an SAP Enterprise Portal frontend is used by an ERP and a CRM backend system. In a ‘sidecar’ setup, ERP and CRM each have a dedicated portal system.

SAP provides guidance for these questions, for example, in the PAM, under General Information Details & Dates Related Links, the IT architect checks the documentation of the product version, which, for example for enhancement packages, includes the following:

- Master guide
- Installation and upgrade guide
- Product documentation in the SAP Help Portal
- Release note or release information note

Under Landscape Recommendations, you find a Wiki with basic information on how to integrate new functionality into an existing landscape, especially Reference Landscapes → Planning Guide - SAP Business Suite Landscape Implementation:

More information:
- Maintenance Planning Guide for SAP Solution Manager 7.1
- Special Cases in Installation and Upgrade
5.1.4 Find Installable Units (SAP Notes)

A product version and business function identified in innovation discovery or PAM are installed as a technical entity, ‘technical usage’ (TU), which groups the product instances that must be installed together to use the business function. One TU can contain one or more business functions.

The technical usage is selected, for example, in the Landscape Planner and in the Maintenance Optimizer.

Example: SAP Note 1818596 - Enhancement package 7 for SAP ERP 6.0: Required SWC (incl. attachments)

Map the business function to the correct TU. You need the business function name that was, for example, mentioned in the search result of innovation discovery.

This is not required for all SAP products. We need to differentiate in the following sections.

SAP ERP and Its Enhancement Packages – Technical Usages (SAP Note)

There are many deployment options, you need the technical usage for the business function from the innovation discovery search result. A description of the mappings of technical usages to business functions and product instances is attached to the software component (SWC) note (SAP Note 1818596), which is also referred to by the EHP release notes. Search it for the business function name.

This is an example for Direct Cash Flow from EHP 7 for SAP ERP 6.0. The mapping of business functions to technical usages, for business function FIN_GL_DIR_CASHFLOW.

Source: Release note for EHP7 for SAP ERP 6.0 (SAP Note 1737650) → SWC note for EHP 7 for SAP ERP 6.0 (SAP Note 1818596) → attachment BF-TU_mapping_EHP_2-7_f_ERP_6_V1.pdf.

SAP CRM, SRM, and SCM

For SAP Suite non-ERP products, like CRM, SRM, or SCM, there is only one deployment option, so all business functions are installed by default. So business functions do not need to be mapped to technical usages.
Add-On Products

SAP Fiori add-ons are shown in innovation discovery. Other types of add-on are shown in the landscape planner and other sources of information.

Which implementable units are required to install the add-on, depend on the add-on type. This information is provided in the master guide of the add-on. In Landscape Planner, you can select the add-on version of various types, independently of the innovation discovery service.

The following screenshot shows the selection of an add-on in innovation discovery:
Detailed information and a PAM link are displayed for each add-on, by which you can access further information. When you have found an add-on in innovation discovery or via other sources, the installation of the add-on is planned in the Landscape Planner, just like any other update – for details of the Landscape Planner, see section Define the Scope of Changes (Landscape Planner) [page 23].
You can search in innovation discovery for add-ons that you found in the Landscape Planner. Copy the name of the product version in the Landscape Planner:

Then enter the product version as search term in innovation discovery. In this example, the result will show the available Fiori applications for SAP ERP:
5.2 Define a Landscape Plan

In the Landscape Planner, you as an IT architect can plan changes based on a graphical map. You can define the scope according to systems to address or depending on the SP stacks, EHP, add-on, or product version that you would like to implement. You will need the information about technical usage and product version that you gathered in the previous steps.


5.2.1 Define Target and Scope of Changes (Landscape Planner)

In the Landscape Planner, on the Systems tab, select a technical system with the product version you want to update.

In the Plan Area, choose Dependencies to see all related technical systems.

The following example shows how this type of dependency between systems is handled: An an SAP Enterprise Portal frontend is used by an SAP ERP and an SAP CRM backend system ('hub' scenario). Another way of installing the same functionality would be a 'sidecar' setup, in which both ERP and CRM each have a dedicated portal system. Hub and sidecar landscape patterns are maintained for technical systems in the LMDB.

Three product systems have been created to describe the landscape for maintenance, update, and upgrade. Landscape Planner and Maintenance Optimizer take the landscape pattern into account.
The first screenshot shows the SAP CRM backend C00 on the right and Portal system P00 on the left. When you choose the connecting maintenance dependency (modeled as a product system C00 in the LMDB), the product instances of the SAP CRM product version that is installed on those two systems is highlighted:

The second screenshot shows the SAP ERP backend E00 on the left and Portal system P00 on the right (you can scroll the screen). When you choose the connecting maintenance dependency (modeled as a product system E00 in the LMDB), the product instances of the SAP ERP product version that is installed on those two systems is highlighted:

Plan a Product System Update

In this example, an SAP Enterprise Portal frontend is used by an SAP ERP and a SAP CRM backend system, so some parts of the product version SAP ERP 6.0 with enhancement package 5 are installed on the ERP backend, and other parts are installed on the portal front-end, and you must update both technical systems must together. The product system defined for the ERP installation describes this, and is used by the Landscape Planner to visualize the setup and calculate changes.

Tip

When you plan changes for a target system, related systems like DEV, QA, and PRD are kept on the same product version. For more information, see Maintenance of system tracks with Maintenance Optimizer.

You can add more than one system to a landscape plan, and assign the same changes.
The technical systems that are assigned to the same product system, are displayed. Now you can choose *Update Options*:

You are guided through the selection process of the update type (add-on or enhancement package), product, and technical usages:

**Plan a New Product Installation**

You can use the Landscape Planner to plan new installations as well as updating and upgrading. This may be a complete new AS ABAP-based system or an SAP Gateway to enhance the use of an existing installation.
Choose the button for new installations in the Landscape Planner:

You are guided through the selection of product and the target system. You can choose an existing product version and select one of the technical systems on which it is installed, or you can define a new technical system.

This plan is not consumed by an implementing tool, it gives the same overview as a landscape plan that describes update options.

### 5.2.2 Save the Landscape Plan (Landscape Planner)

Save your landscape plan in the Landscape Planner so that you can download it, set other statuses, and adapt it later (for example, to install an add-on in the landscape plan).
5.2.3 Finalize the Landscape Plan (Landscape Planner)

When you have added all new functions to the landscape plan, set it to Finalized. Landscape Planner will automatically validate that the planned changes can be implemented in your existing landscape.

You can download a landscape plan as a PDF document, and add further functions, for example add-ons, to it. Each time you add software, the landscape planner validates it.

More information:
- Documentation in the Landscape Planner
- Landscape Planner User Guide
5.3 Prepare Approval of the Landscape Plan (Landscape Planner)

When you have chosen all software to be added, and finalized the landscape plan in Landscape Planner, it is approved by LoB, IT architect, and basis administrator, using additional tools. When the plan is complete, it is approved and released for implementation.

Tip

The following steps are not performed in the Landscape Planner, they provide information on involved systems, effects on business processes to which these systems belong, and the testing effort to be expected due to the planned changes.

None of these steps is technically required to continue in the Landscape Planner, but you should perform them and consider their results.

5.3.1 Check Details of Involved Technical Systems (LMDB)
In many cases, this is not required. But it can happen that the Landscape Planner indicates inconsistencies:

Or maybe the owner of a system needs to be consulted. In these cases, the basis administrator can check the system role (DEV, PROD, QA...), system size, system owners, product instance assignment, or verification status of a technical or product system.

This can be done in the SAP Solution Manager: either in the Landscape Management Database (transaction LMDB) or the Solution Manager Administration work center, under Landscape.

Ensure that the system landscape information is up-to-date and correct in SAP Solution Manager.

In the editor for product systems of the LMDB, check the assigned technical systems.
5.3.2 Compatibility Check of Planned Changes with Other Systems in the Landscape (UDA)

Typically, SAP systems, like SAP ERP, SAP CRM, SAP SCM or SAP SRM, are part of an SAP system landscape that contains various interconnected systems. Business processes can run across the various systems. When planning an upgrade of the systems in your landscape, you need to know whether it has an impact on other systems in your landscape, that is, whether the upgrade also requires changes to other systems in the landscape.

The Upgrade Dependency Analyzer (UDA) at [http://service.sap.com/uda](http://service.sap.com/uda) provides this information.

The Upgrade Dependency Analyzer checks the existence of upgrade dependencies between two separately installed SAP systems in your system landscape. The result of this check is a dependency statement that informs you of known upgrade dependencies between these systems. The dependency statement does not generally indicate whether two components are technically compatible, it is relevant only for functions that were already in use before the upgrade.
5.3.3 Estimate the Effort to Test the Changes (SEA)

With the Scope and Effort Analyzer, you can analyze the scope of activities and effort, before you physically deploy enhancement packages and support packages.

The Scope and Effort Analyzer performs a comprehensive analysis with minimal customer input. All its steps are performed in the background, after you have entered the necessary data. Some of the most important and time consuming analyses before a physical deployment of EHPs and SPs are:

- Identification of affected custom code and modifications, and required adjustments in the customer system, since an enhancement or support package contains updates of SAP standard objects
- Identification of required test scope, test planning, creation of missing test cases, and execution of manual tests

With the 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.
You can start the analysis and result calculation in the Test Management work center of SAP Solution Manager, under Scope and Effort Analyzer.

The test runs in the background over all technical systems involved (DEV, PRD, QA...). SAP Solution Manager receives a calculation of SAP objects (bill of material, BOM) for the planned change.

The result is displayed in charts, and provides the following information:

- Usage statistics
- Number of business scenarios, processes, and process steps
- Number of test cases, automated tests, manual tests, and missing tests
- Impact analysis for custom code and modifications
- Effort calculation
- Business blueprint
- Test scope and effort optimization
- Other recommendations
The change project team can review the results with fact sheets, assessment of analysis details, and by using parameter variation for result optimization.

In the last step of the analysis creation, you can choose *Continue with Target Definition* to create a transaction in Maintenance Optimizer. In Maintenance Optimizer, you only need to complete the steps 2, 2.1, and 2.2. This is sufficient to complete the target definition. You can use this for your reference and to see what updates need to be tested.

We recommend that you create the final stack.xml file based on the landscape plan by import into the Maintenance Optimizer, as described in *Create Maintenance Transaction and Download Basket* [page 34].

More information:
- SAP Solution Manager WIKI - Test Management
- Best Practice for Regression Testing of E2E Business Processes
- Functional scope of the tool: Scope and Effort Analyzer (SAP Help Portal) and Scope and Effort Analyzer (SAP Service Marketplace)

### 5.4 Release the Landscape Plan (Landscape Planner)

When all persons involved have evaluated the planned changes and completed the previous activities, the IT architect can release the landscape plan in the Landscape Planner.

When the landscape plan has been released, it cannot be changed any longer. Only a released landscape plan can be imported into Maintenance Optimizer, to create a maintenance transaction in the next step. The maintenance transaction will be created according to your selections in the landscape plan.
6 Implementing Changes

The basis administrator performs the implementation of new software in the system landscape.

6.1 Import Landscape Plan and Create and Download Basket (Maintenance Optimizer)

You have released your landscape plan in the Landscape Planner. All planning decisions have been made, now some system details need to be defined in the Maintenance Optimizer in SAP Solution Manager, to fill the download basket and create a stack.xml file describing how to apply its content to all technical systems involved.

As the basis administrator who manages the landscape data in the SLD and in the LMDB of SAP Solution Manager, you implement the changes, according to the approved landscape plan.

You ensure that the landscape data in SAP Solution Manager is correct and up-to-date. For more information, see Prerequisite: Landscape Data [page 8].

You create the stack configuration files for an update or upgrade with Maintenance Optimizer. This file can be processed by installation tools like Software Provisioning Manager (SWPM) or Software Update Manager (SUM).

In the Landscape Planner, copy the plan ID (only landscape plans with status “released” can be imported):

Start a new maintenance transaction in the Change Management work center, under Maintenance Optimizer. Choose Import from Landscape Plan, and enter the ID from the Landscape Planner.
A new maintenance transaction is created. The systems affected are displayed, and the first steps are predefined according on the information from the landscape plan – you cannot go back and change the settings:
Add all systems involved (DEV, PRD, QA...) in one 'track' to one maintenance transaction, to keep them at the same version, which is usually required. Download the software directly, consecutively, to ensure a homogenous update of the whole track. For more information, see the Maintenance Planning Guide → Maintaining System Tracks with Maintenance Optimizer.

If you cannot assign all involved technical systems to one track, use the XML copy report for the systems. For more information, see the Maintenance Planning Guide → Copying Stack Configuration Files for Identical Systems.

Complete the process in the Maintenance Optimizer. In the Download Files step, download the XML stack file immediately.

More information:
- Maintenance Optimizer (SAP Help Portal)
- Maintenance Planning Guide → Executing a Maintenance Transaction
- Maintenance Optimizer (SAP Service Marketplace)

6.2 Creating a Sandbox Environment (Optional, LVM)

To test new software, create a test or sandbox system. Landscape Virtualization Management (LVM), Enterprise Edition, offer features to simplify and automate the effort required to configure, provision, deploy, monitor, and manage SAP systems.

The LVM Enterprise Edition helps companies to reduce the TCO of their SAP systems and increase their business agility.

For more information about LVM, see SAP Landscape Virtualization Management at a Glance.

Tip

If you only want to create a system copy, you can use the Software Provisioning Manager (SWPM). For more information, see the system copy guide at http://service.sap.com/sltoolset → Software Logistics Toolset 1.0, scroll down to the bottom and expand Software Provisioning → System Copy based on SAP NetWeaver <release>, then select your operating system.

To use the LVM System Provisioning features, you require a license for "SAP Landscape Virtualization Management Enterprise Edition". Ask your sales representative for additional information.
LVM automates end-to-end provisioning activities, which support you in creating new test or sandbox systems. With LVM, you can automate the creation by cloning or copying a system:

Table 3:

<table>
<thead>
<tr>
<th>system clone</th>
<th>system copy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRD</td>
<td>TST</td>
</tr>
<tr>
<td>system clone</td>
<td>system copy</td>
</tr>
<tr>
<td>PRD</td>
<td>QAS</td>
</tr>
</tbody>
</table>

You can clone a system to create a duplicate of an existing system. The clone has the same system ID, but it is isolated from the landscape.

Example: Create isolated systems for testing, demo, or training, or to test the update and upgrade paths.

You can copy a system to create a duplicate of an existing system with a different host name and a unique system ID.

Example: Create new quality or test systems in a track of synchronized systems.

If you are using this option to create the stack.xml for the sandbox system, you can create a copy of the original stack.xml file – for more details, see:

- How To Copy Stack Configuration XML For Identical Systems
- SAP Note 1600302 (MOpz: Copy stack xml with a report)

### 6.3 Implementation (SWPM or SUM)

Use the appropriate tool to implement the downloaded items. This ensures that the correct installed software information is written on to the system, and can be forwarded to the SLD.

**Software Update Manager (SUM)** installs updates and add-ons. It controls different kinds of implementation processes, such as upgrading SAP systems, installing enhancement packages, or and applying support package stacks. It is part of the Software Logistics Toolset (SL Toolset). SUM replaces previous tools like SAPehpi, SAPup, SAPJup, JSPM, CEupdateManager, and SolManUp.
The tool consumes the stack XML that was planned by the Landscape Planner and created by the Maintenance Optimizer. (Though although also the tools SPAM and SAINT can also consume stack XMLs, using use SUM is highly recommended; see SAP Note 1803986 Rules to use SUM or SPAM and SAINT to apply SPs for ABAP stacks.)

Software Provisioning Manager (abbreviated with to SWPM in this document) performs new installations, uninstallation, system copy, or system transformation. It is also part of the SL Toolset, too. It is used for all SAP NetWeaver-based systems, which are systems either based on SAP NetWeaver AS ABAP, or SAP NetWeaver AS Java, or on a dual-stack system. For example, you can also create a test or sandbox system as a copy from of an existing system.

After a new installation, an update to a higher SP stack level with SUM may be required.

More information:

- Software Update Manager (SUM): introducing the tool for software maintenance (SAP Community Network)
- Software Provisioning Manager 1.0 (SAP Community Network)
- Update of SAP Systems Using Software Update Manager
- Software Logistics Toolset (SAP Service Marketplace)
7 Finalizing the Implementation

To mark the status for other users, and to prevent that landscape plan and maintenance transaction are used in the future, both have to be set to completed.

7.1 Set Maintenance Transaction to Completed (Maintenance Optimizer)

After you have implemented the changes for the product systems, return to the Maintenance Optimizer and change the Status of Implementation for Product System(s) to Completed.

In the last step, End Maintenance, set the transaction to Completed.

7.2 Set Landscape Plan to Completed (Landscape Planner)

When you have created the stack XML in Maintenance Optimizer, and implemented the changes in your landscape, you can set the landscape plan to Completed, to mark the maintenance process as finalized.
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