

Master Guide

PUBLIC

SAP NetWeaver 7.4

Document Version: 1.12 – 2017-06-01

SAP NetWeaver Master Guide



Content

1	Getting Started.	5
1.1	About this Document.	5
1.2	Glossary.	6
1.3	SAP NetWeaver Use Cases.	9
1.4	Business View of the Use Cases.	11
1.5	Mapping of Use Cases to Installable Software Units.	13
1.6	Enhancement Packages.	16
	Enhancement Package Concept.	16
	Key Facts About Enhancement Packages.	18
2	Planning SAP NetWeaver 7.4.	19
2.1	Major Planning Steps and Related Documentation.	19
2.2	Planning the Use Cases and their System Landscapes.	20
	Building Composite Applications.	21
	Building Integration Scenarios.	29
	Data Warehousing.	36
	Mobilizing Business Processes.	37
	Integrating and Self-Servicing Content with SAP Enterprise Portal.	39
	SAP Knowledge Warehouse.	40
	Custom Application Development (ABAP).	41
3	Implementing SAP NetWeaver 7.4.	44
3.1	Installation Procedure.	44
3.2	Installation Tool.	51
3.3	Configuration of Systems and Follow-Up Activities.	51
3.4	System Copy and Migration.	53
A	Appendix.	54
A.1	Additional Information for Implementing SAP NetWeaver.	54
A.2	Description of Software Units.	55
	Systems with Product Instances.	55
	Optional Standalone Units.	67
	Standalone Engines.	69
	Clients.	71
A.3	Compatibility Product Instances.	73

Document History

The following table provides an overview on the most important document changes:

Caution

Before you start the implementation, make sure that you have the latest version of this document. You can find the latest version at <http://help.sap.com/nw74> ► *Installation and Upgrade* ►.

Table 1:

Version	Date	Description
1.0	2013-05-10	Initial Version
1.1	2013-05-15	Minor corrections in the installation procedure for SAP NW BW systems
1.2	2013-06-10	SAP Note 1868764 with regard to Process Orchestration added
1.3	2013-07-15	Content revised for SAP NetWeaver 7.4 SP03
1.4	2013-07-23	Minor corrections
1.5	2013-09-13	Minor changes with regard to NW 7.4 SR1
1.6	2013-11-20	Chapter 2.2.2: Information about Dual Stack deployments revised Chapter 3.3: Information about configuring SAP NW Process Integration revised
1.7	2013-12-20	Information about SAP NW BW updated
1.8	2014-07-29	Minor changes and updates regarding Process Integration Landscape and SAP Notes for BI Content
1.9	2014-09-15	Minor corrections and changes; terminology revised; Changes and enhancements related to Support Release 2 of SAP NetWeaver 7.4



Version	Date	Description
1.10	2014-10-06	Information regarding SAP BW powered by SAP HANA DB revised
1.11	2016-02-29	Corrected a paragraph about the SAP NetWeaver Application Server for ABAP in chapter Systems with Product Instances [page 55] .
1.12	2017-06-01	Added information about SAP Gateway Foundation in chapter Standalone Engines [page 69] . Several link and graphic updates

1 Getting Started

1.1 About this Document

This Master Guide is the central starting point for the technical implementation of the technology platform SAP NetWeaver 7.4 including the Support Releases 1 (SR1) and 2 (SR2). It provides you with information about the use cases as well as the installable product instances, and refers you to the detailed documentation (such as the Installation Guides).

Caution

The *Master Guide* is regularly updated. Make sure that you have the latest version by checking <http://help.sap.com/nw74>  *Installation and Upgrade*  immediately before starting the installation.

Note

Support Releases and Support Packages



If you install SAP NetWeaver 7.4 with Support Release 2, you install automatically the previously available support packages 1 to 8 at once, and your system goes immediately to 7.4 SP8 without needing to implement the intervening SPs separately.

SAP NetWeaver 7.4 with Support Release 1 includes the support packages 1 to 5. If you perform an update with target release NW 7.4 SR1, your system goes immediately to 7.4 SP5.

Constraints

The scenarios that are presented here serve as examples of how you can use SAP software in your company. The scenarios are intended only as models and do not necessarily run the way they are described here in your customer-specific system landscape. Check your requirements and systems to determine whether these scenarios can be used productively at your site. Furthermore, we recommend that you test these scenarios thoroughly in your test systems to ensure that they are complete and free of errors before going live.

See also

The upgrade or update to this SAP solution is described in the document *Upgrade Master Guide – SAP NetWeaver 7.4*. The Upgrade Master Guide is available at <http://help.sap.com/nw74>  *Installation and Upgrade* .

1.2 Glossary

Short overview of some technical terms as well as SAP NetWeaver key terms:

Note

Usage Type, Technical Usage, and Product Instance


The term “product instance” replaces the terms “usage type” and “technical usage” for SAP systems based on SAP NetWeaver 7.3 including enhancement package 1 and higher. For more information, see SAP Note [1877731](#) . Note that there is no terminology change for older releases and all mentioned terms can be used as synonyms.

Table 2:

Term	Explanation
Client	Clients are additional installable programs or tools. They reside either on local front-end PCs accessed by users or on back-end systems where they act as client programs within an SAP NetWeaver system landscape.
Functional Unit	A configured and activated unit of SAP NetWeaver that provides a set of functions, allowing the implementation and execution of activities such as process steps within IT scenarios. It is nestable and can be grouped into larger functional units. Examples include transport management system, system landscape directory, adapter framework, and business process engine.
Landscape Pattern	Defines if a technical system is used by one or several product systems to calculate update and upgrade methods. The landscape pattern can be defined as “hub” system (if used by several product systems) or as “sidecar” system (if used by one product system).
LMDB	Landscape Management Database Central storage and editor for system information in SAP Solution Manager, supplied by a central SLD. In the LMDB, you manage technical information (such as technical systems and hosts) and logical information (such as product systems and technical scenarios). This data is the basis for other applications, like monitoring and alerting, diagnostics, maintenance transactions, and SAP Support Portal. As of SAP Solution Manager 7.1, the LMDB replaces the previous information storage SMSY.
Logical Component	Group of technical systems that provide a concrete business function by installed product instances and by different roles (such as development, test or production system).
Maintenance Optimizer (MOpz)	Application within SAP Solution Manager that guides you through planning and downloading stack XML files for enhancement packages, support packages, and additional update packages. These files can be used as input files for the installation by update tools like Software Update Manager.

Term	Explanation
Product	<p>An SAP offering in the SAP price list that performs business tasks.</p> <p>The complete product model is shipped as SAP Software Catalog. The availability of products is published in the Product Availability Matrix (PAM). The product model defines the product structure with its product instances, software components, version, and technical dependencies between product and its components. Products typically have a name starting with 'SAP...' and are characterized by a version period and a maintenance cycle. A product can be installed on one or more technical systems. All technical systems that are involved form the product system.</p> <p>Examples for products are SAP ERP, SAP NetWeaver, and SAP Solution Manager.</p>
Product Instance	<p>Part of a product version that bundles one or more software components.</p> <p>A product instance is part of only one product version. It must be installed and updated as a whole on a single technical system. (ABAP-Java dual-stacks are considered one technical system.) Patches can still be installed for individual software components. A product instance can contain other product instances. It can be re-used across products.</p> <p>Examples for product instances are SAP ECC Server and SAP NetWeaver AS ABAP.</p>
Product System	<p>A group of technical systems on which a product version is installed. Product system descriptions are used to maintain and plan products in the system landscape.</p>
Product Version	<p>A release of an SAP product.</p> <p>It bundles product instances and the included software component versions that are available at a particular time for a specific scope of functionality. Like products, product versions are shipped in the SAP Software Catalog. They are the basis for the compatibility of closely coupled systems and the maintenance of product systems.</p> <p>An example is SAP ERP 6.0, which is a product version of the product SAP ERP.</p>
Optional Standalone Units	<p>Optional standalone units are additional software units that you install separately. They are based on Application Server Java (AS Java) and provide specific (server) functions in combination with one or more SAP systems.</p>
SLD	<p>System Landscape Directory</p> <p>Central provider of information on technical systems, for consumers in the system landscape and for external consumers. The SLD gets its information mainly from SLD data suppliers, which are installed on the technical systems, and from the SAP software catalog.</p> <p>With the SLD, you collect and edit system data that is required for system landscape management. This information can be used by other consumers, such as SAP Process Integration, WebDynpro for Java, and SAP Solution Manager.</p>
SMSY	<p>The SAP Solution Manager System Landscape collects information about the SAP systems in the landscape. (SMSY is the name of the transaction in SAP Solution Manager.) As of SAP Solution Manager 7.1, the new information storage LMDB replaces SMSY.</p>

Term	Explanation
Software Component	<p>Delivery and product unit of an SAP software product</p> <p>A software component comprises a set of packages that are delivered in a single unit. You always assign repository objects to a software component by assigning the package containing these objects. This makes it possible to move repository objects from one software component to another during a release upgrade. A software component is released in successive releases with new functions. You can import patches into each software component separately.</p>
Software Provisioning Manager	<p>A tool that performs software provisioning processes such as installation, uninstallation, system copy, or system transformation. The Software Provisioning Manager is delivered with the Software Logistics Toolset.</p>
Stack configuration file	<p>The stack configuration file is created by the Maintenance Optimizer and is system-specific. Depending on the software components that are installed in a system, the Maintenance Optimizer calculates the required software components that have to be updated to reach a certain target configuration.</p>
Standalone Engine	<p>Standalone engines of SAP NetWeaver are additional installable software units. They do not work as full-blown systems of SAP NetWeaver, but as standalone engines that provide a specific (server) function in combination with one or more SAP NetWeaver systems. Standalone engines are not part of a product instance. They do not run on AS ABAP or AS Java.</p>
Technical System	<p>Describes a part of a product's software that is installed on one or several physical or virtual hosts.</p> <p>A technical system is installed and administered as a whole. It is identified by a system ID (SID) or extended SID, a host, and an installation number. There are different technical system types, for example Application Server (AS) ABAP, AS Java, or TREX. Technical systems are central elements when it comes to software component deployment and operational activities, such as monitoring and alerting.</p>
Update	<p>Activities to maintain or enhance a system, such as installing enhancement packages, installing add-ons, or applying Support Package stacks or Support Packages.</p> <p>Note: The tool for system maintenance tasks is the Software Update Manager (SUM). In the SUM guide, the term "Update" is used as collective term for all the tasks that can be performed using this tool (such as performing release upgrades, installing enhancement packages, or updating a system with Support Package Stacks).</p>
Upgrade	<p>The switch from an older software version to a new version. Typically, both the server component of a system landscape and other components are upgraded. Several different technical upgrade procedures are used to upgrade the server component, such as the Repository Switch upgrade or the System Switch upgrade.</p>
Usage Type	<p>An installed and correspondingly configured part of an SAP NetWeaver system that provides key capabilities for a system landscape. It specifies the intended purpose of a system, and it is the result of the configuration of the underlying installed software units and the configuration of the underlying functional units.</p> <p>Examples include business intelligence, process integration, and enterprise portal.</p>

Term	Explanation
Use Case	A definition of use from the end users' perspective for accomplishing a specific goal within a system. Use cases represent the main capabilities of the system to fulfill specific requirements.

1.3 SAP NetWeaver Use Cases

Use

The use cases illustrate how you can use your SAP NetWeaver implementation. The main use cases of SAP NetWeaver and their corresponding key areas of SAP NetWeaver are as follows:

Table 3:

Use Case	Corresponding Key Area of SAP NetWeaver
Building Composite Applications	SAP Composition Environment
Data Warehousing	SAP Business Warehouse
Building Integration Scenarios	SAP Process Integration
Integrating and Self Servicing Content with SAP Enterprise Portal	SAP Enterprise Portal
Mobilizing Business Processes	SAP NetWeaver Mobile
Custom Application Development (ABAP)	(All areas that allow ABAP development on the SAP NetWeaver Application Server ABAP)

Constraints

As of SAP enhancement package 1 for NetWeaver 7.3, SAP NetWeaver Mobile is only available as add-on to SAP NetWeaver. For more information see SAP Note [1645275](#).

More Information

You can get all information about the key areas with regard to SAP NetWeaver 7.4 in the SAP Help Portal and in the SAP Community Network (SCN):

- **SAP Help Portal**

SAP Help Portal bundles access to SAP product documentation and also related information, such as SAP Notes, product availability information, as well as community content.

For SAP NetWeaver 7.4, you access the Help Portal using the address <http://help.sap.com/nw74>.

1. Choose **Application Help** > **<key area>** for instructions for using the application.
2. Choose **Application Help** > **Function-Oriented View** > **<functional area>** for a component-based reference of all functions and tasks that can be performed with the product.

- **SAP Community Network (SCN)**

The SCN is organized into more than 300 "spaces", which support small, self-contained communities. These communities are typically focused around a topic, an SAP product, or an industry. Each space contains a complete set of social networking tools including a discussion forum, a blogging area, and an area where you can publish and collaborate on documents.

As a logged-on member, you can go to any space in the SCN landscape but it's likely that you will be interested in visiting and following a particular set of spaces that reflect your particular range of interests and where members who share your interests are likely to hang out.

SCN spaces are where you get the latest news from SAP and the community, where you interact with your peers, where you earn points for your contributions, and where you establish reputation as being expert on certain topics

You access the SCN using the address <http://scn.sap.com>.

1. To learn more about SAP NetWeaver, choose:
 - **Products** > **tab "Technology"** > **Application Foundation/Integration** > **SAP NetWeaver** > **SAP NetWeaver**
 - **Lines of Business** > **Information Technology** > **SAP NetWeaver**
 - <http://scn.sap.com/community/netweaver>
2. Moreover, the SAP Community Network provides you with detailed information regarding the SAP NetWeaver use cases:

Table 4:

For the use case	choose in the SCN Community:
Integrating and Self Servicing Content with SAP Enterprise Portal	<p>Products > tab "Technology" > Application Foundation/Integration > SAP NetWeaver > Team Productivity > SAP Enterprise Portal</p> <p>or choose http://scn.sap.com/community/enterprise-portal</p>
Data Warehousing	<p>Products > tab "Technology" > Application Foundation/Integration > SAP NetWeaver > Information Management > SAP Business Warehouse</p> <p>or choose http://scn.sap.com/community/data-warehousing/bw</p>

For the use case	choose in the SCN Community:
Building Composite Applications	▶ <i>Products</i> ▶ <i>tab "Technology"</i> ▶ <i>Application Foundation/Integration</i> ▶ <i>SAP NetWeaver</i> ▶ <i>Process Orchestration</i> ▶ <i>Business Process Management</i> ▶ or choose http://scn.sap.com/community/bpm
Custom Application Development	▶ <i>Products</i> ▶ <i>tab "Technology"</i> ▶ <i>Application Foundation/Integration</i> ▶ <i>Custom Development</i> ▶ <i>ABAP Development</i> ▶ <i>ABAP Development</i> ▶ or choose http://scn.sap.com/community/abap
Mobilizing Business Processes	▶ <i>Products</i> ▶ <i>tab "Technology"</i> ▶ <i>Enterprise Mobility</i> ▶ <i>Enterprise Mobility</i> ▶ or choose http://scn.sap.com/community/mobile
Building Integration Scenarios	▶ <i>Products</i> ▶ <i>tab "Technology"</i> ▶ <i>Application Foundation/Integration</i> ▶ <i>SAP NetWeaver</i> ▶ <i>Process Orchestration</i> ▶ <i>Process Integration & SOA Middleware</i> ▶ or choose http://scn.sap.com/community/pi-and-soa-middleware

1.4 Business View of the Use Cases

For implementation and configuration purposes, the SAP NetWeaver use cases are structured according to the business view of SAP's Software Portfolio. This portfolio is structured using elements such as

- Solutions
- Solution Editions
- Key Capabilities / Scenario Groups
- Scenarios / Processes

Various tools, services and processes, such as the Business Process Repository for the SAP Solution Manager, use the business view of the SAP Software Portfolio.

The following table displays the structured business view of the use cases in the SAP Solution Manager:

Table 5:

Use Case	Corresponds to Business Scenario Group/Key Capability	Includes the Scenarios/Processes
Building Composite Applications	Building Composite Applications	<ul style="list-style-type: none"> • Business Rules Management • Java Development and SOA Infrastructure • Process Composition
Data Warehousing	Enterprise Data Warehousing	<ul style="list-style-type: none"> • Data Modelling • Define Data Flow • Metadata Management • Performance Optimization • Scheduling and Monitoring
Building Integration Scenarios	Building Integration Scenarios	Building Integration Scenarios
	Building integration-centric processes	Building integration-centric processes using the single-SID PI and BPM solution
Integrating and Self Servicing Content with SAP Enterprise Portal	Integrating and Self Servicing Content with SAP NetWeaver	<ul style="list-style-type: none"> • Building Communities with Wikis & Forums • Content Management Scenarios with Knowledge Management • Managing and mashing up portal pages with Web Page Composer • Portal Landscape Interoperability and Openness • Unified Access to Applications and Processes
Mobilizing Business Processes	Mobilizing Business Processes	<ul style="list-style-type: none"> • Developing Mobile Applications for Occasional Connection • Enabling Mobile Applications for Occasional Connection*
Custom Application Development (ABAP)	Custom Application Development (ABAP)	Custom Application Development (ABAP)
—	Application Lifecycle Management	Application Lifecycle Management

1.5 Mapping of Use Cases to Installable Software Units

To give you a quick overview of SAP NetWeaver 7.4, the table below shows the mapping between use cases and required SAP NetWeaver software units. For details about the software units, see section [Description of Software Units \[page 55\]](#).

Table 6:

Use Case	Product Instance	Standalone Engines	Optional Standalone Units	Clients
Building Composite Applications: [page 21] <i>Business Rules Management and Process Composition</i>	<ul style="list-style-type: none"> AS Java Adobe Document Services (optional) Business Process Management and Business Rule Management Composite Application Framework Composition Environment Platform NW Product Description DI [optional] 			<ul style="list-style-type: none"> SAP NetWeaver Developer Studio Visual Composer Adobe LiveCycle Designer (Optional) Web Browser
Building Composite Applications: [page 21] <i>Java Development and SOA Infrastructure</i>	<ul style="list-style-type: none"> AS Java NW Product Description DI [optional] Enterprise Services Repository 			<ul style="list-style-type: none"> SAP NetWeaver Developer Studio Web Browser

Use Case	Product Instance	Standalone Engines	Optional Standalone Units	Clients
Data Warehousing [page 36]	<ul style="list-style-type: none"> AS ABAP BW ABAP AS Java NW Product Description [optional] AS Java Extensions [optional] BI Java [optional] EP Core – Application Portal [optional] Enterprise Portal [optional] 	Search and Classification (TREX)		<ul style="list-style-type: none"> SAP GUI with Business Explorer (BI Add-On) SAP BusinessObjects Analysis, Edition for Microsoft Office* [optional] SAP BusinessObjects Crystal Reports* [optional] SAP BusinessObjects Dashboards [optional] SAP BusinessObjects Web Intelligence* [optional] SAP BusinessObjects Design Studio* [optional]
Building Integration Scenarios [page 30]	<ul style="list-style-type: none"> Application Server Java NW Product Description AS Java Extensions Application Server ABAP Process Integration Enterprise Services Repository Process Integration Adapter Engine 	<ul style="list-style-type: none"> Adapter Engine (Java SE) [optional] 	<ul style="list-style-type: none"> Advanced Adapter Engine [optional] Advanced Adapter Engine Extended 	

Use Case	Product Instance	Standalone Engines	Optional Standalone Units	Clients
Integrating and Self Servicing Content with SAP Enterprise Portal [page 39]	<ul style="list-style-type: none"> AS Java NW Product Description AS Java Extensions EP Core – Application Portal EP Portal Add-on (for <i>Building Communities with Wikis and Forums</i> only) 			
Mobilizing Business Processes: [page 37] <i>Developing Mobile Applications for Occasional Connectivity</i>	<ul style="list-style-type: none"> AS ABAP Mobile Application Server Java DI EP Core – Application Portal [optional] 			<ul style="list-style-type: none"> SAP GUI SAP NetWeaver Developer Studio Mobile Client
Mobilizing Business Processes: [page 37] <i>Enabling Mobile Applications for Occasional Connectivity</i>	<ul style="list-style-type: none"> AS ABAP Mobile Application Server Java DI EP Core – Application Portal [optional] 			<ul style="list-style-type: none"> SAP GUI SAP NetWeaver Developer Studio Mobile Client
Custom Application Development [page 41]	<ul style="list-style-type: none"> AS ABAP 			<ul style="list-style-type: none"> SAP GUI ABAP Development Tools (Eclipse)
SAP Knowledge Warehouse [page 40]	<ul style="list-style-type: none"> AS ABAP AS Java 	<ul style="list-style-type: none"> Search and Classification (TREX) Content Server 		<ul style="list-style-type: none"> Web Browser SAP GUI (KW Add-on included)

*Note that SAP BusinessObjects products require separate licenses.

1.6 Enhancement Packages

1.6.1 Enhancement Package Concept

We have adapted our major release strategy to better fit your adoption cycle. To ensure that you benefit from new developments and innovations while minimizing the impact on your core operational systems, SAP uses enhancement packages to speed up the delivery of new functions.

With SAP enhancement packages, you can install and activate new functions depending on your business needs without having to perform a system upgrade.

You can selectively implement the new functions and activate the software upon business demand. As a result, you can isolate the impact of software updates and make new functions available faster due to shortened test cycles.

Implementation

There are three different scenarios to implement an enhancement package:

- Installation of an enhancement package on an existing SAP system
- New installation of an SAP system including an enhancement package
- Upgrade of an SAP system including an enhancement package




Maintenance

SAP enhancement packages have Support Packages of their own that are equivalent to the Support Package versions of the underlying SAP system. We highly recommend installing the enhancement package in combination with the latest available Support Package stack. This approach reduces installation, modification adjustment, and testing effort. Using this strategy, you can install SAP enhancement packages as a normal maintenance activity together with Support Package stacks.

An enhancement package requires a specific Support Package stack level in the source release SAP system.

Note

If the SAP system is on a lower Support Package stack level, all relevant Support Package stacks for the enhancement package installation are **automatically included** into the download queue by the Maintenance Optimizer, as well as the latest available Support Packages for the enhancement package.

For a better understanding of the general concepts and principles of updating a system, see the *Maintenance Planning Guide* at <http://support.sap.com/mopz>   section "Guides" 

Tools

The enhancement package installation requires the following tools:

1. SAP Solution Manager

Note

Use of SAP Solution Manager is **mandatory**.







Tool versions:

We recommend to always use the latest version of the SAP Solution Manager. For more information, see SAP Support Portal at <http://support.sap.com/solutionmanager>.

System Landscape Maintenance with SAP Solution Manager:

Make sure that you have correctly defined and maintained your system landscape in SAP Solution Manager:

- SAP Solution Manager 7.0: Use the SAP Solution Manager System Landscape (transaction `SMSY`) for the complete system description.
- SAP Solution Manager 7.1 SP01 to SP04, use the Landscape Management Database (transaction `LMDB`) to maintain technical system information. For logical product system information, use transaction `SMSY`.
- SAP Solution Manager 7.1 SP05 and higher, use the Landscape Management Database (transaction `LMDB`) for the complete system description. (The transaction `SMSY` is no longer required.)

For more information about the Landscape Management Database (LMDB), see <http://help.sap.com/solutionmanager71>  [Application Help](#)  [SAP Library SAP Solution Manager 7.1 <SP version>](#)  [SAP Solution Manager Operations](#)  [Landscape Management Database \(LMDB\)](#)  [Managing System Landscape Information](#) .

Landscape Verification with SAP Solution Manager:

To verify and correct your system landscape, SAP highly recommends that you use the verification functions of the SAP Solution Manager:

Recommendation

Before installing the enhancement package, we recommend that you run a landscape verification to check your landscape setup and your system descriptions, and to correct data if necessary.

- SAP Solution Manager 7.0 to 7.1 SP04: Use Landscape Verification 1.0 for SAP Solution Manager. This add-on allows you to identify and correct issues in your SAP Solution Manager landscape (transaction `SMSY`) before they cause problems, for example during a system update. Examples for errors are a missing connection to the System Landscape Directory or the wrong assignment of products to technical systems. For each type of error, a generic description for the solution is provided.
- SAP Solution Manager 7.1 SP05 or higher: Use the landscape verification function that is embedded into the product system editor of the Landscape Management Database (LMDB). It replaces the previous Landscape Verification tool.

For more information about the landscape verification, see the SAP Community Network at <http://scn.sap.com/docs/DOC-8793>.

2. Installation or upgrade tools (depending on your scenario)

- SAP Solution Manager Maintenance Optimizer (MOpz)
The *SAP Solution Manager Maintenance Optimizer (MOpz)* (accessible from the *Change Management* work center) supports the download of a consistent queue that includes all necessary Support Packages and enhancement packages. In addition, SAP Solution Manager calculates a valid import queue for the

selected SAP system and generates the enhancement package stack configuration file that you require for the installation.

- Software Provisioning Manager 1.0

For the new installation of an SAP system including an enhancement package you use the standard installation tool *software provisioning manager 1.0*.

- Software Update Manager (SUM)

To install an enhancement package on an existing SAP system, as well as for the upgrade of an SAP system to a higher release including an enhancement package, you use the *Software Update Manager (SUM)*.

1.6.2 Key Facts About Enhancement Packages

The following list summarizes important facts about the enhancement package concept and recommended approaches:

- Install only selected parts of the enhancement package. The selection is driven by the functional need from a business point of view.
- You cannot mix the installation of different enhancement package versions in your ABAP-based SAP system. You can have just one enhancement package version in the SAP system. This means, if you have already updated product instances to a previous EHP you need to apply the current EHP to those components as well.
- SAP enhancement packages are cumulative, meaning that each new enhancement package includes new innovations of its own as well as all innovations delivered with prior packages.
- We recommend installing the latest available enhancement package version.
- Install enhancement packages and Support Packages in one single step (this includes the preconditioned Support Packages).
- SAP enhancement packages have Support Packages of their own that are equivalent to the Support Package versions of the underlying SAP system.
- SAP enhancement packages have the same maintenance period as the underlying core application.
- The installation of an enhancement package is irreversible.
- As long as you do not activate a business function, the installation of an enhancement package has no impact on existing business processes or user interfaces.
You can only activate business functions in ABAP-based systems, not in Java-based SAP systems.
- The activation of most business functions and extension sets is irreversible. Only a small number of business functions is reversible.
Test the installation process and activation of new functions in advance on a sandbox system. Ensure that you evaluate the runtime and the SAP system behavior, its dependencies and impacts. Make sure that your SAP system is free of errors before going live.

2 Planning SAP NetWeaver 7.4

The general sequence for the implementation of an SAP NetWeaver system is as follows:

1. You plan the implementation (such as scope, hardware and software requirements, release restrictions).
2. You plan the system landscape for the use cases.
3. You install the components of your SAP NetWeaver system.
4. You configure your systems.




In the following, you find information about the planning steps for SAP NetWeaver 7.4.

- [Major Planning Steps and Related Documentation \[page 19\]](#)
- [Planning the Uses Cases and their System Landscapes \[page 20\]](#)

2.1 Major Planning Steps and Related Documentation

During an implementation project, you have to take into account many aspects and to take various decisions. The major planning steps of this process are outlined below.

Table 7:

Step	Step Description	Further Information
Scope and Requirements	You determine the scope of your SAP NetWeaver implementation.	For more information, see SAP NetWeaver Use Cases [page 9] .
Installable Software Units	You determine which installable software units (that is, systems with product instances, standalone engines, optional standalone units and clients) are required for the use cases.	For more information, see the Mapping of Use Cases to Installable Software Units [page 13] section. For details about the software units, see Description of Software Units [page 55] .
Landscape Planning	You determine the system landscape and consider the landscape-relevant aspects concerning your required use case.	See Planning the Uses Cases and their System Landscapes [page 20] .
Hardware & Software Prerequisites	Use the <i>Product Availability Matrix</i> (PAM) to check which platforms (operating systems, databases, browsers) are supported for your SAP NetWeaver components.	http://support.sap.com/pam 
	Check the database dependencies and the recommended minimum database versions.	See SAP Notes 1951491  and 1914052  .

Step	Step Description	Further Information
	Check which hardware sizing is required for your SAP NetWeaver release.	http://service.sap.com/sizing
Release Restrictions	Check SAP Notes for any release restrictions.	Regarding SAP NetWeaver 7.4 release restrictions, see SAP Note 1730102 .
SAP Solution Manager Prerequisites	<p>We recommend to always use the latest SAP Solution Manager release.</p> <p>Make sure that your SAP Solution Manager system has the required support package level and content.</p> <p>Check if you need to do an update or upgrade of your SAP Solution Manager application or content.</p> <p>After an upgrade or update to the latest SAP Solution Manager release, you need to do follow-up actions described in the section <i>Software Change Management</i> of the <i>Solution Operations Guide</i>.</p>	<ul style="list-style-type: none"> • See SAP Note 631042 for information about the Release strategy for Implementation Content (ST-ICO). • See SAP Note 781448 for information about Support Package levels of SAP Solution Manager installations and upgrades. • The Solution Operations Guide for SAP Solution Manager is available at: http://service.sap.com/instguides SAP Components > SAP Solution Manager > <Release> > Operations.

2.2 Planning the Use Cases and their System Landscapes

In the following, you get information about the system landscapes for the different SAP NetWeaver uses cases

- [Building Composite Applications \[page 21\]](#)
- [Building Integration Scenarios \[page 29\]](#)
- [Data Warehousing \[page 36\]](#)
- [Mobilizing Business Processes \[page 37\]](#)
- [Integrating and Self-Servicing Content with SAP Enterprise Portal \[page 39\]](#)
- [SAP Knowledge Warehouse \[page 40\]](#)
- [Custom Application Development \(ABAP\) \[page 41\]](#)

For some uses cases, you get some additional planning information.

➔ Recommendation

- For more details and aspects regarding the System Landscape Design and Infrastructure, we refer you to the information about *Landscape Design and Infrastructure* that you can access from the document *Technical Enablement - Application Lifecycle Management* in the Software Community Network (SCN). Choose <http://scn.sap.com/docs/DOC-23404> **Landscape Design and Infrastructure**.
- See also the information about *Preparing the System Landscape Directory (SLD)* in the SAP NW74 Library, available at <http://help.sap.com/nw74> **System Administration and Maintenance Information** > **Technical Operations for SAP NetWeaver** > **Section: Administration of SAP NetWeaver systems and**

[components](#) > [Technical Operations for SAP NetWeaver Development Infrastructure \(DI\)](#) > [Development Infrastructure \(DI\)](#) > [Configuring the Development Infrastructure](#) > [Preparing the System Landscape Directory \(SLD\)](#) > .

- Furthermore, see the information about [Managing System Landscape Information](#) in the Help Library for the SAP Solution Manager.

Choose <http://help.sap.com/solutionmanager71> > [Application Help](#) > [SAP Library](#) > [SAP Solution Manager 7.1 SP<version>](#) > [SAP Solution Manager Operations](#) > [Landscape Management Database \(LMDB\)](#): > [Managing System Landscape Information](#) > .

2.2.1 Building Composite Applications

SAP Composition Environment provides design time and runtime infrastructures for developing, running, and managing composite applications that comply with SAP Enterprise Service-Oriented Architecture (enterprise SOA) technologies. Composite applications use this service-oriented architecture to fill the gaps that standard solutions cannot cover.

With Process Orchestration, you can combine the process modeling, operation, and monitoring capabilities of SAP Business Process Management (SAP BPM) with the integration capabilities of SAP Process Integration (Advanced Adapter Engine Extended (AEX) installation option). For more information, see [Process Orchestration \[page 34\]](#).

2.2.1.1 System Landscape

In order to plan the system landscape for SAP Composition Environment (SAP CE) you should start by answering the following questions:

- Which back-end systems are required?

The answer to this question depends on the functions and data you would like to use to build your composite applications, and whether you want to continue using existing software, such as the software lifecycle management functions of your back-end system.

- Which central product instances of SAP NetWeaver can be shared when using SAP CE in combination with SAP Enterprise Portal or in combination with SAP Process Integration (SAP PI)?

The following graphic gives an overview of SAP CE in a system landscape using SAP Process Integration, SAP Enterprise Portal, and already existing back-end systems:

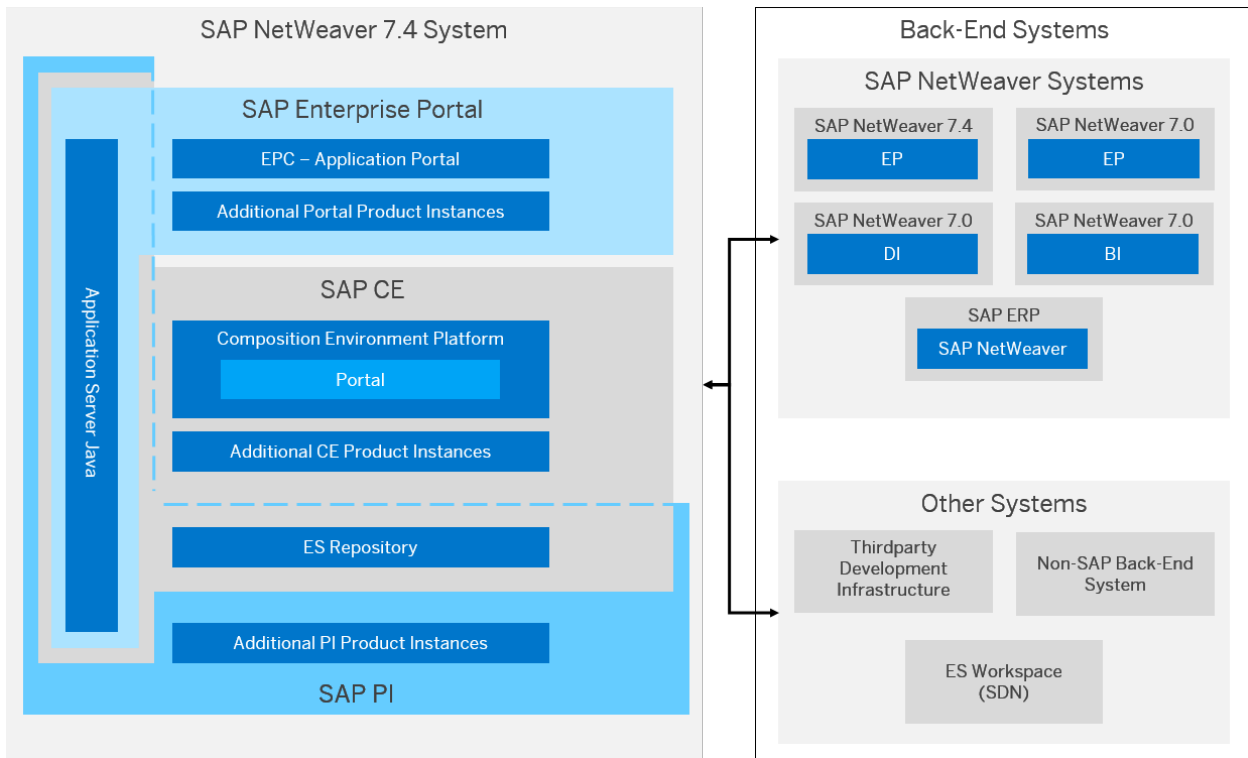


Figure 1: SAP CE Combined with Other Use Cases and Back-End Systems

The following sections give recommendations for possible shared usages or installation requirements in your system landscape, for example, with respect to the following options shown in the graphic above:

- Enterprise Services Repository can both be used for SAP CE and SAP PI. See section *Working with Enterprise Services Repository* below for more details.
- The Composition Environment Platform contains the functional unit *Portal* that offers – apart from minor exceptions – the same functionality as product instance *EP Core – Application Portal* for SAP Enterprise Portal. See section *Working with SAP Enterprise Portal* below for more details.

Connecting to Back-End Systems

You can integrate and use a back-end system in the following scenarios:

- You access data residing on a back-end system.
You can reuse existing data in the composite applications. For example, if you want to use data residing in an SAP ERP system, you can use the SOA capabilities (in SAP ERP 6.0 systems based on SAP NetWeaver 7.0 Support Package Stack 9 or higher) or you can connect using Remote Function Calls (RFC) to older systems using the Java Connector (JCo) that is offered as a part of SAP NetWeaver AS Java.
- You use enterprise services on SAP or non-SAP back-end systems.
You can leverage the SOA capabilities of SAP NetWeaver by consuming services provided by an SAP back-end system such as SAP ERP 6.0 (on SAP NetWeaver 7.0 SPS9 or higher), or the ES Workplace that you can access using the SAP Community Network (SDN) at <http://scn.sap.com/community/soa>. Note that you can use the ES Workplace in this context only to try some features out, it is not intended for productive use.

In addition, you can consume services from a third-party back-end system using the standard-based web service capabilities of the stack. The SAP NetWeaver AS Java installation includes a Services Registry that enables you to browse the registered service definitions.

Working with Enterprise Services Repository

As a prerequisite for using Enterprise Services Repository (ES Repository), the System Landscape Directory is needed where products and software components are maintained. You can create your own products and software component versions in the System Landscape Directory. Before the start of development, you need to import the required software component versions from the System Landscape Directory into the ES Repository.

i Note

Note that the following JAVA archives are installed among other software components as part of Enterprise Services Repository:

- `ChartDirector.jar`
- `jide.jar`

We recommend using Enterprise Services Repository on the same AS Java where you use the Services Registry for building composite applications.

If you use SAP NetWeaver systems for building composite applications and for building integration scenarios (using SAP PI), we strongly recommend maintaining all your design objects in one ES Repository.

SAP PI is tightly coupled with ES Repository and requires configuration to connect to a given ES Repository. By default, PI connects to the default ESR delivered with SAP PI, while you can use any ES Repository for building composite applications. We recommend using the latest version of ESR in the landscape.






More information at: <http://help.sap.com/nw74>  [Application Help](#)  [SAP Composition Environment Administrator's Guide](#)  [Configuring Composition Environment](#)  [Configuring Additional Components](#)  [Configuring Enterprise Services Repository](#)  [Configuring a Central ES Repository in a CE and PI Landscape](#) .

Working with SAP Enterprise Portal

Integrating Applications into SAP Enterprise Portal

Once you create and run your applications on the SAP CE system, you can use standard portal capabilities for integrating Java applications into iViews.

- For back-end connectivity to SAP transaction and BEx Web iViews, use the portal system landscape overview.
- To enable back-end connectivity for other application types, such as composite views and processes, use Remote Function Calls (RFCs) and Web services, which are configured in SAP NetWeaver Administrator.

For more information, see <http://help.sap.com/nw74>  [Application Help](#)  [SAP Composition Environment Administrator's Guide](#)  [Administering Composition Environment](#)  [Additional Administration Tasks](#)  [Integrating Content into the SAP Enterprise Portal CE](#) .

Running Composite Applications in SAP Enterprise Portal

Once you have integrated your composite applications into SAP Enterprise Portal, the following scenarios have to be distinguished:

- Running composite applications in a portal when **developing and testing** them in your landscape.
- Allowing business users to **access composite applications in a productive environment**.

Depending on the scenario, either product instance Composition Environment Platform (CEP) is sufficient or a local Portal installation (product instances *EPC – Applications Portal* (EPC) and optionally *Enterprise Portal* (EP)), or a remote SAP Enterprise Portal installation is required. In the following table, the terms local and remote are to be understood from the viewpoint of an SAP NetWeaver 7.4 installation:

Table 8:

	Developing and Testing	Accessing Composite Applications in Productive Environments	
Product	SAP NetWeaver 7.4	<ul style="list-style-type: none"> • SAP NetWeaver 7.0 • SAP NetWeaver 7.0 including enhancement package 1 or 2 • SAP NetWeaver 7.3 • SAP enhancement package 1 for NetWeaver 7.3 • or SAP NetWeaver 7.4 	3rd Party Solution
Required Product Instance	CEP*	EPC* (EP**)	—
Type of Access	Local	Local (SAP NetWeaver 7.4) and remote (SAP NetWeaver 7.0, SAP NetWeaver 7.0 including enhancement package 1 or 2, SAP NetWeaver 7.3, SAP enhancement package 1 for NetWeaver 7.3, and SAP NetWeaver 7.4)	Remote

	Developing and Testing	Accessing Composite Applications in Productive Environments	
Additional Information	Note that the portal installed with product instance Composition Environment Platform can function as a producer portal only; consumer capabilities are therefore not supported.	<p>You can enable the runtime access of composite applications from a remote</p> <ul style="list-style-type: none"> • SAP NetWeaver 7.0 • SAP NetWeaver 7.0 including enhancement package 1 or 2 • SAP NetWeaver 7.3 • SAP enhancement package 1 for NetWeaver 7.3 • or SAP NetWeaver 7.4 <p>portal, either by using the SAP NetWeaver Portal iView Wizard, or by setting up a federated portal network.</p>	—

* The installation of product instance EPC allows you – in addition to the functions provided by product instance Composition Environment Platform – to enable the runtime access of composite applications in the portal on the local system using GPAL and the iView wizards.

** Product instance EP requires product instance EPC and extends the portal to a full Enterprise Portal. For more information, see section [System Landscape Aspects for Integrating and Self-Servicing Content with SAP Enterprise Portal \[page 39\]](#).

For more information about enabling runtime access from a remote SAP NetWeaver 7.0, SAP NetWeaver 7.3; SAP enhancement package 1 for NetWeaver 7.3, or SAP NetWeaver 7.4 portal, see <http://help.sap.com/nw74>

► [Application Help](#) ► [SAP Composition Environment](#) ► [Administrator's Guide](#) ► [Administering Composition Environment](#) ► [Additional Administration Tasks](#) ► [Running CE Applications in Remote Portals \(Optional\)](#) ►

2.2.1.2 Further Aspects for Your Installation Planning

Overview

The following graphic shows the software units that are used for *Building Composite Applications*:

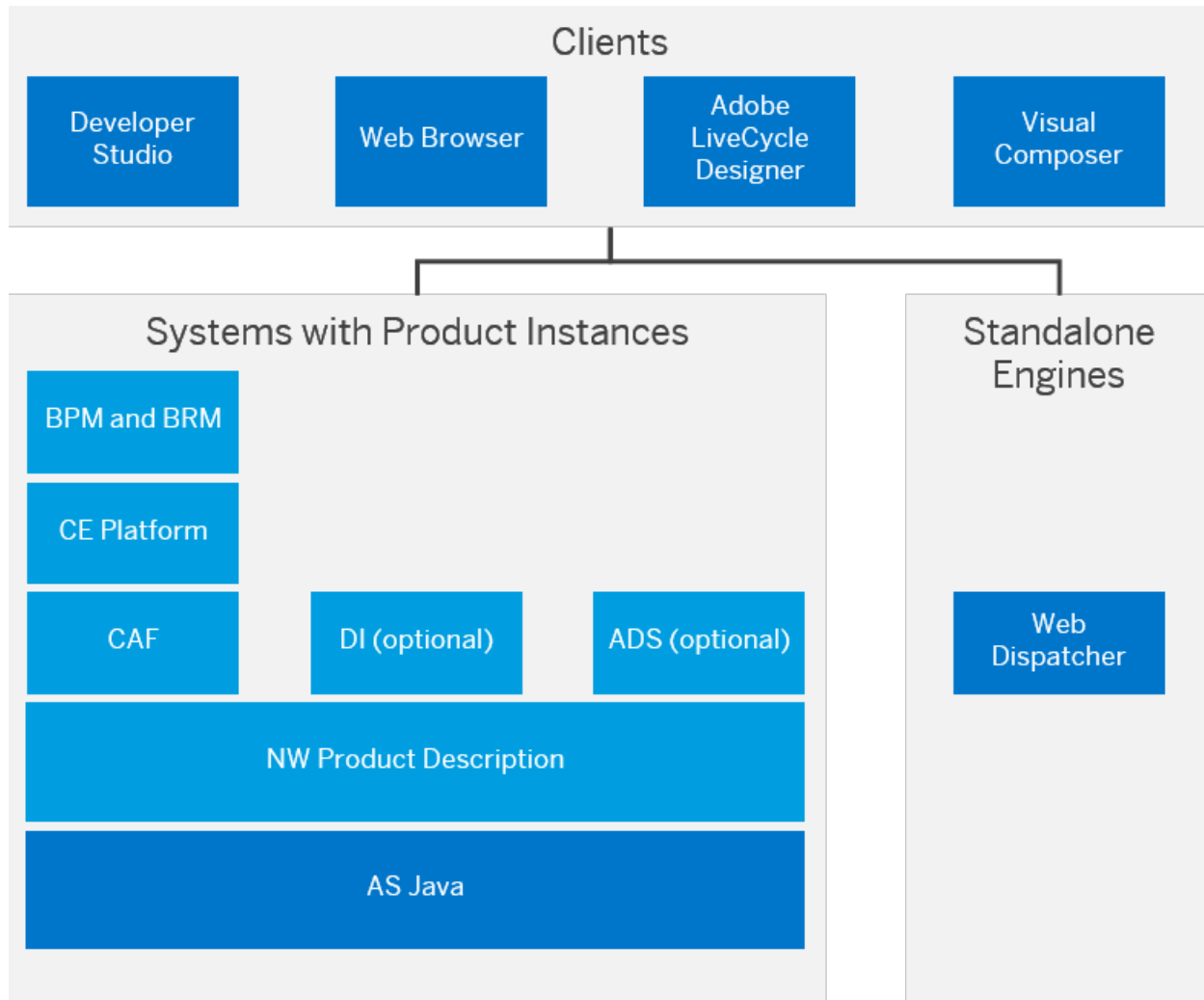
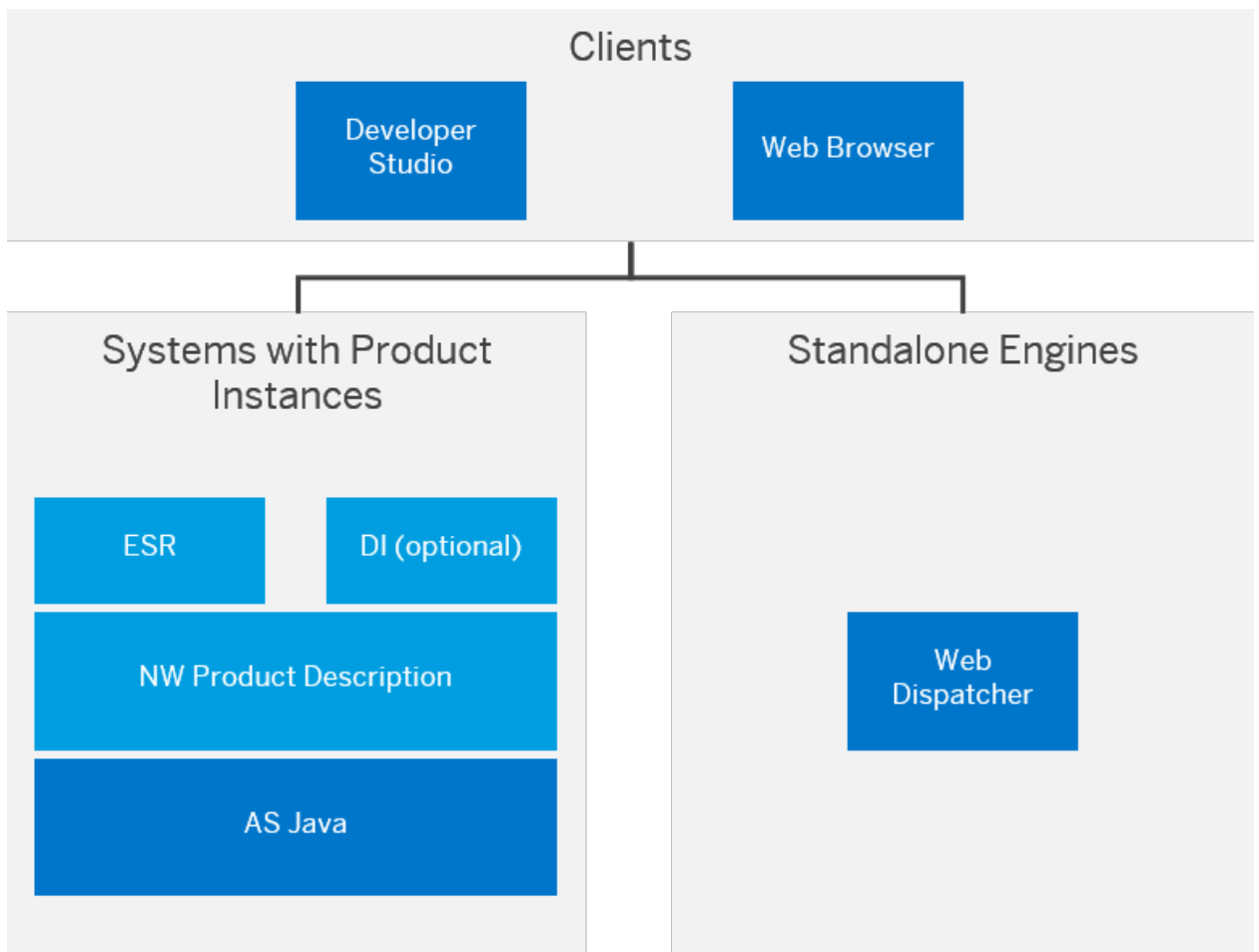


Figure 2: Software Units for Building Composite Applications



When setting up the system landscape, you need to consider the development environment for each developer and the overall system landscape for developing, testing, and running composite applications.

We recommend using a combination of development system, test system, and production system with a central AS Java to develop, consolidate, test, and run your application productively. This system landscape is also the preferred option for developing a composite application in a team of developers.

In order to describe this scenario, the following sections focus on the AS Java and the Developer Studio, because the installation is tailored to these main software units. Of course, additional product instances or clients need to be installed in addition depending on your scenario.

For information about supported operating systems and databases, see the Product Availability Matrix for SAP NetWeaver 7.4 available at <http://support.sap.com/pam>.

Planning Your Installation of SAP NetWeaver Development, Test, and Production Systems for Composite Applications

When using SAP NetWeaver for development of composite applications aimed for productive use, we strongly recommend setting up a system landscape consisting of the following systems:

- **Development System and Test System**

Use these systems for development and quality assurance.

- **Production System**

Use this system to run your applications separately from your development and test landscape.

The system landscape supports consolidating and testing individual development and, as a consequence, is strongly recommended for team development projects.

The following graphic provides an overview of the recommended system landscape:

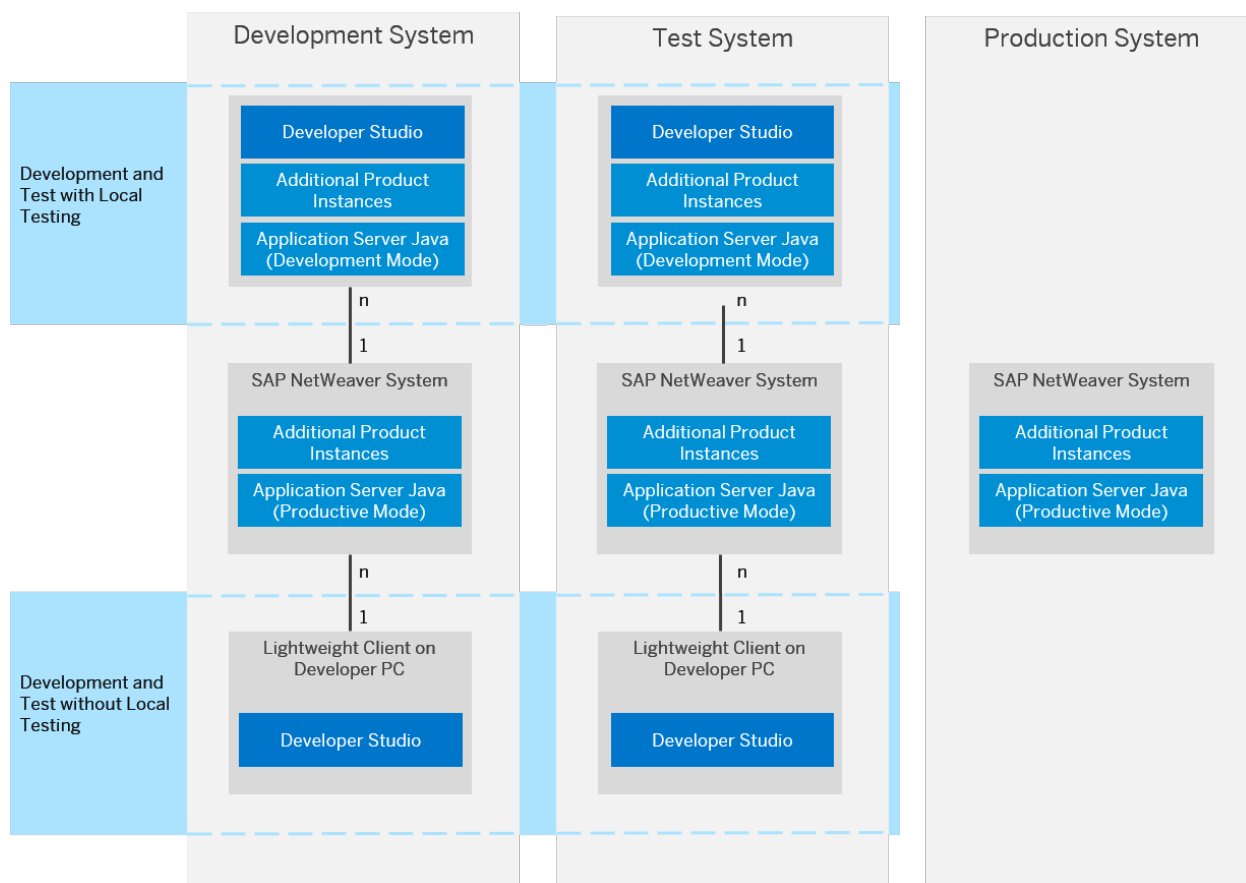




Figure 3: Recommended SAP NetWeaver system landscape

With respect to the installation of the development environment, you install a *AS Java centrally* and *Developer Studio* instances on each developer host. This option requires fewer hardware resources per developer host. In this landscape scenario you can set up an AS Java in development mode centrally and connect to it from the other hosts in the landscape using the Developer Studio.

In a production system landscape, you have to install a central 64-bit SAP NetWeaver Application Server Java in productive mode for running composite applications to address additional runtime requirements such as clustering and higher default memory settings. We strongly recommend installing a central 64-bit server in productive mode for both the test system landscape and the development system landscape as well.

SAP NetWeaver Application Server Java 7.4 SP03 or higher based on SAP HANA

As of SAP NetWeaver 7.4 SP03, the SAP HANA database supports SAP NetWeaver Application Server Java and further product instances that are dependent on AS Java.

For more information in terms of the implementation of SAP NetWeaver Application Server Java 7.4 based on SAP HANA database, see the *End-to-End Implementation Roadmap for SAP NetWeaver AS Java based on SAP HANA*. This guide is available on the Service Marketplace at <http://service.sap.com/installnw74>  [Planning](#) .

2.2.2 Building Integration Scenarios

You can either install SAP Process Integration (PI) as a standard installation (dual-stack system) or the Advanced Adapter Engine Extended (AEX), which is based on AS Java only. Both options are described in [System Landscape for Building Integration Scenarios \[page 30\]](#).

Furthermore, you have the possibility to install the [Process Orchestration \[page 34\]](#).

Caution

Dual Stack Systems


No update or upgrade of optional dual-stack SAP NetWeaver systems is supported to SAP NetWeaver 7.4 and higher (and already as of SAP NetWeaver 7.0 with SAP enhancement package 1, you can no longer install optional dual-stack application systems). Also for earlier releases than SAP NetWeaver 7.4, SAP recommends to avoid optional dual-stack deployments where possible.

By way of exception, dual-stack implementations can still exist in former SAP NetWeaver Process Integration installations. However, note that a single-stack SAP Process Integration Java (Advanced Adapter Engine Extended) exists that offers almost all of the features of classical dual-stack implementations.

Therefore, you should investigate if a Java-only implementation of SAP PI is a feasible approach for your use cases. Due to the harmonized process orchestration stack (SAP PI and SAP BPM running on the same Java instance), stateful system-centric processes can be developed using SAP Process Orchestration capabilities. Processes that are created with ccBPM need to be redesigned and modeled with SAP BPM. For more information about how to do this, see the SAP Community Network at: <http://scn.sap.com/docs/DOC-28803>





SAP Business Suite

The same applies for the SAP Business Suite: SAP Business Suite 7i2011, which is based on SAP NetWeaver 7.0 including Enhancement Package 3, is the last SAP Business Suite release with dual-stack support. No upgrade or update of dual-stack SAP Business Suite systems is supported to higher releases – for more information, see SAP Note [1816819](#) . Already as of SAP Business Suite 7, you can no longer install dual-stack application systems.

Note

SAP NetWeaver Application Server Java 7.4 SP03 or higher based on SAP HANA

As of SAP NetWeaver 7.4 SP03, the SAP HANA database supports Application Server Java and further product instances that are dependent on AS Java.

For more information in terms of the implementation of SAP NetWeaver Application Server Java 7.4 based on SAP HANA database, see the *End-to-End Implementation Roadmap for SAP NetWeaver AS Java*. This guide is available on the Service Marketplace at <http://service.sap.com/installnw74>  [Planning](#) .

2.2.2.1 System Landscapes for PI and AEX

Use

The PI standard installation (dual-stack) offers the complete functional range, whereas the functional range of AEX is restricted, but has the advantage of a lower TCO.

The following figures depict both options:

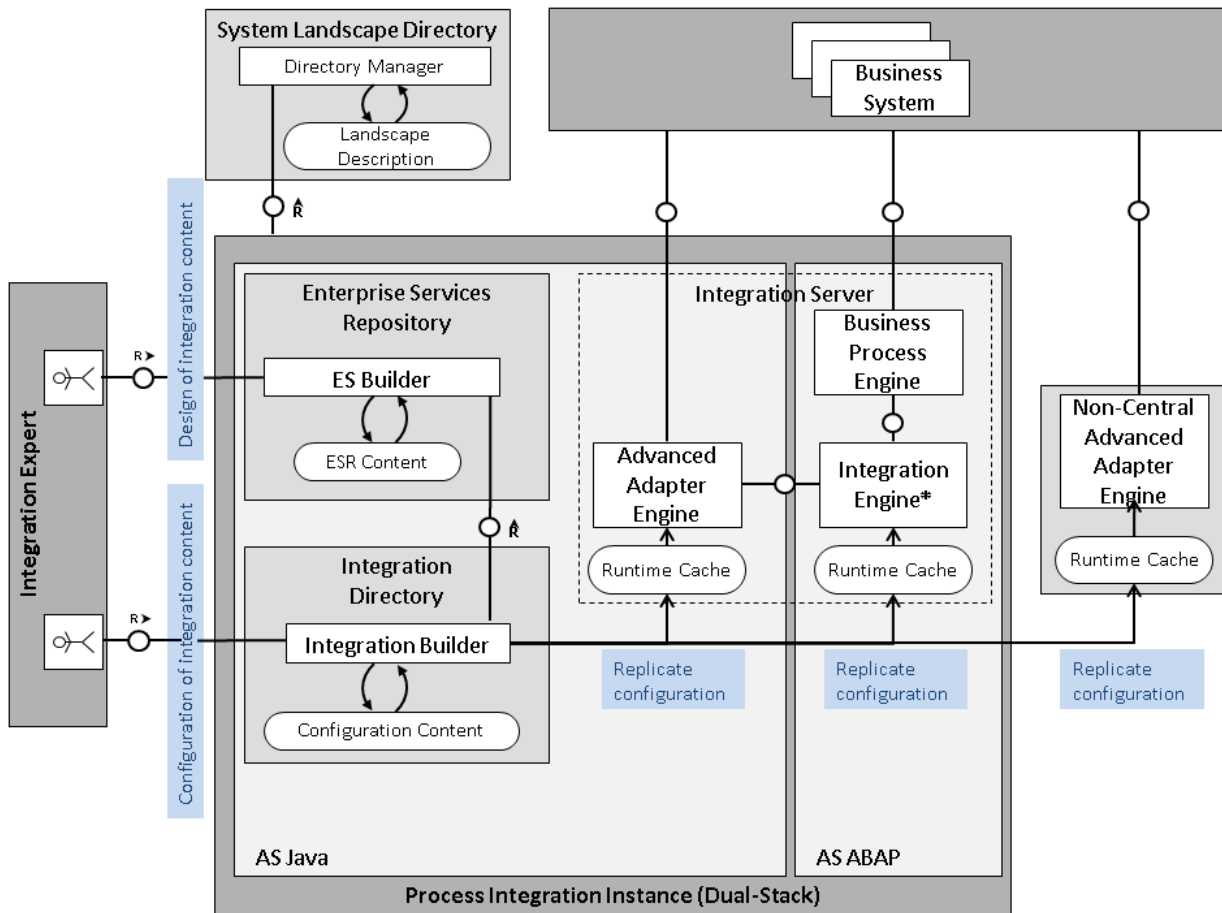


Figure 4: System Landscape for Building Integration Scenarios with PI Standard Installation

i Note

When you choose the *Process Integration* installation option in the installation tool, all dependent product instances are selected and installed automatically.

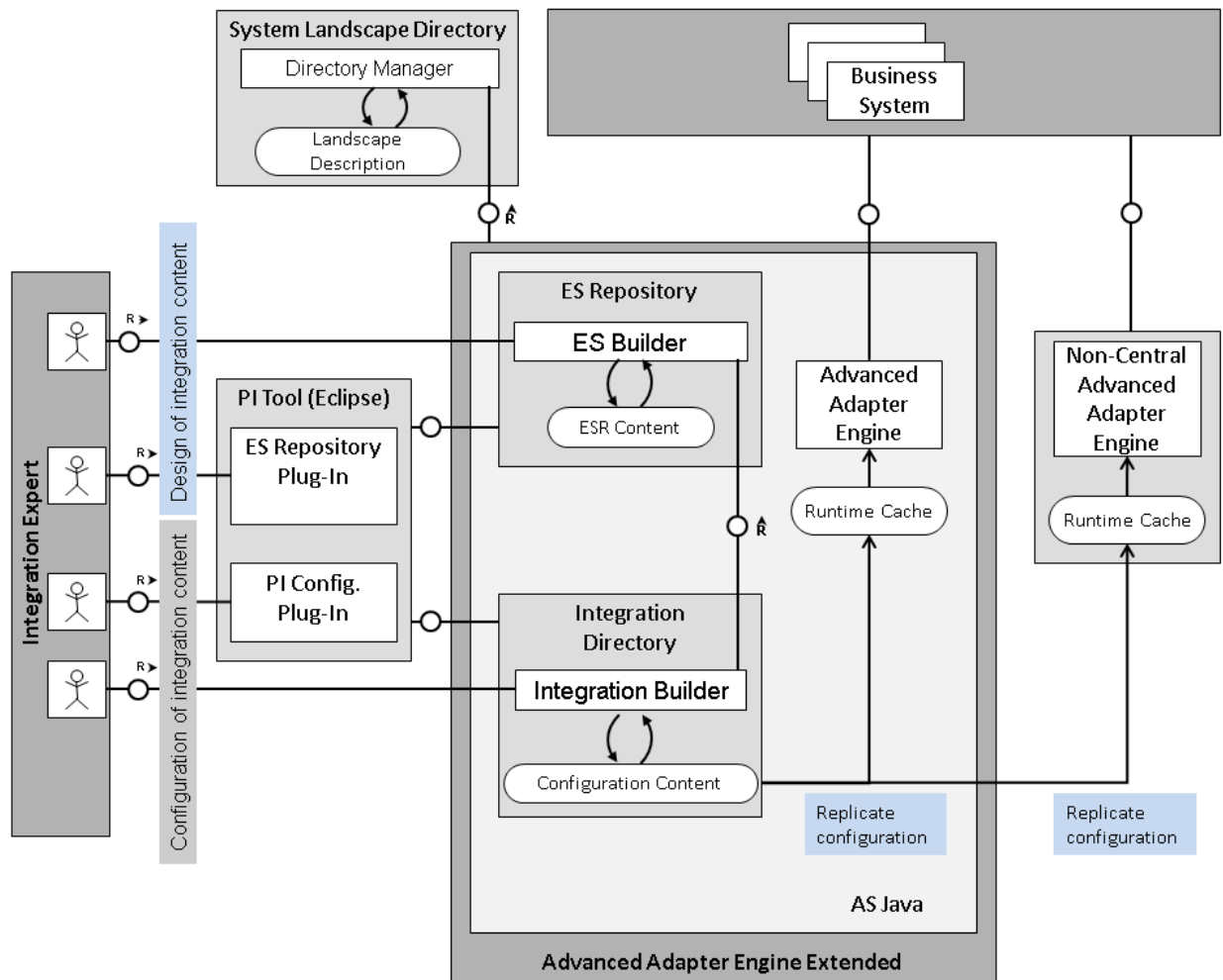


Figure 5: System Landscape for Building Integration Scenarios with Advanced Adapter Engine Extended

When you plan your system landscape for building integration scenarios, consider the following aspects:

- It is mandatory to have a dedicated **PI** system. This applies to development, quality, and production landscapes.
For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. For exceptions to this rule, see SAP Note [1043047](#). For example, SAP XI 3.0 is compatible with SAP NetWeaver 6.40 and 7.0 application systems since the same XI protocol is used. Apart from these exceptions, if you want to upgrade or install an application in your system landscape, you first have to make sure that the PI system is on the same release level. If required, you have to upgrade the PI system first to the new or a higher release.

⚠ Caution

Although it should be technically possible to run an application system with a higher release than your PI system in your system landscape, this is not supported by SAP (apart from the exceptions listed in SAP Note [1043047](#)). Therefore, you run such a landscape at your own risk.

- You can use the Advanced Adapter Engine that is part of your **PI** system as a central Advanced Adapter Engine. You can optionally deploy additional non-central Advanced Adapter Engines.

Adapter Engine (Java SE) can be installed in a non-SAP Java environment. However, it only hosts a subset of the adapter functionality, is only supported for compatibility reasons, and should be used only if this is a precondition in your environment. The following table shows the characteristics of the central Advanced Adapter Engine, the non-central Advanced Adapter Engine, and the Adapter Engine (Java SE) as an overview:

Table 9:

Installation Option	Characteristics
Central Advanced Adapter Engine on the PI host	<ul style="list-style-type: none"> ○ No additional installation procedure required ○ Suitable for development or test scenarios ○ Data source (file, database, JMS provider) must be accessible using NFS, tcp-ports, and so on (may only be available in homogeneous LAN environments). ○ Possible performance bottleneck due to high RAM needs. The system needs three times the amount of the maximum message size as RAM, for example.
Non-central Advanced Adapter Engine	<ul style="list-style-type: none"> ○ Provides complete integration into the PI environment: <ul style="list-style-type: none"> ○ Central Monitoring available ○ Central Configuration available ○ More resources needed for installing the SAP NetWeaver Java system
Adapter Engine (Java SE)	<ul style="list-style-type: none"> ○ Installation possible on non-released SAP NetWeaver platforms ○ Only HTTP connection required between adapter engine and Integration Server. Suitable for a more heterogeneous system landscape with mixed operating systems and authorization concepts, or for distributed WAN environments with firewalls, and so on. ○ Fewer resources needed when running in a Java environment only ○ Additional installation procedure required for JDK and the adapter itself ○ Poorer integration with the SAP Process Integration environment due to lack of central configuration and monitoring services

- You can install an **Advanced Adapter Engine Extended (AEX)**. This provides tools for designing and configuring integration content (Enterprise Services Repository, Integration Directory and System Landscape Directory), as well as the Advanced Adapter Engine as a runtime engine. This installation option is based on AS Java only and you can use it without a standard Process Integration system. You can optionally deploy additional non-central Advanced Adapter Engines.

Note

Regarding the deployment of any other product instance besides Business Process Management (BPM) on an existing Advanced Adapter Engine Extended (AEX), see SAP Note [1868764](#).

The following table compares the Advanced Adapter Engine Extended to an SAP Process Integration standard installation:

Table 10:

Installation Option	Advantage	Disadvantage
Advanced Adapter Engine Extended	<ul style="list-style-type: none"> ○ Easy to install and to maintain (Java only) ○ Fewer resources needed 	<ul style="list-style-type: none"> ○ Connectivity options restricted to adapters of AAE ○ Integration processes not available ○ Only process integration scenarios available as ESR modeling option
SAP Process Integration	<ul style="list-style-type: none"> ○ Complete functional range of SAP Process Integration 	<ul style="list-style-type: none"> ○ More memory and data storage required ○ More cost-intensive

i Note




User Management

- If you deploy non-central Advanced Adapter Engines with **Advanced Adapter Engine Extended (AEX)**, use the **Local User Management** (UME Configuration "Java Database") on the non-central Advanced Adapter Engines. At runtime the non-central Advanced Adapter Engines work independently of the AEX.
- If you deploy non-central Advanced Adapter Engines with **PI**, use the **ABAP User Management** on the **PI** system.





- The AS ABAP system acts as an application and service provider. For Java Web Services, you also require AS Java. In addition, you require SAP NetWeaver Developer Studio on the client side as a development environment.
The Web service client can be either an SAP or a non-SAP application. For example, an AS ABAP system or a Web browser could act as an application or service consumer.


More Information

See the Help Portal at:

- <http://help.sap.com/nw74>  *Application Help*  *SAP Process Integration* 

for more information about the concepts and capabilities of SAP Process Integration (PI).

- <http://help.sap.com/nw74>  *Application Help*  *Function-Oriented View*  *Process Integration* 

Configuring Process Integration After Installation 

for more information about the deployment and the configuration.

2.2.2.2 Process Orchestration

Use

Process Orchestration provides a tool infrastructure to model and design business processes – from the overall process flow and the sequence of activities up to the interfaces and data types that are needed to integrate SAP systems and external systems. It combines the integration capabilities of SAP Process Integration (Advanced Adapter Engine Extended (AEX) installation option) with the process modeling, operation, and monitoring capabilities of SAP Business Process Management (BPM). Like AEX, Process Orchestration is based on AS Java only.

Integration

The package is based on the following components:

- Components of the Advanced Adapter Engine Extended (AEX), in particular:
 - Enterprise Services Repository
Enables you to design integration content like service interfaces and mappings, for example.
 - Integration Directory
Configuration tool that allows an integration expert to configure integration content, in particular: On the one hand, to specify the business communication between business systems and Process Orchestration and, on the other hand, to specify the connectivity between the BPM process and the Process Integration runtime.
 - Advanced Adapter Engine
Process Integration runtime component that allows you to process XML messages.
- Business Process Management and Business Rules Management engines
Allows an integration expert to model business processes and to execute and monitor the business processes (BPM-based applications) at runtime.

The involved components are illustrated in the figure below.

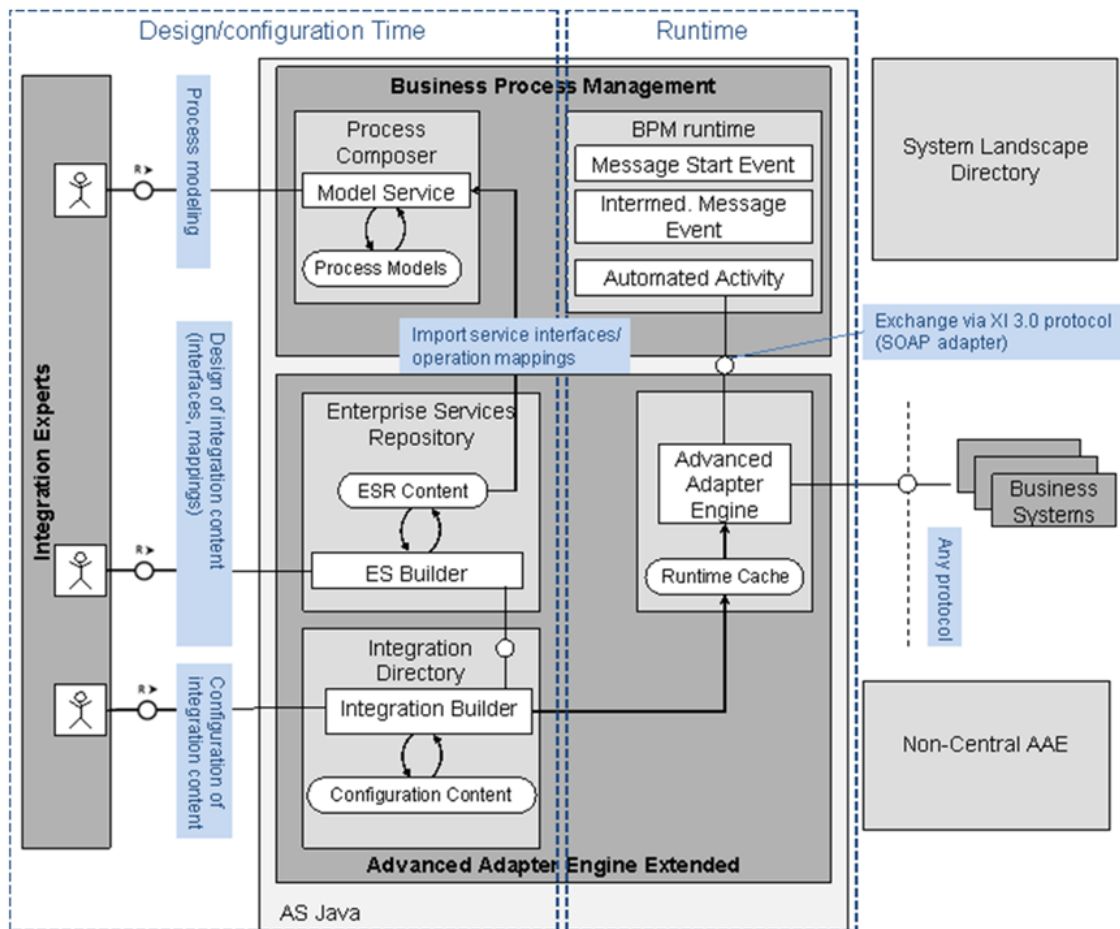


Figure 6: Components of Process Orchestration

i Note

You can obtain Process Orchestration by installation or by adding the corresponding product instances to an existing SAP NetWeaver system. For latter, both are supported, deployment of BPM on an existing AEX system and deployment of an AEX on an existing BPM system.

Regarding the deployment of additional product instances besides BPM and AEX, see SAP Note [1868764](#). You can deploy non-central Advanced Adapter Engines with Process Orchestration.

Constraints

- Process Orchestration runs on one system. The deployment on more than one system is not supported.
- Process Orchestration can be installed in a cluster. Every node would have an AEX and a BPM instance running

More Information

See the Help Portal at:

- <http://help.sap.com/nw74> ► Application Help ► Function-Oriented View ► Process Orchestration ► for more information about the concepts and capabilities of SAP Process Orchestration.
- <http://help.sap.com/nw74> ► Application Help ► Function-Oriented View ► Process Integration ► Configuring Process Integration After Installation ► Configuring Process Orchestration (PI-CP) ► for more information about the deployment and the configuration.

2.2.3 Data Warehousing

The following figure shows the software units that are used for data warehousing.

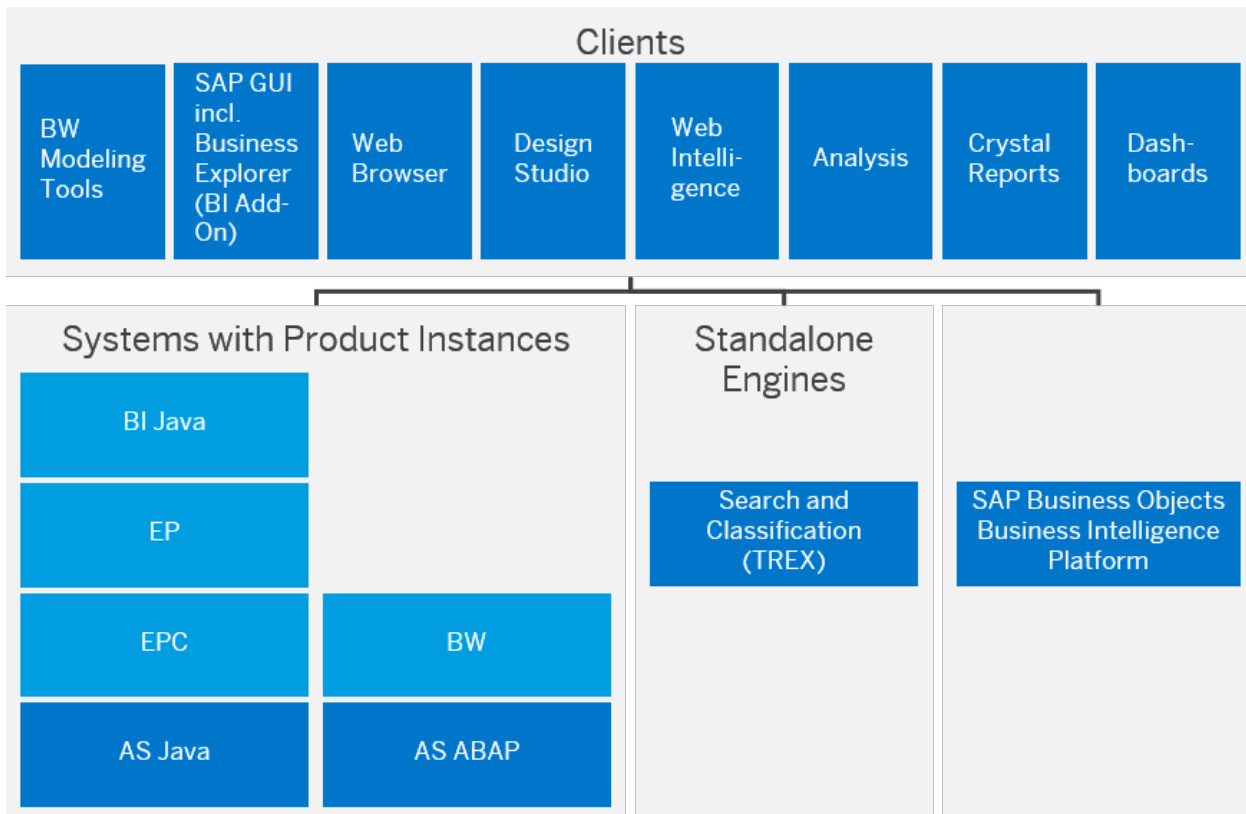


Figure 7: Data Warehousing

Note

The SAP BusinessObjects products Design Studio, Web Intelligence, Analysis, Crystal reports and Dashboards require separate licenses.

- You need BI Java and the Java-based product instances for specific capabilities only, which are the following:
 - SAP Business Explorer

You need BI Java, EP Core – Application Portal, and Enterprise Portal for SAP Business Explorer (BEx) tools and runtime, for example, BEx Web, Information Broadcasting, and Portal Integration.

- BW Administration Cockpit
You need BI Java, EP Core – Application Portal, and Enterprise Portal if you want to use the BW Administration Cockpit. The BW Administration Cockpit is part of a business package that is installed in the SAP Enterprise Portal.
- Wizard-based Configuration of SAP BW (ABAP)
You need AS Java if you want to use the wizard-based configuration for basic configuration settings for SAP BW (ABAP).
- UD Connect
You need AS Java if you want to use UD Connect.
- With SAP BW, powered by SAP HANA database, SAP offers the SAP HANA database being the in-memory deployment option for the Data Warehousing use case. In combination with SAP BW 7.40 SPS08 (or higher), it is necessary to use SAP HANA SPO8 or higher. Revision 82 is the minimum revision for SAP HANA SPO8. We recommend to always use the latest available SAP HANA SPO8 revision. For more information on implementation considerations and implementation sequence, see the *End-to-End Implementation Roadmap for SAP BW, powered by SAP HANA* on <http://service.sap.com/installnw74> ► [Planning](#) ►, and see SAP Note [1600929](#) as well as SAP Note [1949273](#).
- The Modeling Tools for SAP BW, powered by SAP HANA (BW Modeling Tools) represent a new modeling IDE (Integrated Development Environment) build on top of the Eclipse platform. Its main objective is to support BW model developers in today's increasingly complex BI environments by offering state-of-the-art modeling tools. These tools include integration with SAP HANA modeling and the consumption of HANA elements in BW Open ODS Views or CompositeProviders with powerful UI (user interface) capabilities.
- For more information, see
 - SAP Community Network: <http://scn.sap.com/community/data-warehousing>
 - Help Portal: <http://help.sap.com/nw74> ► [Application Help](#) ► [SAP Business Warehouse](#) ►
 - Help Portal: <http://help.sap.com/nw74> ► [Application Help](#) ► [Function-Oriented View](#) ► [Business Warehouse](#) ►

i Note

SAP Strategic Enterprise Management

If you have the SEM-BW add-on installed in your source release, read the following information in the SAP Community Network: <http://scn.sap.com/docs/DOC-30452>.

2.2.4 Mobilizing Business Processes

Use

i Note

As of SAP enhancement package 1 for NetWeaver 7.3, SAP NetWeaver Mobile is only available as add-on to SAP NetWeaver. For more information, see SAP Note [1645275](#).

The following figure shows the system landscape for Mobilizing Business Processes.

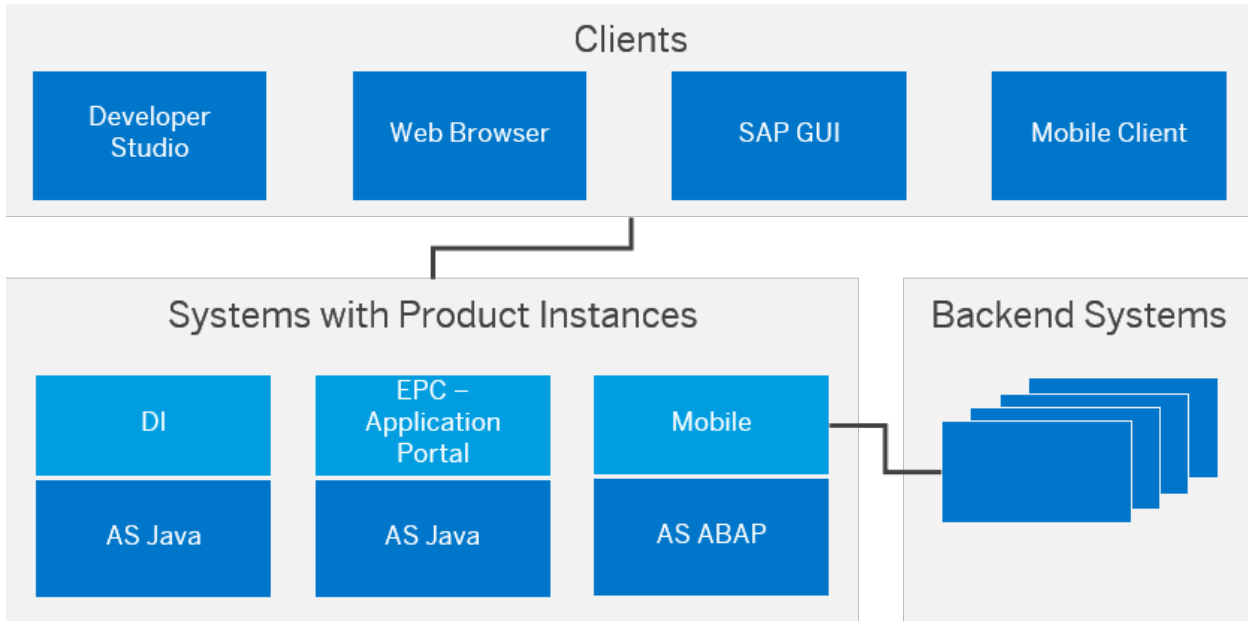


Figure 8: Enabling Mobile Applications for Occasional Connectivity/Developing Mobile Applications for Occasional Connectivity

- The SAP NetWeaver Developer Studio and an SAP NetWeaver system with product instance DI are only required for developing mobile applications. Product Instance DI is required if multiple developers work with Mobile Web Dynpro Offline. Instead of using SAP NetWeaver Development Infrastructure, you can also use a non-SAP development infrastructure. For more information, see the SAP Library at <http://help.sap.com/nw74> **Application Help** **Function-Oriented View** **Solution Life Cycle Management** **Using the Development and Production Infrastructure** **Development Infrastructure** **Concepts** **Development Using Optional Development Infrastructure**
- Optionally you can use SAP Enterprise Portal for accessing the Mobile functions.
- If you have installed SAP Enterprise Portal (system with product instance EPC) in your landscape, you can use it for managing your SAP NetWeaver Mobile landscape, for example for the administration of clients and back-end systems and for synchronization. Alternatively, you can use the Data Orchestration Engine administrator only, which is part of product instance Mobile.
- You can integrate any SAP or non-SAP system as a back-end system.

More Information

For more information, see the Help Portal at

- <http://help.sap.com/nw74> **Application Help** **SAP NetWeaver Mobile**
- <http://help.sap.com/nw74> **Application Help** **Function-Oriented View** **Mobile**

2.2.5 Integrating and Self-Servicing Content with SAP Enterprise Portal

Use

SAP Enterprise Portal (product instances EPC and EP) provides the core capabilities required to deliver enterprise content to internal and external users in a uniform and consistent manner, on traditional desktops as well as on mobile devices. SAP Enterprise Portal, with its role-based access and a modern web front-end, offers a single point of access to the organization's structured and unstructured content. Such content includes SAP and non-SAP information sources, enterprise applications, information repositories, databases and services, regardless of organizational or technical boundaries.

Product instance EPC is a prerequisite for using the portal add-on capabilities provided by product instance EP. EPC alone provides a leaner portal installation and implementation where full enterprise portal capabilities are not required.

The following figure shows the software units that are used for Integrating and Self-Servicing Content with SAP Enterprise Portal.

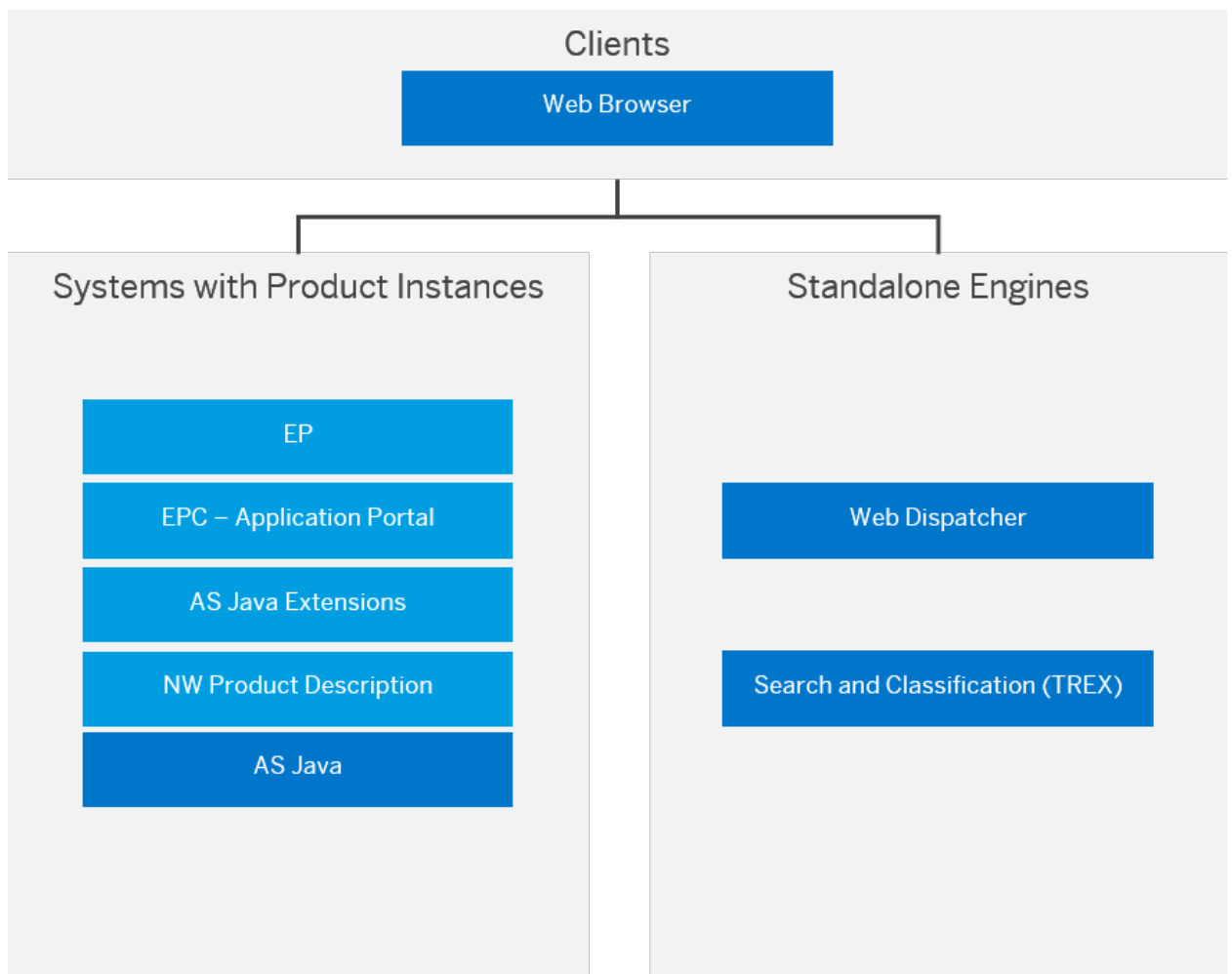


Figure 9: Integrating and Self-Servicing Content with SAP Enterprise Portal

i Note

SAP NetWeaver Application Server Java 7.4 SP03 or higher based on SAP HANA

As of SAP NetWeaver 7.4 SP03, the SAP HANA database supports Application Server Java and further product instances that are dependent on AS Java.

For more information in terms of the implementation of SAP NetWeaver Application Server Java 7.4 based on SAP HANA database, see the *End-to-End Implementation Roadmap for SAP NetWeaver AS Java based on SAP HANA*. This guide is available on the Service Marketplace at <http://service.sap.com/installnw74>

▶ [Planning](#) ▶

More Information

For more information about Integrating and Self-Servicing Content with SAP Enterprise Portal, see the Help Portal at

- <http://help.sap.com/nw74> ▶ [Application Help](#) ▶ [SAP Enterprise Portal](#) ▶
- <http://help.sap.com/nw74> ▶ [Application Help](#) ▶ [Function-Oriented View](#) ▶ [Enterprise Portal](#) ▶

2.2.6 SAP Knowledge Warehouse

SAP Knowledge Warehouse (SAP KW) is a solution within SAP NetWeaver that delivers the infrastructure you need to set up and manage your own enterprise-specific knowledge base in the areas of documentation, training, and manuals. For project teams and end users, SAP Knowledge Warehouse streamlines training and business processes, helping to reduce costs. In addition, the ability to reuse, supplement, and continually update SAP content offers a great savings potential.

SAP KW provides an information repository for companies of all sizes - including global multilingual companies - with facilities to model structures according to their corporate and market structure.

The following figure shows the software units that are used for SAP Knowledge Warehouse.

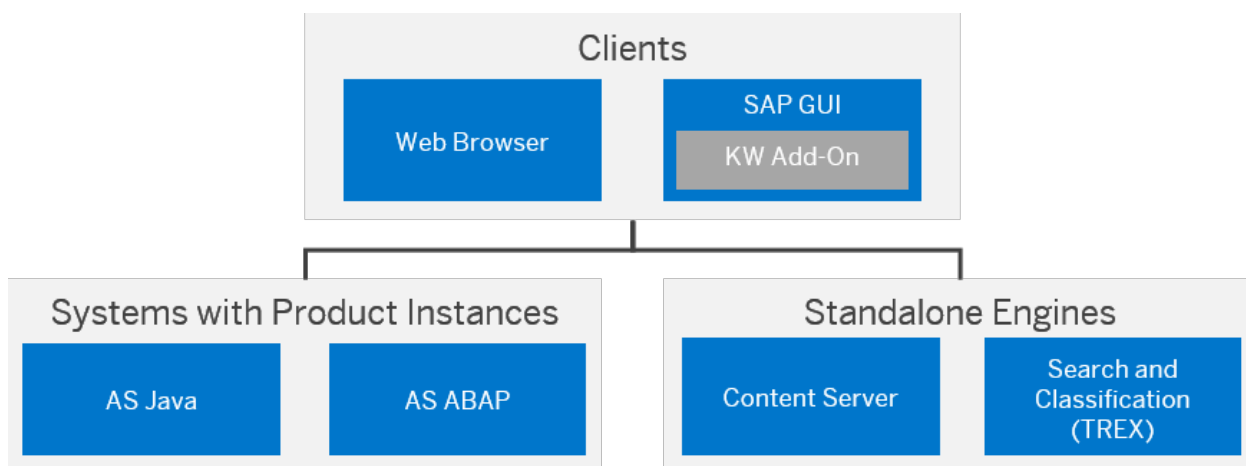


Figure 10: SAP Knowledge Warehouse

i Note

- As of SAP NetWeaver 7.0, SAP Knowledge Warehouse (SAP KW) is an integral part of SAP NetWeaver Application Server. For more information, see the SAP Note [1406422](#).

2.2.7 Custom Application Development (ABAP)

Use

The Application Server ABAP provides the ABAP foundation of SAP NetWeaver. AS ABAP provides a complete development and runtime environment for ABAP-based applications. It is optimized for the development of highly scalable business applications.

SAP delivers a vast number of standard Business applications such as the SAP Business Suite and Industry solutions, on the ABAP platform, meeting the standard enterprise business requirements. However, there are always certain processes and scenarios in an enterprise, which are customer-specific. These specific processes and scenarios enable customers to differentiate their business and further leverage their competitive advantage. To meet these customer-specific needs the Application Server ABAP development and runtime environment offers extensive tools and services for the development of ABAP based applications. In addition to the comprehensive development tools support, the Application Server ABAP also offers capabilities for process & memory administration, multi-user management, database connections and more.

An end to end lifecycle management support equips customers with services & tools, for example for system landscape management, configuration, transport management, offering support at every stage of the application lifecycle, from prototype to go-live and thereafter.

Application Server ABAP 7.4 offers various new enhancements for the Custom Application Development (ABAP) use case. These new enhancements can be broadly categorized into two main areas:

- Core ABAP enhancements**
for example for enhancements in the ABAP programming language, Eclipse-based ABAP development environment and tools.

- **SAP HANA based developments**

to take advantage of SAP HANA specific features from ABAP such as: *New ABAP Profiler* to detect code optimization potential for SAP HANA, *Enhanced ABAP List Viewer (ALV) for SAP HANA*, *ABAP managed database procedures (AMP)*, *Core Data Services (CDS)*.

The ABAP development and runtime environment makes it possible to develop complex business applications without having to worry explicitly about technical details such as process or memory administration, multi-user capability, database connections, or similar issues. These are provided in the basic services of the Application Server ABAP or are integrated directly in the ABAP runtime. The application development is similarly independent of the underlying platform. The application server decouples the application coding completely from the operating system and database that are used. Using ABAP, you can run custom development projects to create and enhance business functions in the backend, and you can develop applications using various SAP UI technologies such as SAP UI5 or Floor Plan Manager (FPM), and Web Dynpro ABAP applications to meet different scenario requirements.

The Application Server ABAP 7.4 brings with it several innovations and enhancements. The main area of innovation focus has been on enabling the Application Server ABAP to harness the power of SAP HANA database for OLAP- and OLTP-based application scenarios. Application Server ABAP 7.4 further on, remains compatible with traditional relational databases.

The new core ABAP enhancements focus on providing a rich ABAP developer experience

As shown in the figure below, the system landscape provides additional components for the Custom Application Development scenario:

- SAP HANA database
- ABAP Development Tools for SAP NetWeaver

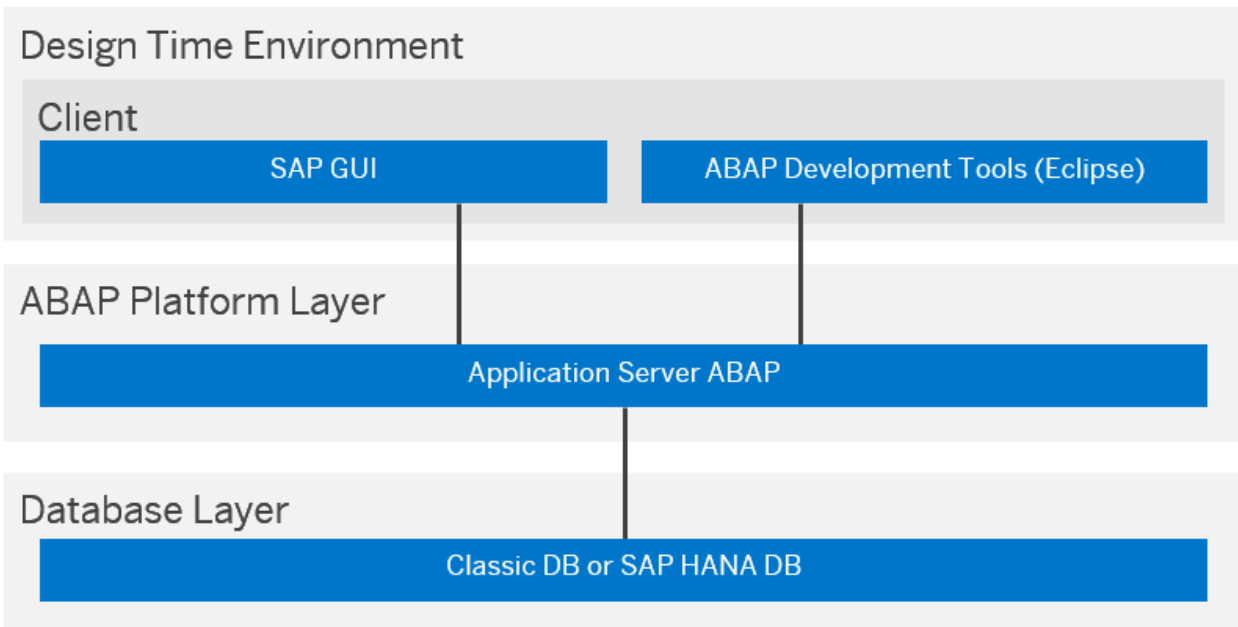


Figure 11: Software layers and components that are used in the Custom Application Development scenario

So that optimum benefit can be achieved from running productive Business Suite systems on SAP HANA DB, the AS ABAP provides support for the migration to SAP HANA DB. A combination of new ABAP code scans as well as monitoring and analysis tools enables the developer to find ABAP SQL code that has potential for performance improvement (ABAP for HANA performance optimization).



With ABAP Development Tools for SAP NetWeaver, a new development environment - as an addition to the ABAP Workbench (SAP GUI) - is at the disposal of the ABAP developer in the classic *Custom Application Development* scenario. It is based on the open platform Eclipse and targets a significant increase in development productivity in all phases of ABAP-based software projects. It combines the strengths of the close integration of development, test, and quality-assurance tools with the application server AS ABAP; this includes the stable and proven ABAP Lifecycle Management process - with the advantages of a comfortable and lightweight Eclipse UI and a standardized user interaction process.

ABAP Development Tools play a central role in the integration of the SAP HANA repository contents within the ABAP platform layer. So that native access to models from the SAP HANA repository is possible from within ABAP, appropriate proxies can be generated as development objects and handled in the same way as other ABAP repository objects.

More Information

For more information regarding Custom Application Development (ABAP), see the Help Portal at:

- <http://help.sap.com/nw74>  *Application Help*  *Function-Oriented View*  *Application Server* 
Application Server ABAP  *Application Development on AS ABAP* 
- <http://scn.sap.com/community/abap> 
- <http://scn.sap.com/community/netweaver-as> 

In terms of the implementation of SAP NetWeaver Application Server ABAP 7.4 based on SAP HANA, see the *End-to-End Implementation Roadmap for SAP NetWeaver AS ABAP*. This guide is available on the Service Marketplace at <http://service.sap.com/installnw74>  *Planning* .

3 Implementing SAP NetWeaver 7.4

The general sequence for the implementation of an SAP NetWeaver system is as follows:

1. You plan the implementation (such as scope, hardware and software requirements, release restrictions).
2. You plan the system landscape for the use cases.
3. You install the components of your SAP NetWeaver system.
4. You configure your systems.

In the following, you find information about the implementation steps for SAP NetWeaver 7.4.

- [Installation Procedure \[page 44\]](#)
- [Installation Tool \[page 51\]](#)
- [Configuration of Systems and Follow-Up Activities \[page 51\]](#)
- [System Copy and Migration \[page 53\]](#)

3.1 Installation Procedure

Use

The installation procedure is divided into the following sections:

1. Preparation
2. Installation of required SAP NetWeaver systems
3. Installation of optional standalone units
4. Installation of standalone engines
5. Installation of clients

i Note

Support Releases and Support Packages

If you install SAP NetWeaver 7.4 with Support Release 2, you install automatically the previously available support packages 1 to 8 at once, and your system goes immediately to 7.4 SP8 without needing to implement the intervening SPs separately.

SAP NetWeaver 7.4 with Support Release 1 includes the support packages 1 to 5. If you perform an update with target release NW 7.4 SR1, your system goes immediately to 7.4 SP5.

Procedure

i Note

Documentation:

Unless stated otherwise, the documentation is available under <http://service.sap.com/installnw74>.

1. You prepare the installation procedure.



Table 11:

Tasks	Documentation
You identify the DVDs and archives required for the installation of the required software units.	<p>You normally obtain the installation media as part of the installation package from SAP. However, you can also download installation media from the SAP Software Distribution Center at https://support.sap.com/swdc.</p> <p>i Note</p> <p>Since the material numbers of the corresponding DVDs, CDs, and archives may change when new updates become necessary, we recommend that you visit the SAP Software Distribution Center to make sure that you always use the most recent version of the indicated data carriers.</p> <p>For more information, see the section <i>Preparing the Installation Media</i> in the Installation guide <i>Installing SAP Systems Based on SAP NetWeaver 7.1 and Higher - Using Software Provisioning Manager 1.0</i>.</p> <p>There are specific installation guides for all supported combinations of technologies (ABAP, Java, or ABAP and Java), databases, and operating systems.</p>

Tasks	Documentation
<p>Data Warehousing use case only:</p> <p>Optional: You prepare an SAP system as a data source:</p> <ol style="list-style-type: none"> 1. The SAP system can be either an OLTP – SAP R/3 system (3.1I – 4.6C) or SAP R/3 Enterprise system (Extension Set 1.10 or higher) or any other SAP system with PI_BASIS Plug-In. 2. If you want to use SAP R/3 or SAP R/3 Enterprise as a data source, make sure that SAP R/3 Plug-In 2004.1 is installed on the OLTP system: See SAP Note 704564 (R/3 plug-in:PI 2004.1 installation/delta upgrade) and SAP Service Marketplace at http://service.sap.com/r3-plug-in <div data-bbox="167 837 730 1133" style="background-color: #fff9c4; padding: 10px; border: 1px solid #ccc;"> <p>i Note</p> <p>New and extended interfaces for integrating SAP R/3, SAP R/3 Enterprise, and SAP ERP Central Component (SAP ECC) are no longer delivered with their own add-on (SAP R/3 Plug-In). As of SAP ECC 6.0, they are directly included in SAP ECC. Therefore, this step is not required for SAP ECC 6.0 or higher.</p> </div> <ol style="list-style-type: none"> 3. If you want to install SAP BW on the SAP HANA database, ensure that SAP HANA SPS 08 (minimum revision 82 or higher) has been properly installed according to the available SAP HANA on-premise deployment offerings. For more information, see <ul style="list-style-type: none"> o SAP HANA Master Guide on the SAP Help Portal at http://help.sap.com/hana_platform <i>Installation and Upgrade Information</i> > <i>SAP HANA Master Guides</i> o SAP Note 1600929 	

2. You install the required SAP NetWeaver systems.

Table 12:

Tasks	Documentation
<p>You install SAP NetWeaver systems with the required product instances.</p> <div style="background-color: #fff9c4; padding: 10px; margin: 10px 0;"> <p>i Note</p> <p>There is no installation option for product instances BW ABAP and Mobile in the installation tool <code>software provisioning manager 1.0</code>.</p> </div> <ul style="list-style-type: none"> • To set up a BW system, install a system with product instance AS ABAP and afterwards install SAP NetWeaver 7.4 BI Content Add-On 7.47 SP 05 (or higher) or SAP NetWeaver 7.4 BI Content Extensions Add-On 7.47 SP 05 (or higher) on top of this system. Alternatively, there is SAP Netweaver 7.4 BI Content 7.57 or SAP Netweaver 7.4 BI Content Extensions Add-On 7.57 available for SAP NetWeaver 7.4 SPS 05 and higher. This version of BI Content Add-On will be used for providing additional data flows that make use of the new BW features delivered only from SAP NetWeaver 7.4 SPS 05 and higher. If you use the already existing BI Content Add-on 7.47 then the limitation is that you would not receive the data flows based on Netweaver 7.4 SPS05 (and higher) features; it also means that the already existing BI Content Add-on 7.47 would not support the new BW features valid only for SAP Netweaver 7.4 SPS 05 and higher. Considering the above limitation we recommend that you upgrade to BI Content Add-on 7.57. • Note for SAP BW on SAP HANA database: In addition to the SAP NetWeaver Support Package Stack, we recommend to apply the SAP Notes mentioned in SAP Note 1949273 for the respective Support Package Stack. • To set up a Mobile system, install a system with product instance AS ABAP and configure it for Mobile. 	<ul style="list-style-type: none"> • Installation Guide <i>Installing SAP Systems Based on SAP NetWeaver 7.1 and Higher - Using Software Provisioning Manager 1.0</i> There are specific installation guides for all supported combinations of technologies (ABAP, Java, or ABAP and Java), databases, and operating systems. <p>See the following SAP Notes in addition:</p> <ul style="list-style-type: none"> • SAP BW: <ul style="list-style-type: none"> ◦ 153967: (BI Content Release Strategy) ◦ 1000822: (Overview: SAP Notes for the add-ons BI_CONT and BI_CONT_XT) ◦ 1678780: (Installation or upgrade BI_CONT/BI_CONT_XT 707/737/747) ◦ 1943931: (Installation/Upgrade für das ABAP-Add-On BI_CONT 757 / BI_CONT_XT 757). ◦ 1808103: (BI Cont 737/747 SP04 and higher: Information on Add-On SPs) ◦ 1853775: (Errors when using BI Content 7.47 SP04 on SAP BW 7.40 SP02) ◦ 1600929: (SAP BW powered by SAP HANA DB: Information) ◦ 1949273: (Important SAP Notes for SAP BW 7.40, powered by SAP HANA) • SAP NetWeaver Mobile: <ul style="list-style-type: none"> ◦ 1645275: (Installation of SAP EHP1 for SAP NetWeaver Mobile) <p>If you want to use</p> <ul style="list-style-type: none"> • SAP NetWeaver AS ABAP • SAP NetWeaver AS Java • SAP Business Warehouse <p>based on the SAP HANA database, see also the appropriate <i>End-To-End Implementation Roadmap</i> which is also available on the Service Marketplace at http://service.sap.com/installnw74  Planning .</p>
<p>SAP Kernel Update</p> <p>Make sure that you apply the latest kernel as described in the Installation Guide.</p>	<ul style="list-style-type: none"> • Installation Guide <i>Installing SAP Systems Based on SAP NetWeaver 7.1 and Higher - Using Software Provisioning Manager 1.0</i> There are specific installation guides for all supported combinations of technologies (ABAP, Java, or ABAP and Java), databases, and operating systems.

Tasks	Documentation
<p>Support Package Stack Update</p> <p>We recommend that you always apply the latest Support Package Stack.</p>	<p>You can apply Support Package Stacks on top of SAP NetWeaver 7.4 and higher by using the Software Update Manager tool. See the <i>Update Guide – Update of SAP Systems Using Software Update Manager 1.0 <SPxx></i>.</p> <p>The guide and more information are available at http://service.sap.com//maintenancenw74.</p> <div style="background-color: #fff9c4; padding: 10px; margin-top: 10px;"> <p>i Note</p> <p>If you install SAP NetWeaver 7.4 with Support Release 1, you install automatically the previously available support packages 1 to 5 at once, and your system goes immediately to 7.4 SP5 without needing to implement the intervening SPs separately</p> <p>If you install SAP NetWeaver 7.4 with Support Release 2, you install automatically the previously available support packages 1 to 8 at once, and your system goes immediately to 7.4 SP8.</p> </div>
<p>Process Integration:</p> <p>After an installation of SAP Process Integration, you carry out the <i>configuration wizard-assisted basic configuration</i> in order to configure at least the connection to the System Landscape Directory (SLD) before you perform the support package installation step.</p> <p>Further Configuration Wizard-assisted basic configuration steps can be performed after the SAP Solution Manager Configuration and the Support Package Installation.</p>	<p>Configuration documentation on SAP Help Portal at:</p> <p>http://help.sap.com/nw74 ► <i>Application Help</i> ► <i>Function-Oriented View</i> ► <i>Process Integration</i> ► <i>Configuring Process Integration After Installation</i> ►</p>
<p>You install the SAP Library in your system.</p>	<p>Installation Guide <i>Installing SAP Library for SAP NetWeaver Based Systems - Using Software Provisioning Manager 1.0</i></p>

3. You install optional standalone units.










Table 13:

Tasks	Documentation
<p>You can find the following software units in the installation tool software provisioning manager 1.0 under <i>Optional Standalone Units</i>:</p> <ul style="list-style-type: none"> • Advanced Adapter Engine (PI-AF) • Advanced Adapter Engine Extended (PI-AEX) • Process Integration and Orchestration Package (PI-CP) 	<p>Installation Guide <i>Installing SAP Systems Based on SAP NetWeaver 7.1 and Higher - Using Software Provisioning Manager 1.0</i></p> <p>There are specific installation guides for all supported combinations of technologies (ABAP, Java, or ABAP and Java), databases and operating systems, available at: http://service.sap.com/installnw74 ▶ <i>Installation — SAP NetWeaver Systems</i> ▶ <i>Installing Systems Based on NW 7.1 or Higher-SW Prov.Mgr.1.0</i> ▶.</p> <p>You can find additional configuration information on SAP Help Portal at: http://help.sap.com/nw74 ▶ <i>Application Help</i> ▶ <i>Function-Oriented View</i> ▶ <i>Process Integration</i> ▶ <i>Configuring Process Integration After Installation</i> ▶. Choose:</p> <ul style="list-style-type: none"> • ▶ <i>Configuring Process Integration (PI) Dual-Stack</i> ▶ <i>Basic Configuration for SAP Process Integration (PI)</i> ▶ <i>Configuring the Non-Central Advanced Adapter Engine (PI-AF)</i> ▶ • ▶ <i>Configuring Advanced Adapter Engine Extended (PI-AEX)</i> ▶ <i>Basic Configuration for SAP PI Advanced Adapter Engine Extended</i> ▶ <i>Configuring the Non-Central Advanced Adapter Engine (PI-AF) for AEX</i> ▶ • ▶ <i>Configuring Process Orchestration (PI-CP)</i> ▶
<p>RTC Application Sharing Server</p> <p>If you plan to install product instance EP for real-time collaboration capabilities (instant messaging and application sharing), refer to SAP Note 1038125. For production use of RTC application sharing, we recommend installing an additional product instance EP on a dedicated server as a standalone unit.</p>	

4. You install the standalone engines.






Table 14:

Tasks	Documentation
Web Dispatcher	<i>Installing Web Dispatcher for SAP Systems Based on SAP NetWeaver 7.1 and higher using Software Provisioning Manager 1.0</i>

Tasks	Documentation
Standalone Gateway	<i>Installing Gateway for SAP Systems Based on SAP NetWeaver 7.1 and higher using Software Provisioning Manager 1.0</i>
liveCache	<i>Installing SAP liveCache Using Software Provisioning Manager 1.0: <Operating System></i>
Search and Classification (TREX)	<p>SAP NetWeaver Search and Classification (TREX):</p> <ul style="list-style-type: none"> • <i>Installation Guide – SAP NetWeaver Standalone Engine Search and Classification (TREX) 7.1 Single Host</i> • <i>Installation Guide – SAP NetWeaver Standalone Engine Search and Classification (TREX) 7.1 Multiple Hosts</i>
Content Server	<i>Installation Guide – SAP Content Server 6.40 available at:</i> http://service.sap.com/installnw70  <i>Installation – Standalone Engines</i> 
Adapter Engine Java SE	SAP Help Portal at http://help.sap.com/nw74   <i>Application Help</i>  <i>Function-Oriented View</i>  <i>Process Integration</i>  <i>Adapter-Engine (Java SE)</i>  <i>Installation</i> 

5. You install the clients.

Table 15:

Tasks	Documentation
SAP GUI for Windows	<i>SAP Front End Installation Guide</i>
Business Explorer During the installation of SAP GUI, you can choose to install the BI Add-On for the SAP Business Explorer. Note that SAP GUI for HTML and SAP GUI for Java do not have all the capabilities of SAP GUI for Windows. BEx Query Designer, BEx Analyzer and UIs with network controls are not supported with SAP GUI for HTML and SAP GUI for Java.	
Adobe LiveCycle Designer	
BW Modeling Tools	<i>Installation guide BW Modeling Tools</i>
SAP NetWeaver Business Client	SAP Help Portal at http://help.sap.com/nw74   <i>System Administration and Maintenance Information</i>  <i>Technical Operations for SAP NetWeaver</i>  <i>Technical Operations for SAP NetWeaver Business Client</i> 

Tasks	Documentation
Mobile Client	SAP Help Portal at http://help.sap.com/nw74 ▶ <i>Application Help</i> ▶ <i>Function-Oriented View</i> ▶ <i>Mobile</i> ▶ <i>Configuring SAP NetWeaver Mobile</i> ▶ <i>Installing Mobile-Specific Software Units</i>
SAP Enterprise Services Explorer Tool for Microsoft .NET	For a detailed description of functions and features, see http://scn.sap.com/docs/DOC-17627 .
SAP BusinessObjects clients (Crystal Reports, Dashboards, Analysis, Web Intelligence)	See the installation guides at: http://help.sap.com/bobi

3.2 Installation Tool

For the new installation of an SAP system including an enhancement package you use the standard installation tool `software provisioning manager 1.0`. The software provisioning manager performs software provisioning processes such as installation, uninstallation, system copy, or system transformation.

Software provisioning manager is the successor of the product- and release-specific delivery of provisioning tools, such as `SAPinst`. Before you perform an installation or system copy, we recommend that you always download the latest version of the software provisioning manager, which is part of the Software Logistics Toolset (*SL Toolset* for short). This way, you automatically get the latest `SAPinst` version including latest fixes in the tool and supported processes.

For more information about software provisioning manager as well as products and releases supported by it, see SAP Note [1680045](#).

See also the information in the SAP Community Network at <http://scn.sap.com/docs/DOC-30430> and on the SAP Service Marketplace at <https://support.sap.com/sltoolset> ▶ *System Provisioning*.

3.3 Configuration of Systems and Follow-Up Activities

Before you can start working with your SAP NetWeaver installation, you have to adapt it to your needs.

Configuration

The SAP Solution Manager contains descriptions of all configuration tasks, and leads you to automated configuration procedures, where available.

1. To be able to use SAP Solution Manager for configuring your systems, you have to import the latest available Support Package for the SAP Solution Manager Implementation Content (add-on ST-ICO). For more information, see SAP Note [631042](#) (Release strategy for Implementation Content (ST-ICO)). SAP Solution Manager Implementation Content is available on SAP Service Marketplace at <http://support.sap.com/swdc> ► [Support Packages and Patches](#) ► [A-Z Index](#) ► ['S'](#) ► [SAP Solution Manager](#) ► [<Release>](#) ► [Entry by Component](#) ► [Solution Manager ABAP Stack](#) ► [ST-ICO<version>](#) ►.
2. To access the configuration tasks, you create a project and a project structure in SAP Solution Manager. In the configuration phase, you select configuration structures with pre-delivered SAP content for your project. You can either access the configuration task in the configuration structure or create a printable configuration guide.

For more information, see:

- SAP Library at <http://help.sap.com> ► [Application Lifecycle Management](#) ► [SAP Solution Manager](#) ► [<release>](#) ► [Application Help](#) ► [Solutions Implementation](#) ► [Implementation/Upgrade Work Center](#) ► [Configuration](#) ►
- <http://support.sap.com> ► [Support Programs & Services](#) ► [SAP Solution Manager](#) ► or <http://support.sap.com/solutionmanager>.
- <http://support.sap.com/solutionmanager> ► [Knowledge Transfer](#) ► [How-To Documents](#) ► [How to Create a Configuration Guide using SAP Solution Manager](#) ►

Some configuration activities are automated, that is they are performed using automation tools such as the configuration wizard. The automation tools support you in performing technical configuration tasks in an automated way and thus accelerate and simplify the setup of your systems after installing. For more information, see the [Automation Tools](#) node in the configuration structure. In case of ABAP systems, you can use executable configuration files (IMG activities).

i Note

Accessing Use Case information in SAP Solution Manager

You can use the business process repository browser (BPR browser) in SAP Solution Manager at <https://implementationcontent.sap.com/bpr> to instantly access information about the SAP NetWeaver 7.4 use cases you want to implement::

- Choose ► [Business Process Repository](#) ► [Solutions/Applications](#) ► [SAP NetWeaver](#) ► to centrally access all SAP NetWeaver 7.4 use cases.
- Choose ► [Business Process Repository](#) ► [Solutions/Applications](#) ► [SAP Technology](#) ► [-> End-To-End Use Cases](#) ► to access end-to-end implementation information about Application Life-Cycle Management and Enterprise Data Warehousing.

Process Integration

Instead of creating your configuration guides with the SAP Solution Manager, you can also find the configuration information in the SAP Help Portal. Access the SAP NetWeaver 7.4 Library at: <http://help.sap.com/nw74> ► [Application Help](#) ► [Function-Oriented View](#) ► [Process Integration](#) ► [Configuring Process Integration After Installation](#) ►.

1. For configuring the Process Integration (PI) Dual Stack, choose ► [Configuring Process Integration \(PI\) Dual Stack](#) ► [Basic Configuration for SAP Process Integration \(PI\)](#) ►.
 - For configuring the Non-Central Advanced Adapter Engine (PI-AF) for PI Dual-Stack, choose ► [Configuring the Non-Central Advanced Adapter Engine \(PI-AF\)](#) ►.

2. For configuring the Advanced Adapter Engine Extended (PI-AEX), choose ► [Configuring Advanced Adapter Engine Extended \(PI-AEX\)](#) ► [Basic Configuration for SAP PI Advanced Adapter Engine Extended](#) ▾.
 - For configuring the Advanced Adapter Engine Extended (PI-AF) for AEX, choose ► [Configuring the Non-Central Advanced Adapter Engine \(PI-AF\) for AEX](#) ▾.
3. For configuring the Process Orchestration (PI-CP), choose ► [Configuring Process Orchestration \(PI-CP\)](#) ▾.

3.4 System Copy and Migration

Use

At several stages in the lifecycle of your SAP solution, you will face the requirement to perform a system copy or a migration. For example, SAP recommends that you perform a system copy to create test, demo and training systems. Also, if you need to change your operating system and/or database, you have to perform a migration of your SAP system.

For this, SAP is offering system copy and migration services that enable you to create consistent copies of your SAP systems, flexibly adapted to your needs - be it an SAP system distributed to several hosts, a high-availability system or a system on a rather exotic operating system/database combination.

More Information

- For an introduction into system copy and migration, see <http://scn.sap.com/docs/DOC-8324> in the SAP Community Network.
- System copy guides are available on SAP Service Marketplace at <http://service.sap.com/installnw74>.
- Alternatively, you can copy your system with a completely automated end-to-end framework available with the *SAP NetWeaver Landscape Virtualization Management <Release>, Enterprise Edition*. For more information, see the SAP Help Portal at <http://help.sap.com/nwlvms>.

A Appendix

A.1 Additional Information for Implementing SAP NetWeaver

The following table contains links to information available on SAP Service Marketplace or in the SAP Library which is relevant for implementing SAP NetWeaver:

Table 16:

Content	Location on SAP Service Marketplace or in SAP Library
The latest version of the installation and upgrade guides for SAP NetWeaver 7.4	http://service.sap.com/instguidesnw74
Information about security	SAP Security Guide: See the SAP Library at http://help.sap.com/nw74 > Security Information > Security Guide
Information about the technical operation of SAP NetWeaver	Technical Operations Manual: See the SAP Library at http://help.sap.com/nw74 > System Administration and Maintenance Information > Technical Operations for SAP NetWeaver
Information about SAP NetWeaver Support Package Stacks	http://support.sap.com/sp-stacks > SP Stack Information
Information about SAP NetWeaver Capabilities	<ul style="list-style-type: none"> • http://scn.sap.com/community/netweaver • http://scn.sap.com/docs/DOC-8287 • http://help.sap.com/nw74 > Application Help
SAP Solution Manager Guides	<p>All SAP Solution Manager related guides, such as</p> <ul style="list-style-type: none"> • Master Guide • Configuration Guide • Security Guide Master Guide • Upgrade Guide • Solutions Operations Guide <p>are available at: http://service.sap.com/instguides > Installation & Upgrade Guides > SAP Components > SAP Solution Manager > <Release></p>

Content	Location on SAP Service Marketplace or in SAP Library
Information about Maintenance Planning	<i>Maintenance Planning Guide</i> at http://support.sap.com/mopz ► <i>section "Guides"</i> ►

A.2 Description of Software Units

The following sections provide more details about product instances, standalone engines, optional standalone units and clients of SAP NetWeaver.

Note

Usage Type, Technical Usage, and Product Instance

The term *product instance* replaces the terms *usage type* and *technical usage* for SAP systems based on SAP NetWeaver 7.3 including enhancement package 1 and higher. For more information, see SAP Note [1877731](#). Note that there is no terminology change for older releases and all mentioned terms can be used as synonyms.

Caution

Uninstalling additional product instance

Note that it is not possible to uninstall additional product instances and that this is also not supported by SAP.

Note

The Composite Voice (CE-VOICE) product instance has been removed with SAP NetWeaver 7.4. For more information, see: <http://help.sap.com/nw74> ► *Application Help* ► *Function-Oriented View* ► *Composition Environment* ► *Compatibility and Removed Usage Types* ►

A.2.1 Systems with Product Instances

Installation Options for SAP NetWeaver Systems With Product Instances

The standard SAP installation tool `software provisioning manager 1.0` offers the following options for installing SAP NetWeaver systems with product instances:

- **Application Server ABAP**
This installation option installs an Application Server ABAP which is the basis for product instance BW ABAP and Mobile.
- **Process Integration**
This installation option installs an ABAP+Java dual stack systems with product instance Process Integration and all dependent product instances.

- Application Server Java

This installation option leads you to a selection screen where you can select those product instances that you want to install in addition to Application Server Java and NW Product Description which are preselected.

The following figure gives an overview of all available Java product instances and their dependencies:

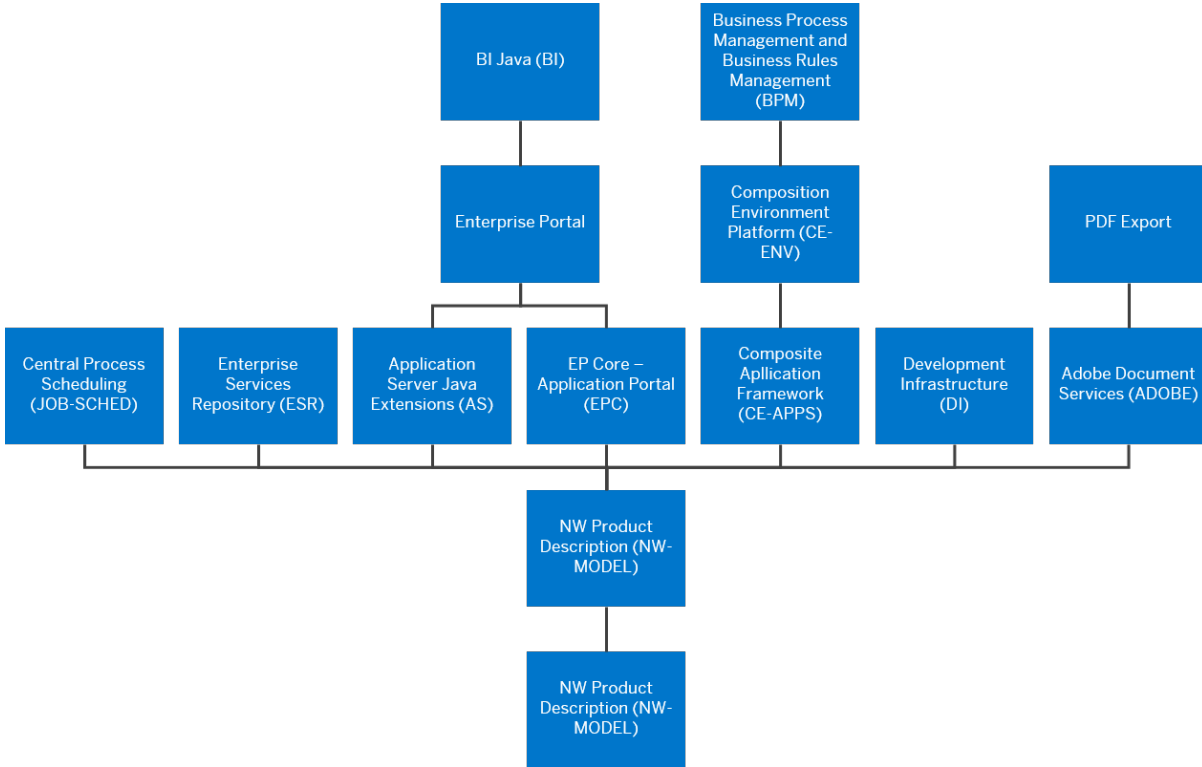


Figure 12: Java Product Instances

For more information and installation instructions, see the SUM guide for Java: *Update Guide – Updating SAP Systems Using Software Update Manager, for: Java*, section *Installing Additional Product Instances in an Existing SAP System*.

Apart from the product instances described here, there are some discontinued product instances that you can still install for compatibility reasons. For more information, see [Compatibility Product Instances \[page 73\]](#).

Adobe Document Services (ADS)

Adobe Document Services is a set of runtime services that provide a range of form and document creation and manipulation functions such as:

- Converting XML form templates (created using Adobe LiveCycle Designer) to PDF and various print formats
- Setting Adobe Reader rights to enable users to fill in and annotate forms, save and print them locally, and include digital signatures for authentication using the free Adobe Reader software
- Extracting data from SAP applications into Interactive Forms and transferring form data back into SAP applications using XML

Dependencies

Adobe document services depends on Application Server Java.

Functional Units

Adobe Document Services comprises the identically named functional unit.

Application Server ABAP (AS ABAP)

SAP NetWeaver Application Server for ABAP provides a complete development and runtime environment for ABAP-based applications. It is optimized for the development of highly scalable business applications. The ABAP development environment is used both for developing completely new applications and extending and modifying SAP standard applications for customers. The entire, powerful infrastructure of the Application Server for ABAP can be used, which even supports the creation of the most complex applications by large groups of developers.

Application Server Java (BASIC)

AS Java is used to provide the Java foundation of SAP NetWeaver using the Java Engine, a Java EE-compliant application server for running enterprise applications. In addition to the pure Java EE standard technologies, the Java Engine implements complementary technologies such as Web Dynpro or Web Services.

Dependencies

AS Java can be combined optionally with other Java-based product instances in one system.

Functional Units

Application Server Java comprises the following functional units:

Table 17:

Functional Unit	Description
CM Services (Change Management Services)	CM Services help you to manage your Java development. They provide services for creating development configurations, for importing and exporting, and for the deployment to runtime systems. CM Services enable you to set up team development with centrally managed development configurations. It also supports the automated deployment of build results on to central runtime system. The import and export service enables you to import and export Software Component Archives (SCAs) of a development configuration. When a transport system is needed, a development configuration can be integrated into the Change and Transport System (CTS+). To use CM Services, product instance DI is required.
Java Data Archiving	Java Data Archiving provides APIs to allow Java applications to connect to the XML Data Archiving Service for data archiving solutions. Java archiving is required for Java applications with a large volume of retention-relevant data.
Java Foundation	This is the Java foundation of SAP NetWeaver. Among its capabilities is the JEE Engine, a J2EE-compliant application server for running enterprise applications. In addition to the pure JEE standard technologies, the JEE Engine implements complementary technologies, such as Web Dynpro or Web Services, that are targeted at supporting large-scale, real-business application development projects.

Functional Unit	Description
Services Registry	The Services Registry is a registry for Web services. Located centrally within an SOA landscape, it contains entries for all services and service definitions in that landscape. The registered services are classified using semantic-rich classification systems to enable the browsing of services by classification.
System Landscape Directory	The System Landscape Directory (SLD) of SAP NetWeaver serves as a central information repository for your system landscape. A system landscape consists of hardware and software components that depend on each other with regard to installation, software updates, and demands on interfaces. The information in the SLD is used by various SAP tools.
XML Data Archiving Service	The XML Data Archiving Service (XML DAS) enables data to be stored using the WebDAV Storage Interface for the ILM Solution from SAP as certified in the interface BC-ILM. It allows both XML-sensitive storage used for JAVA Archiving or XML Archiving (see corresponding Functional units) and ILM aware archiving used in SAP NetWeaver ILM.

Application Server Java Extensions (AS)

AS Java Extensions enable you to create development components in SAP-specific technologies on top of JEE, for example, for service composition. In addition, you can enrich standard JEE technologies (such as Enterprise JavaBeans, Web services, and enterprise applications) with additional SAP-specific capabilities, such as service group configuration.

Dependencies

AS Java Extensions require AS Java and NW Product Description as a prerequisite in the same system.

Functional Units

AS Java Extensions do not comprise a functional unit.

BI Java (BI)

BI Java provides the Java runtime for several BW capabilities.



Dependencies

BI Java requires AS Java, NW Product Description, Java Extensions, EP Core – Application Portal, and Enterprise Portal in the same system. Usually, scenarios running on product instance BI Java also require product instance BW ABAP. While installing BI Java, the required product instances are installed automatically. After configuring BI Java, you do not need to perform further steps in AS Java, Java Extensions, EP Core – Application Portal, and Enterprise Portal.

Functional Units

BI Java comprises the identically named functional unit.

i Note

Note that ABAP+Java dual stack systems are not supported with SAP HANA database. For more information see the *End-to-End Implementation Roadmap for SAP BW, powered by SAP HANA* on <http://service.sap.com/instguidesnw74>  **Planning** .

Business Process Management and Business Rules Management

Business Process Management supports the process collaboration and creation of new innovative business processes based on standardized core processes. SAP Business Process Management enables collaborative composition of executable business processes based on a process model. Clearly defined business rules can be incorporated into processes from the outset. The tight integration with Business Rules Management enables business users with no coding skills to create and modify rules using decision tables.

With Business Rules Management you can author, execute, and manage business rules. The following key features are offered by Business Rules Management:

- Inference-based rule engine implementing RETE algorithm
- Support of different rules formats (declarative rules, decision table and flow rules)
- Rules Manager: a Web Dynpro Java based rules maintenance tool for business users
- Versioning and tracking changes of business rules
- Out-of-the-box Web service generation for rule sets
- Rules testing in the rules composer (NWDS)
- Public API for rules execution
- Tighter integration with Business Process Management

Dependencies

Business Process Management and Business Rule Management requires AS Java, NW Product Description, Composition Environment Platform and Composite Application Framework in the same system.

Functional Units

Business Process Management and Business Rule Management comprise the following functional units:

Table 18:

Functional Unit	Description
Process Server	Contains the function for Business Process Management
Rules Server	Contains the functions for Business Rules Management

Business Warehouse ABAP (BW ABAP)

Business Warehouse provides the infrastructure for the following functions:

- Data warehousing
- Various analytical technologies and functions
- Business planning functions
- Web-based and Excel-based reporting, analysis, and planning
- Information broadcasting to distribute BEx applications via various channels either as precalculated documents with past data, or as links with live data

- Open analysis interfaces that make available various interfaces for connecting front-end tools of third-party providers

Dependencies

BW requires AS ABAP as a prerequisite in the same system.

i Note

For product instance BW, there is no installation option in the `software provisioning manager 1.0`. Instead, you have to install AS ABAP with `software provisioning manager 1.0` and then SAP NetWeaver 7.4 BI Content Add-On 7.47 SP05 (or higher) or SAP NetWeaver 7.4 BI Content Extensions Add-On 7.47 SP05 or higher.

Alternatively, there is SAP Netweaver 7.4 BI Content 7.57 or SAP Netweaver 7.4 BI Content Extensions Add-On 7.57 available for SAP NetWeaver 7.4 SPS 05 and higher. This version of BI Content Add-On will be used for providing additional data flows that make use of the new BW features delivered **only** from SAP NetWeaver 7.4 SPS 05 and higher. If you use the already existing BI Content Add-on 7.47 then the limitation is that you would **not** receive the data flows based on Netweaver 7.4 SPS05 (and higher) features; it also means that the already existing BI Content Add-on 7.47 would not support the new BW features valid only for SAP Netweaver 7.4 SPS 05 and higher. Considering the above limitation we recommend that you upgrade to BI Content Add-on 7.57.

Central Process Scheduling by Redwood (JOB-SCHED)

SAP Central Process Scheduling adds powerful cross-component scheduling functionality to the integration capabilities of SAP NetWeaver. SAP Central Process Scheduling has the following key characteristics:

- Centrality
There is only one central instance of this scheduler which takes control over all background processes in the entire landscape and allows for cross system scheduling.
- Event-Driven Scheduling
Dependencies between background processes can be defined not only time based but also event based.
- Real-Time Execution
All information about jobs is stored centrally and transferred to the remote systems immediately before job submission.

For more information, see SAP Developer Network at <http://scn.sap.com/community/cps-by-redwood>.

Dependencies

SAP Central Process Scheduling requires Application Server Java and NW Product Description in the same system.

Functional Units

SAP Central Process Scheduling comprises the functional unit Integrated Central Process Scheduling by Redwood.

Composite Application Framework (CE-APPS)

The Composite Application Framework is an abstraction layer that is used to develop all the components required for the service and object layer of a composite application. These components are:

- Business Objects (Entity Services)
- Business Logic (Application Services)
- Connectivity to external services (Web Services and BAPI/RFC, local and remote persistency)

- Service Provisioning

The Composite Application Framework also provides a comprehensive toolbox that includes the following features:

- A programming model
- Metadata
- Authorization concepts
- Modeling of relationships between business objects
- Integration into lifecycle management using SAP NetWeaver Development Infrastructure

This environment, which is based on a service-oriented architecture (SOA), enables developers to build applications that leverage the whole SAP NetWeaver technology platform without the need to use low-level APIs. This way, developers can focus on implementing the business logic of a composite application. The Service Composer, a graphical modeling tool, provides service simplification and composition. This greatly eliminates the need to write code for simplification and data mapping.

Dependencies

Composite Application Framework requires Application Server Java and NW Product Description in the same system.

Functional Units

Composite Application Framework comprises the functional unit Composite Application Framework Runtime providing the above-mentioned features.

Composition Environment Platform (CE-ENV)

The Composition Environment Platform provides a toolset and runtime for efficiently developing, running, and managing composite applications based on SOA principles. It builds upon proven technologies that have been enhanced and integrated to provide greater functionality and flexibility. The Composition Environment Platform offers you the following capabilities:

- User interface (UI) development: SAP NetWeaver Web Dynpro and SAP NetWeaver Visual Composer
Web Dynpro and Visual Composer are SAP's standard UI technologies based on the Model View Controller (MVC) for developing user interfaces. Web Dynpro Java or Visual Composer applications are developed within the SAP NetWeaver Developer Studio using a model-driven approach that minimizes manual UI coding and uses visual tools to design and reuse components.
- Business Logic
The Composite Application Framework enables Java business object modeling.
- Service Simplification and Composition
A graphical modeling capability simplifies and adapts Complex Services for easy consumption in Composition Environment. This greatly eliminates the need to write code for simplification and data mapping.

Dependencies

Composition Environment Platform requires Application Server Java, NW Product Description, and Composite Application Framework in the same system.

Functional Units

Composition Environment Platform comprises the following functional units:

Table 19:

Functional Unit	Description
Composition Environment Platform	Composition Environment Platform is the foundation for building and running composite applications.
ECM integration core	Enterprise Content Management (ECM) Integration Core facilitates the provision and consumption of Enterprise Content Management services using standardized interfaces. Therefore, it enables business applications to consume core ECM services provided by SAP as well as extended ECM services provided by partners and third-party vendors leveraging their ECM product offering. Besides the core runtime components, this functional unit contains the service provider interface (SPI) for exposing ECM services as well as the application programming interface (API) for making use of these services.
ECM Integration Services	ECM Integration Services offer additional services on top of ECM Integration Core functional. These supplementary services such as the server for World Wide Web Distributed Authoring and Versioning (WebDAV) can be leveraged by applications on top of the already exposed ECM services of the connected service providers.
Visual Composer	Visual Composer is a model-driven development tool used to create UI screens and Portal content using a drag-and-drop graphical environment, without the need to write code. Using Visual Composer you can create standalone applications such as form views and dashboards or UI screens, such as Web Dynpro screens. Visual Composer also provides Portal Content Modeling capabilities for generating roles, pages, iViews and other content for the SAP NetWeaver Portal.
Portal	Provides basic SAP NetWeaver Portal capabilities excluding the Web Page Composer capabilities, the data statistics tools of Portal Activity Reports, and the Activity Data Collector.
Universal Worklist	Offers users unified and centralized access to their work and relevant information from within the portal. It collects tasks and notifications from multiple provider systems – Business Workflow, Collaboration Task, Alert Framework, and KM Recent Notifications – and displays them in a single list.

Development Infrastructure (DI)

Development Infrastructure provides an infrastructure for developing Java-based applications on the SAP NetWeaver platform and enables versioning of source code, build and lifecycle management of these applications. DI takes care of all parts of the development process :

1. Version control system for central management of source code: The Design Time Repository (DTR) is a distributed version control system used in SAP NetWeaver Development Infrastructure to manage source code in development and lifecycle management processes.
2. Central build and archive management: The Component Build Service (CBS), gives developers access to the latest archive versions in a central archive storage and a central build triggered by developers or central lifecycle management processes.
3. Central landscape and transport management: CM Services enables you to set up team development with centrally managed development configurations. It also supports the automated deployment of build results on a central runtime system. The import and export service allow you to import and export Software Component Archives (SCAs) of a development configuration. If a transport system is needed, a development configuration can be integrated into the enhanced Change and Transport System (CTS+). You can also use the Change Management Service (CMS), which gives administrators a central service to set up development landscapes for all development tasks and manage all transport processes for these tasks in the same UI. However, note that CMS is planned to be replaced by the CM Services in future releases. Therefore, we recommend using CM Services.

Dependencies

- DI requires AS Java and NW Product Description as a prerequisite in the same system. Optionally, it can be combined with other product instances in one system. However, depending on the size of the development project and the number of active developers, DI should use a dedicated system. For further details, see SAP Note [737368](#).
You can run the development infrastructure on an AS Java separately from the rest of your runtime systems in the system landscape for improved scalability.
If you use a development infrastructure, you have to install the Developer Studio feature *SAP NetWeaver Developer Studio Development Infrastructure Client*.

Functional Units

DI comprises the functional unit SAP NetWeaver Development Infrastructure providing the above-mentioned functions.

Enterprise Portal (EP)

Enterprise Portal (EP) provides users with a single, uniform point of access to the applications, services, and information they need for their daily work. Moreover, the Portal offers business users the features to easily create and manage portal pages and generate their own content using the following capabilities:

- **KM and Web Content Capabilities**
EP provides basic document management capabilities and content services within SAP Enterprise Portal (KM). KM provides the basic capabilities that customers need to run their scenarios, as well as an extension framework for custom implementations.
These KM capabilities are also integrated into the Web Page Composer environment to enable flexible Web content management scenarios, bringing relevant information from user-generated content and business applications together in the portal.
- **Portal Add-On with Forums and Wiki Capabilities**
On top of EP, you can install the portal add-on including the forums and the wiki application.
The forums application provides a comprehensive range of discussion features, which are particularly suitable for community scenarios. Forums typically focus on a specific purpose such as support or human resources or they might offer customers a place to trade product tips and solutions. Intuitive user interfaces

make it easy for users to ask questions, share information, post announcements to the community, escalate questions to experts, and to receive updates on posted comments. Users can create draft versions of their postings, exchange private e-mails with other forum users, and vote in polls.

Wikis provide a framework to easily share and contribute knowledge and information in an intuitive way within the company. They give employees, customers, suppliers, and partners a framework to collaborative writing, and help save time by making ideas available, sharing knowledge, and managing related information.

Dependencies

EP requires EPC, AS Java, NW Product Description, and Java Extensions as a prerequisite in the same system. Optionally, it can be combined with other product instances in one system.

Functional Units

Enterprise Portal comprises the following functional units:

Table 20:

Functional Unit	Description
Knowledge Management	Enables portal users to distribute, access, and manage unstructured information within an organization in a heterogeneous repository landscape. Capabilities include collaborative document authoring and publishing, version management, search and navigation with taxonomies, automated classification and subscription, and more.
Collaboration	Brings users, information, and applications together to ensure successful cooperation and interaction in the portal. These tools include collaboration rooms, instant messaging, e-mail, and calendar integration.

Enterprise Services Repository (ESR)

The Enterprise Services Repository (ES Repository) provides a central place where enterprise service definitions are modeled, stored, and maintained. It supports SAP's concept of building services based on the process component modeling methodology. The ES Repository offers the following features:

- Support of governed definitions of SOA assets (such as services and data types).
- Support of widely adopted open standards including Web Services and UDDI.
The ES Repository supports SAP-defined Global Data Types based on the Core Component Technical Specification standards (stack) (CCTS standards (stack)).
- Basis for enabling easy access to enterprise services - described with rich business classifications - when developing composite applications and business processes.

Dependencies

Enterprise Services Repository requires Application Server Java in the same system.

Functional Units

Enterprise Services Repository comprises the identically named functional unit providing the above mentioned capabilities.

EP Core – Application Portal (EPC)

EP Core – Application Portal (EPC) provides the basic portal capabilities for SAP NetWeaver. It provides a uniform entry point to content and applications in a consistent, role-based manner. It offers a single point of access through a Web front end to SAP and non-SAP information sources, enterprise applications, information repositories, databases and services across organizational and technical boundaries – all integrated into a single user experience. EPC alone provides a leaner portal installation and implementation where the full enterprise portal capabilities (such as knowledge management tools) are not needed.

The EPC product instance contains the following capabilities that will help you manage your content and processes:

- The core portal capabilities include various tools and service for managing portal content, users, and connections to connected systems such as Single-Sign-On, tools for application integration, roles and permissions, changing the portal look and feel with the new Ajax Framework, and lifecycle management (transport).
- Integration of several SAP Enterprise Portals and third-party portals into one harmonized SAP Enterprise Portal acting as the single point of access to all the business related applications and services in the organization.
- Web Page Composer (WPC): this is an integral part of EPC providing powerful capabilities for business users to easily create and manage enriched portal pages. Web Page Composer supports professionals creating interactive portal pages.

Dependencies

EPC requires AS Java and NW Product Description as a prerequisite in the same system.

Functional Units

EP Core – Application Portal comprises the following functional units:

Table 21:

Functional Unit	Description
Portal	Provides basic SAP Enterprise Portal capabilities
Universal Worklist	Provides the Universal Worklist Capabilities

Mobile

Product instance Mobile is used to enable field personnel to participate in a business process in an “occasionally connected” mode. Occasionally connected means that a direct connection (using WLAN or GPRS) between the mobile device and back end is only established at certain times – at synchronization points, when the Mobile Server (that is, the system with product instance Mobile) and Mobile Client exchange data in order to keep the server and client updated. This enables the user to perform process tasks completely independently from the back-end system, which is extremely helpful if a steady connection cannot be guaranteed or might be too expensive. To realize this product instance, an intelligent application needs to run on each device containing a user interface, business logic, and data handling. Mobile includes the Data Orchestration Engine (DOE), an ABAP-based message-oriented middleware. The Data Orchestration Engine consists of the following:

- A design time tool for defining data objects and the distribution of data.
- A runtime to replicate, synchronize and distribute data between the components of the system landscape. This includes, for example, messaging, filling queues, and sending data to the back end.

Dependencies

Mobile is not an installable software unit. As of SAP enhancement package 1 for SAP NetWeaver 7.3, SAP NetWeaver Mobile is available as add-on. To set up a Mobile system, you install and configure AS ABAP. On top of the AS ABAP system, you install and configure the SAP NetWeaver Mobile add-on separately.

NW Product Description (NW-MODEL)

NW Product Description contains metadata for SAP NetWeaver, for example, about comprised software components and their interdependencies. NW Product Description is always included when you install a Java product instance.

PDF Export

With PDF Export, you can create print versions of lists that are displayed using ALV for Web Dynpro for ABAP (SAP List Viewer) and ALV for Web Dynpro for Java.

Dependencies

PDF Export depends on Adobe Document Services, Application Server Java and NW Product Description.

Process Integration (PI)

PI consists of core components that model, design, automate, and integrate processes in one or more application systems. For the integration of internal and cross-company processes, PI is used to incorporate all the functions of what was formerly known as Exchange Infrastructure (XI). In addition, PI contains core components for cross-component Business Process Management (ccBPM) for application-embedded and application-unbounded processes.

Dependencies

PI requires AS ABAP, AS Java, NW Product Description, AS Java Extensions, PI Adapter Engine, and Enterprise Services Repository as a prerequisite in the same system.

For installing PI, it is mandatory to have a dedicated PI system. This applies to development, quality, and production landscapes. It is a prerequisite that no other system in your system landscape has a higher release and enhancement package level than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release and enhancement package level of the PI system is on the same level - if required, you have to upgrade the PI system first to the new or a higher release. In a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other product instances running in the same system.

Functional Units

Process Integration comprises the functional unit SAP Process Integration.

Restrictions for Systems with Multiple Product Instances

- If you have one system with multiple product instances, be aware that we do not provide standard tools for separating these product instances and distribute them to multiple systems at a later stage. For example, if you have a system with product instances A and B, you are not able to migrate it with SAP standard tools into two systems, one with product instance A only and the other with product instance B only. In addition, we do not provide standard tools for merging multiple systems with different product instances into one system with multiple product instances at a later stage. If you want to perform these tasks, you require specific project support. The only exception is the dual-stack split procedure that offers to split an optional dual-stack system into two separate systems: one based on AS ABAP, the other one based on AS Java. For more information about the dual-stack split, see <http://scn.sap.com/docs/DOC-25162>.

The following figure shows that SAP standard system copy and migration tools do not support you in separating or merging systems with product instances:

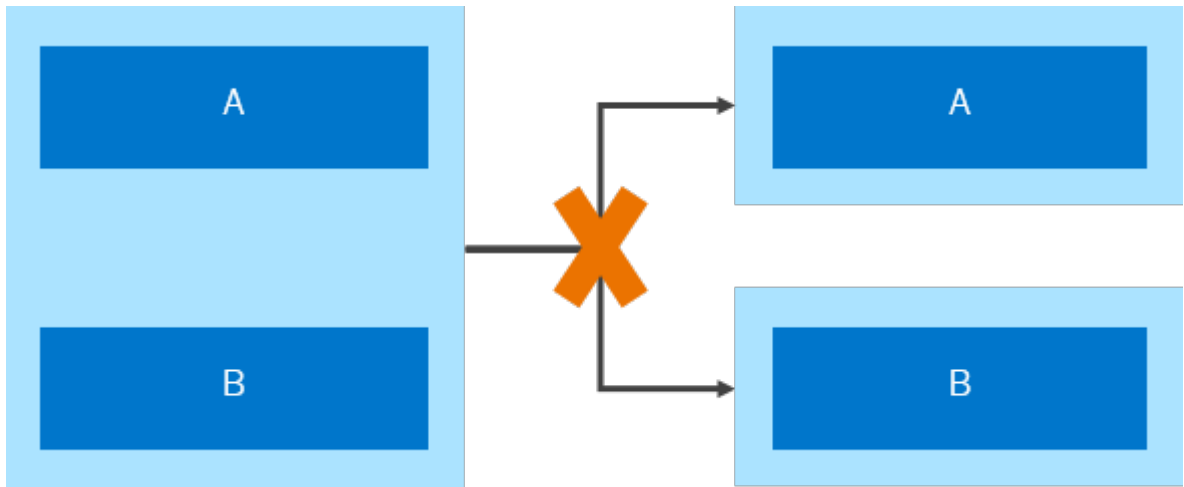


Figure 13: Separating systems with product instances are not supported with SAP standard system copy and migration tools

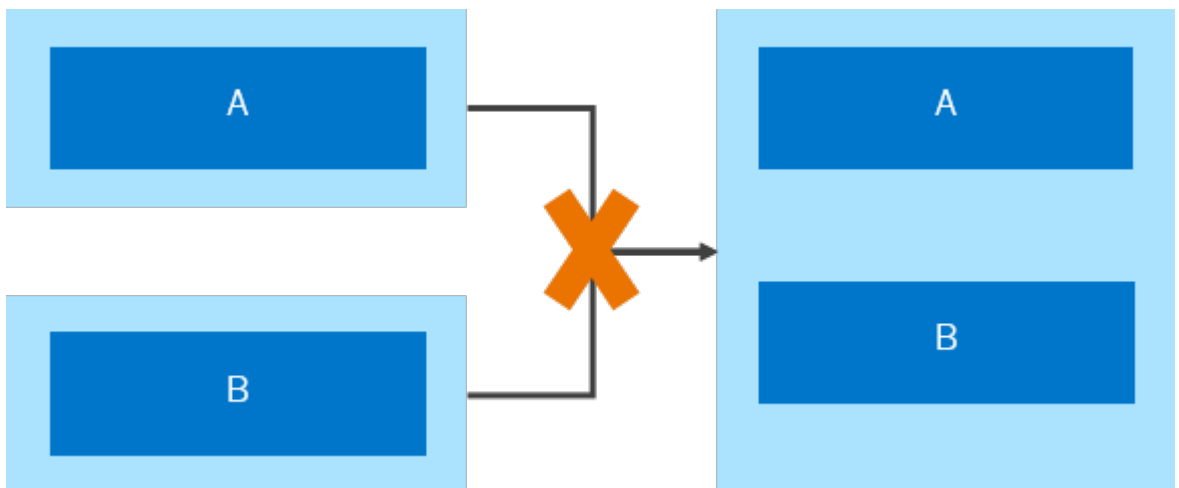


Figure 14: Merging systems with product instances are not supported with SAP standard system copy and migration tools

- Although you can use one system for multiple product instances, client restrictions apply to product instance BW ABAP. For BW ABAP, you should reserve a dedicated client for reporting purposes. In this client, activate the SAP NetWeaver BI Content Add-On as required.

A.2.2 Optional Standalone Units

Advanced Adapter Engine (PI Adapter Engine)

You use the Advanced Adapter Engine to connect to SAP systems (RFC adapter, IDoc Adapter, and ABAP proxies) and external systems. You use the various adapters in PI Adapter Engine to convert XML- and HTTP-based messages to the specific protocol and format required by these systems, and the other way around.

You can use the following adapters:

- RFC Adapter
- SAP Business Connector Adapter
- File/FTP Adapter
- JDBC Adapter
- JMS Adapter
- SOAP Adapter
- Marketplace Adapter
- Mail Adapter
- RNIF Adapter
- CDIX Adapter
- IDoc Adapter (Advanced Adapter Engine) (adapter type IDOC_AAE)
- HTTP Adapter (Advanced Adapter Engine) (adapter type HTTP_AAE)

You can use the Advanced Adapter Engine which is included in the PI system as a central adapter engine. Optionally, for performance reasons, you can install a non-central Advanced Adapter Engine on a separate host.

Dependencies

The Advanced Adapter Engine requires AS Java, NW Product Description, and AS Java Extensions as a prerequisite in the same system. These product instances are automatically installed when you install the Advanced Adapter Engine.

Functional Units

The Advanced Adapter Engine comprises the functional unit Advanced Adapter Engine.

Advanced Adapter Engine Extended

The installation option Advanced Adapter Engine Extended (AEX) consists of core components to model, design, automate, and integrate processes in one or more application systems. The Advanced Adapter Engine Extended provides the following capabilities:

- Connectivity capabilities of the Advanced Adapter Engine (AAE)
- Design and configuration tools to set up scenarios that are based on the AAE. In particular, for design and configuration you can use the ES Repository and the Integration Directory. The Integration Directory installed with AEX contains a subset of configuration options required for the configuration of message processing by the AAE, basically the integrated configuration.
- Mediation capabilities of AAE

You can use the following adapters:

- RFC Adapter
- SAP Business Connector Adapter
- File/FTP Adapter
- JDBC Adapter
- JMS Adapter
- SOAP Adapter
- Marketplace Adapter
- Mail Adapter
- RNIF Adapter
- CDIX Adapter
- IDoc Adapter (Advanced Adapter Engine) (adapter type IDOC_AAE)

- HTTP Adapter (Advanced Adapter Engine) (adapter type HTTP_AAE)

Dependencies

Advanced Adapter Engine Extended requires AS Java, NW Product Description AS Java Extensions, PI Adapter Engine, and Enterprise Services Repository as a prerequisite in the same system.

These product instances are automatically installed when you choose the installation option *Advanced Adapter Engine Extended*.

Functional Units

Advanced Adapter Engine Extended comprises the identically named functional unit.

Process Integration (PI)

PI consists of core components that model, design, automate, and integrate processes in one or more application systems. For the integration of internal and cross-company processes, PI is used to incorporate all the functions of what was formerly known as Exchange Infrastructure (XI). In addition, PI contains core components for cross-component Business Process Management (ccBPM) for application-embedded and application-unbounded processes.

Dependencies

PI requires AS ABAP, AS Java, NW Product Description, AS Java Extensions, PI Adapter Engine, and Enterprise Services Repository as a prerequisite in the same system.

For installing PI, it is mandatory to have a dedicated PI system. This applies to development, quality, and production landscapes. It is a prerequisite that no other system in your system landscape has a higher release and enhancement package level than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release and enhancement package level of the PI system is on the same level - if required, you have to upgrade the PI system first to the new or a higher release. In a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other product instances running in the same system.

Functional Units

Process Integration comprises the functional unit SAP Process Integration.

A.2.3 Standalone Engines

For SAP NetWeaver, the following standalone engines are available:

Adapter Engine Java SE

Adapter Engine (Java SE) is a separate software unit. You can use it only if you have SAP NetWeaver systems with product instance PI in your system landscape. It has to be installed manually. You use the Adapter Engine (Java SE) to connect to external systems. Using the various adapters in the Adapter Engine (Java SE), XML and HTTP-based messages can be converted to the specific protocol and format required by such systems, and the other way around. The Adapter Engine (Java SE) only provides some of these adapters as a standalone version with restricted functions for operating systems that do not support SAP PI, but that have at least a Java Runtime Environment 5.0. Therefore, you should use the Adapter Engine (Java SE) only if the platform prerequisites do not allow you to use the Advanced Adapter Engine.

Content Server

Content Server is a separate server instance that is used to store documents or other types of content related to SAP applications. The accompanying cache server can cache content if your company operates in several locations. This reduces load on the wide area network when working with documents.

SAP Gateway Foundation

As of SAP NetWeaver 7.4 the central software components of SAP Gateway have been directly integrated into SAP NetWeaver in the form of software component SAP Gateway Foundation (SAP_GWFND). This component is automatically part of SAP NetWeaver 7.4 and higher.

SAP Gateway Foundation facilitates easier provisioning and consumption of business logic and content of SAP back-end systems for mobile and web applications. It aims to reduce the complexity and the skill set required to access SAP data, thereby removing deployment barriers. Simple interfaces also help to shorten development times.

SAP Gateway Foundation enables people-centric applications to consume SAP Business Suite data through popular platforms and devices (such as the iPad and Blackberry) in an easy and standards-based manner. It is a framework that connects business users to SAP systems using consumer technologies, groupware, and mobile devices and is based on open standards (such as the Atom Publishing Protocol and OData) that offer simple services based on the REST principle.

Depending on your development requirements and where you want to develop SAP Gateway Foundation content, you can install SAP NetWeaver in either an SAP Business Suite back-end system (embedded deployment) or in an SAP Gateway Foundation hub system (central hub deployment).

For more information, see <http://help.sap.com/netweaver> ► *SAP NetWeaver Platform* ► *SAP NetWeaver <your release>* ► *Application Help* ► *Function-Oriented View* ► *SAP Gateway Foundation (SAP_GWFND)* ►.

liveCache

liveCache is a database engine for managing complex objects in scenarios where large volumes of data must be permanently available and modifiable.

Search and Classification (TREX)

SAP NetWeaver Search and Classification (TREX) offers an integrated set of services. TREX services include search and retrieval in large document collections, text mining, automatic document classification, and search and aggregation over structured data in SAP applications. TREX can handle text from documents in numerous formats, including Microsoft Office and Adobe formats (PDF), and more than 30 languages. TREX search options, such as exact, Boolean, fuzzy, or linguistic search, and classification options such as query-based or example-based classification, offer great power and flexibility to end users.

The BW accelerator is based on TREX technology. You need an installation based on 64-bit architecture for the BW accelerator. The hardware partners provide this variant already preconfigured as the BW accelerator box. Note that a TREX installation configured for searching in metadata and documents based on 32-bit architecture cannot be used for the BW accelerator. Accordingly, a BW accelerator box also cannot be used for searching in metadata and documents. In order to be able to use the search function and the BW accelerator, you need separate installations.

Web Dispatcher

The Web Dispatcher lies between the Internet and your SAP system. It is the entry point for HTTP(s) requests into your system, which consists of one or more SAP NetWeaver application servers. As a software Web switch, the Web dispatcher can reject connections or accept them. When it accepts a connection, it balances the load to ensure even distribution across the servers.

You can use the Web dispatcher in ABAP/Java systems and in pure Java systems, as well as in pure ABAP systems.

It is also beneficial to use the Web Dispatcher if you do not need security functions (entry point in the demilitarized zone (DMZ), SSL, URL filtering), but you simply want to balance the load between multiple SAP NetWeaver Application Server instances.

Since Web Dispatcher is optional for every SAP system, it is not contained in the system landscapes of the use cases in this documentation.

For more information, see the SAP Library at <http://help.sap.com/nw74>  [Application Help](#)  [SAP Function-Oriented View](#)  [Application Server](#)  [Application Server Infrastructure](#)  [SAP Web Dispatcher](#) .

A.2.4 Clients



With SAP NetWeaver, you can use the front-end clients and tools described below:

Adobe LiveCycle Designer

Adobe LiveCycle Designer enables the creation of forms that combine high-fidelity presentation with XML data handling. The easy-to-use graphical interface of Adobe LiveCycle Designer enables users to quickly design forms, maintain form templates, define a form's business logic, make changes, and preview forms before they are deployed as Adobe PDF files.

SAP NetWeaver Business Client

The SAP NetWeaver Business Client (NWBC) is a high fidelity desktop client that allows users to display their assigned roles and to launch applications. SAP NetWeaver Business Client offers a unified environment for and a single point of entry to SAP business applications and technologies. NWBC is ideal for displaying business applications such as classical SAP GUI UIs, Web Dynpro UIs, BSP pages, and other content using its multiple rendering engines. NWBC provides role-based access to applications either via the portal or directly using PFCG roles. In addition to the basic capabilities detailed above, the SAP NetWeaver Business Client makes use of its tight desktop integration to provide additional benefits such as desktop search functionality. In the newest SAP NetWeaver Business Client version you will find the improved user interface (UI) based on the SAP Signature design. This UI offers in part an expert-based interactive paradigm and a superior look and feel matching the expectations of today's users aiming to maximize their daily activities.

The SAP NetWeaver Business Client is one of the main components of the User Interface Add-On for SAP NetWeaver. For more information, see the SAP Help Portal at <http://help.sap.com/nw-uiaddon>  [Application Help](#) .

Business Explorer (BI Add-On)

Business Explorer provides flexible reporting and analysis tools for strategic analyses and decision-making support within a company. These tools include query, reporting, and analysis functions. As an employee with access authorization, you can evaluate past or current data on various levels of detail and from different perspectives, not only on the Web but also in Microsoft Excel.

You can use Business Explorer Information Broadcasting to distribute Business Intelligence content by e-mail either as precalculated documents with historical data, or as links with live data. You can also publish it to the SAP Enterprise Portal.

Additionally to Business Explorer you may want to consider using tools from the SAP BusinessObjects Analysis family, such as Analysis, edition for Microsoft Office. The SAP BusinessObjects Analysis clients are specifically designed for the needs of BW users. Note that SAP BusinessObjects products require separate licenses.

SAP GUI

SAP offers three different client applications for accessing ABAP applications in SAP systems (such as SAP NetWeaver systems with product instance AS ABAP). This SAP GUI family consists of:

- SAP GUI for HTML
SAP GUI for HTML is based on the SAP integrated Internet Transaction Server (ITS) which is included in the installation of SAP NetWeaver systems as of SAP NetWeaver 7.0. On the client side, only a suitable browser and a virtual machine are required. For information about supported browser versions, see the Product Availability Matrix on SAP Service Marketplace at <http://support.sap.com/pam>.
- SAP GUI for the Java environment (SAP GUI for Java)
SAP GUI for Java is a generic SAP GUI that covers a variety of platforms.
For more information about the installation of SAP GUI for Java, see the documentation *Installation Guide – SAP Front End*.
- SAP GUI for the Windows environment (SAP GUI for Windows)
SAP GUI for Windows is SAP's universal client for accessing all SAP applications built on ABAP technology. It is available on the Microsoft Windows platform only and offers the broadest feature set of all members of the SAP GUI family.
For more information about the installation of SAP GUI for Windows, see the *Installation Guide – SAP Front End*.

SAP GUI also includes optional add-ons, such as the Business Explorer (BI add-on) and KW add-on, which might be required to use certain SAP NetWeaver capabilities.

i Note

Data warehousing: SAP GUI for HTML and SAP GUI for Java do not have all the capabilities of SAP GUI for Windows. BEx Query Designer, BEx Analyzer and UIs with network controls are not supported with SAP GUI for HTML and SAP GUI for Java.

The following SAP GUI versions are supported with SAP NetWeaver 7.4:

- SAP GUI for Windows 7.30 (or higher)
- SAP GUI for Java 7.30 (or higher)
- SAP integrated ITS

For more information about the SAP GUI family, see SAP Community Network at <http://scn.sap.com/community/gui>.

Mobile Client

Mobile Client is installed locally on mobile devices, and is equipped with a Web server, a database layer, and a framework for the mobile applications. Staff working remotely can therefore work offline and do not have to wait for a network connection to complete time-critical business applications. Product instance Mobile offers tools for synchronization and data replication that make the data of the mobile device consistent with that of the back-end system.

Modeling Tools for SAP BW powered by SAP HANA

The Modeling Tools for SAP BW powered by SAP HANA (BW Modeling Tools) represents a new modeling IDE (Integrated Development Environment) build on top of the Eclipse platform.

Its main objective is to support BW model developers in today's increasingly complex BI environments by offering state-of-the-art modeling tools. These tools include integration with SAP HANA modeling and the consumption of HANA elements in BW Open ODS Views or CompositeProviders with powerful UI (user interface) capabilities.

SAP NetWeaver Developer Studio

The SAP NetWeaver Developer Studio (NWDS) is SAP's Integrated Development Environment (IDE) for Java and is based on the open-source tools framework Eclipse 3.5. With the SAP NetWeaver Developer Studio, you can develop Java EE 5 applications from scratch using the built-in support for new technologies such as EJB 3.0 and JSF 1.2.

i Note

NWDS 7.3 EHP1 as development environment for NetWeaver 7.4

Since SAP NetWeaver Developer Studio 7.4 is not available, you can use the SAP NetWeaver Developer Studio of the latest Support Package of SAP enhancement package 1 for NetWeaver 7.3 as development environment for SAP NetWeaver 7.4. For more information, see SAP Note [1791485](#).

SAP Enterprise Services Explorer Tool for Microsoft .NET

As part of its service-oriented architecture (SOA) offering, SAP provides a set of consumer tools that allow the discovery and consumption of enterprise services from various development environments, such as NetWeaver Developer Studio, Visual Composer, and Microsoft Visual Studio. SAP Enterprise Services Explorer tool for Microsoft .NET (ES Explorer for .NET) is an add-on for Microsoft Visual Studio 2005 and Microsoft Visual Studio 2008 that helps to leverage SOA by enabling .NET developers to discover SAP enterprise services and consume them in their applications, as well as publish their own custom services. It is an important element of SAP – Microsoft interoperability.

To download the tool, access documentation and other resources, see <http://scn.sap.com/community/interoperability/microsoft-net>.

For the most up-to-date information about ES Explorer for .NET, see SAP note [1259258](#).

A.3 Compatibility Product Instances

Compatibility product instances are product instances that have been discontinued and are therefore not part of the standard SAP NetWeaver installation. If you upgrade from a previous release, these product instances will of course still exist in your systems if they have been present in the source release system.

There might be reasons for which you want to install these product instances. You can do this using the Software Update Manager. Note that you can install these product instances only on existing SAP NetWeaver 7.4 Java systems with at least product instance AS Java.

For more information and installation instructions, see the SUM guide for Java: *Update Guide – Updating SAP Systems Using Software Update Manager, for: Java*, section *Installing Additional Product Instances in an Existing SAP System*.

Demo Applications

Demo Applications illustrate the usage of SAP Composition Environment for previous releases.

Guided Procedures

Guided Procedures is a framework for modeling and managing workflows using simple and user-friendly tools. Guided Procedures enables access to multiple backend systems, consistently combining different types of services and applications into processes. In addition, Guided Procedures supports collaboration, ad-hoc items, and offline task management using interactive forms. It provides role-based access to tools and resources and guidance through the workflows at runtime, thereby helping end users to easily identify and complete their tasks.

Dependencies

Guided Procedures require Application Server Java, Composition Application Framework, Composition Environment Platform as a prerequisite in the same system.

Functional Units

Guided Procedures comprise the identically named functional unit providing the above mentioned capabilities.

NWDS Update Site

You use the NWDS update site when you develop composite applications using several Developer Studio installations. An update site contains all features for the Developer Studio. You can initiate a check for updates or additional features in the Developer Studio and install them when available. The update site capability mirrors the SAP Developer Studio update site on SAP Service Marketplace for an improved update performance. It does not run on a multi-node cluster.

The NWDS update site has been replaced by an Eclipse-based solution.

Dependencies

NWDS update site requires Application Server Java as a prerequisite in the same system.

Important Disclaimers and Legal Information

Coding Samples

Any software coding and/or code lines / strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP shall not be liable for errors or damages caused by the usage of the Code, unless damages were caused by SAP intentionally or by SAP's gross negligence.

Accessibility

The information contained in the SAP documentation represents SAP's current view of accessibility criteria as of the date of publication; it is in no way intended to be a binding guideline on how to ensure accessibility of software products. SAP in particular disclaims any liability in relation to this document. This disclaimer, however, does not apply in cases of willful misconduct or gross negligence of SAP. Furthermore, this document does not result in any direct or indirect contractual obligations of SAP.

Gender-Neutral Language

As far as possible, SAP documentation is gender neutral. Depending on the context, the reader is addressed directly with "you", or a gender-neutral noun (such as "sales person" or "working days") is used. If when referring to members of both sexes, however, the third-person singular cannot be avoided or a gender-neutral noun does not exist, SAP reserves the right to use the masculine form of the noun and pronoun. This is to ensure that the documentation remains comprehensible.

Internet Hyperlinks

The SAP documentation may contain hyperlinks to the Internet. These hyperlinks are intended to serve as a hint about where to find related information. SAP does not warrant the availability and correctness of this related information or the ability of this information to serve a particular purpose. SAP shall not be liable for any damages caused by the use of related information unless damages have been caused by SAP's gross negligence or willful misconduct. All links are categorized for transparency (see: <http://help.sap.com/disclaimer>).



**go.sap.com/registration/
contact.html**

© 2017 SAP SE or an SAP affiliate company. All rights reserved.
No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company. The information contained herein may be changed without prior notice.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.
These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.
SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

Please see <http://www.sap.com/corporate-en/legal/copyright/index.epx> for additional trademark information and notices.

Material Number: 50118212



The SAP logo, consisting of the letters 'SAP' in white on a blue rectangular background.