

# J2EE-DEP 7.0 and J2EE-STD 7.0 SAP NetWeaver 7.0 Application Installation/Deployment -Documentation and Test Catalog-

SAP Integration & Certification Center

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## [Introduction and Important Things to Know Before You Start](#)

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It is assumed, that an independent software vendor (**SSP - Software Solution Provider**) has a basic understanding of J2EE concepts, hardware and software when reading this document.

This document will address the requirements for both J2EE-DEP and J2EE-STD certification scenarios. The scenario dependent sections will be marked or mentioned in this document.

For certification purposes, you will need to purchase a SAP license in order to install a SAP J2EE environment. A **Developer Workplace for SAP NetWeaver 7.0** installation will be sufficient to use in order to prepare and go through certification. Furthermore, this will allow you to have a test environment in place to support your product once certification has been obtained and your product is used live in production at an SAP customer site. For licensing information, see the Licensing, Hardware and Software requirements at the end of this document.

If you already have a SAP NetWeaver 7.0 (formerly called SAP NetWeaver 2004s) Java environment installed, then this is also fine to use (must contain the SAP J2EE engine, SAP NetWeaver Developer Studio, along with a SAP supported database, and optionally but also recommended the SAP JDI -> Java Development Infrastructure). See also SAP note 883948 in regards to SAP NetWeaver 7.0 usage types.

The SAP 7.00 J2EE™ engine is a fully certified J2EE compliant application server. The certification verifies that a J2EE application from an (SSP) deploys and runs on the SAP 7.00 J2EE engine. Deployment is a process of installing a J2EE application, also known as an **EAR** file (J2EE Enterprise Archive file) on the J2EE engine. The EAR file is prepared according to the [J2EE™ Specification v1.3](#), with the appropriate SAP specific deployment information. In order to have your software product certified, the J2EE **EAR** file needs to be converted to an **SCA** file and has to be deployed on the SAP NetWeaver 7.00 J2EE application server. In the SAP environment the **SCA** file is viewed as one software component. Thus, if you had more than one J2EE application (several converted EAR files), then each J2EE application (**SCA** file) would need to be certified separately, since every individual EAR / SCA file is equivalent to exactly one software component.

A J2EE enterprise application archive file can consist of a combination of **WAR** file(s) (Web archives, for example servlets, JSP's, filters and listeners) and/or **JAR** file(s) (Enterprise Java Beans, for example entity, session or message driven beans). These so called source or module projects that you create, along with the necessary deployment descriptor files, are then loaded and assembled using various SAP tools, in order to generate a J2EE application (EAR file) which when converted to a **SCA** file can then be deployed and certified on the SAP NetWeaver Java Application server.

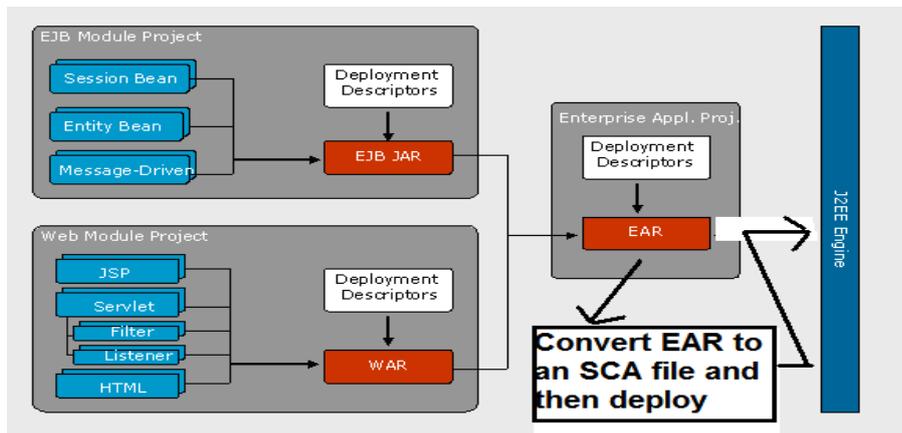
**J2EE Enterprise Application projects are combinations of WARs and / or JARs to form a complete J2EE application (EAR file), which needs to be deployed as an SCA file onto the SAP NetWeaver 7.0 J2EE engine.**

Thus, to be certified, you need to have a J2EE application (EAR file), **delivered as an SCA file**.

### EAR (your final J2EE software application) = WAR and / or JAR

The **EAR** file is the software component which is part of your certifiable SCA file. Thus, your EAR file which must be converted into an SCA file is what we can certify.

Check the following figures, what this entails along with information in regards to descriptor files.



### JAR - EJB Module Project and Deployment Descriptors

The descriptions in the deployment descriptors specify the properties of the JAR and its associated beans.

Deployment Descriptor	Use
ejb-jar.xml	Describes the standard J2EE properties of the Enterprise JavaBeans.
persistent.xml	Describes the mapping of entity beans and their CMP fields to the corresponding database tables and table fields.
ejb-j2ee-engine.xml	Contains entries specific to the J2EE Engine.

You can configure EJB JARs by using the *ejb-jar.xml* and *ejb-j2ee-engine.xml* deployment descriptors. Configuration consists of providing the information required for deployment. The *ejb-jar.xml* is the J2EE-specified deployment descriptor. The deployment descriptors *ejb-j2ee-engine.xml* and *persistent.xml* contain additional entries specific to the J2EE engine.

## **WAR - Web Module Project and Deployment Descriptors**

The descriptions in the deployment descriptors specify the properties of the Web archive (WAR) and its associated Web resources.

Deployment Descriptor	Use
web.xml	Describes the standard J2EE properties of the Web resources (JSPs, servlets, and so on). These properties include mapping information, security entries (access restrictions and security roles), and entries concerning EJB reference names.
web-j2ee-engine.xml	Contains entries concerning Web resources specific to the SAP J2EE Engine.

You can configure the WAR file of a Web project using the *web.xml* and *web-j2ee-engine.xml* deployment descriptors. They provide information the Web Container uses during deployment and at runtime. The *web.xml* provides the entries specified in J2EE, and the *web-j2ee-engine.xml* provides additional entries, specific to the J2EE Engine only.

## **EAR - Enterprise Application Project and Deployment Descriptors**

The descriptions in the deployment descriptors specify the properties of the complete application (or EAR file).

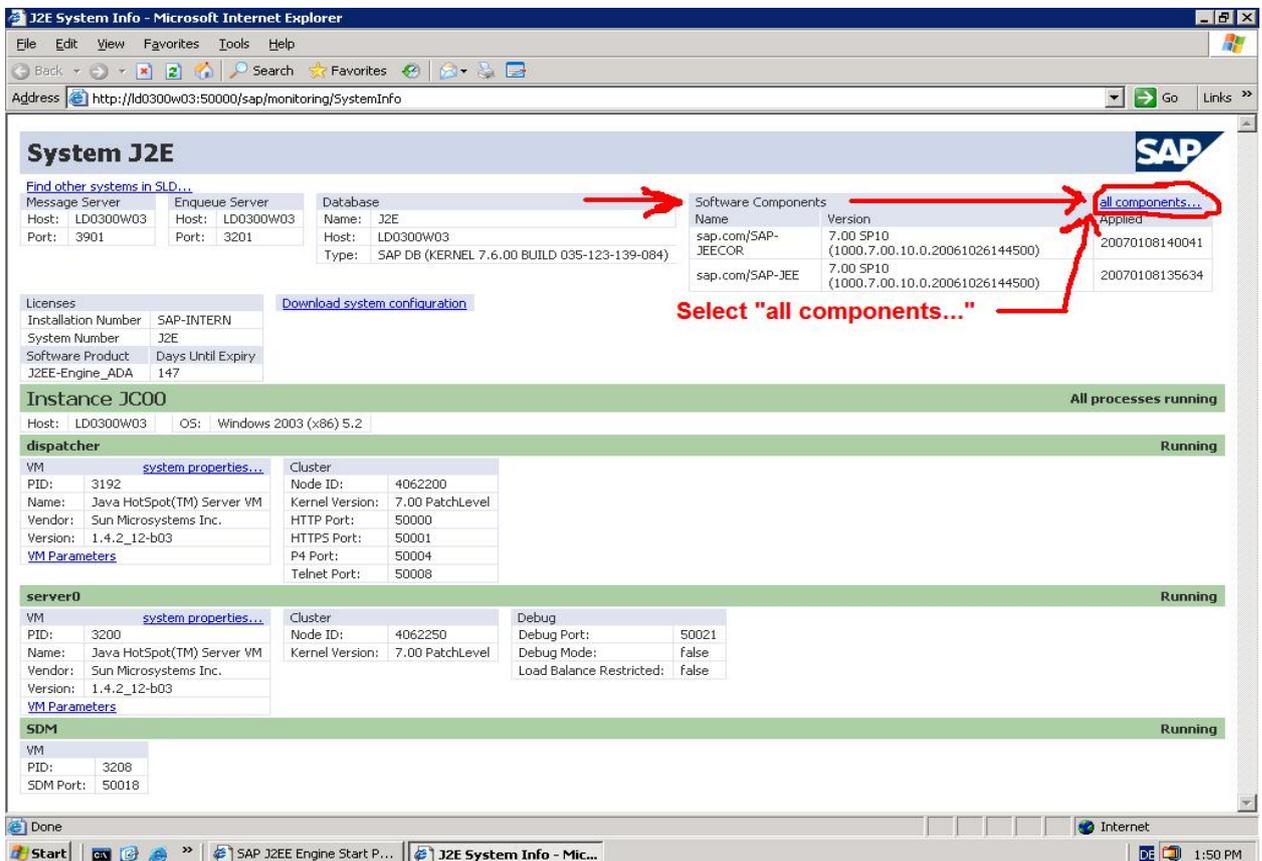
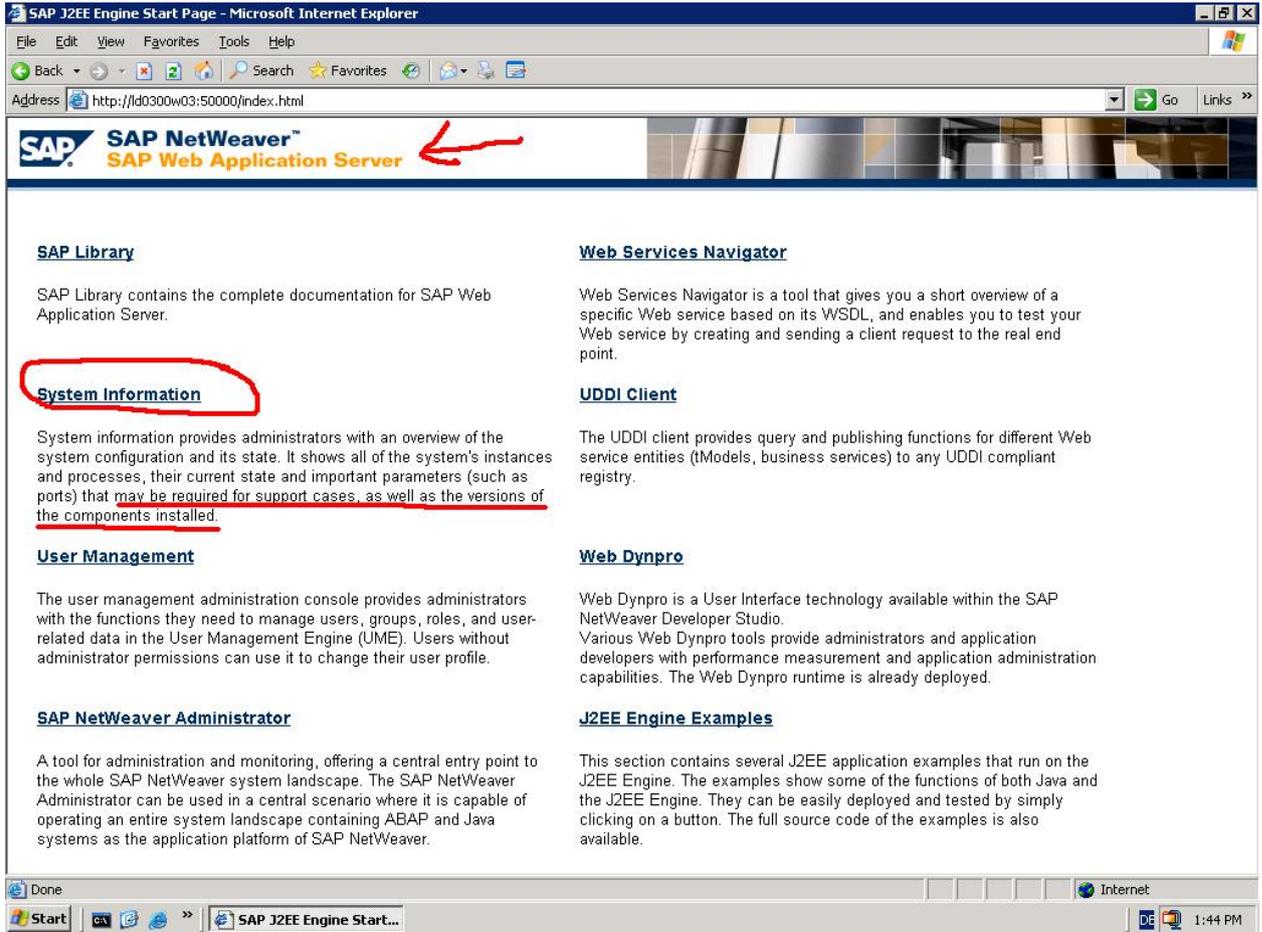
Deployment Descriptor	Use
application.xml	Describes the standard J2EE properties of the complete application and the referenced modules. In particular, you must specify the URL where the J2EE application is stored on the J2EE Engine.
application-j2ee-engine.xml	Contains additional entries specific to the SAP J2EE Engine. You do not need to make any entries for the car rental application in this deployment descriptor.

You create J2EE applications from Enterprise projects. When the J2EE application of a project is ready, it is packed in an enterprise archive (EAR) file. The EAR file contains two deployment descriptors: *application.xml* and *application-j2ee-engine.xml*. The deployment descriptors specify the properties of the complete J2EE application. You can configure the J2EE application using the deployment descriptors. The deployment descriptor *application.xml* describes the standard J2EE properties of the complete application. The deployment descriptor *application-j2ee-engine.xml* contains additional entries specific to the J2EE Engine.

## **Topics covered, tested, reviewed and discussed during certification**

### **Test criteria relevant to both J2EE-DEP and J2EE-STD**

- 1) A SAP NetWeaver Developer license must be purchased. You only need “one” license and nothing else.
- 2) The documents called **J2EE-DEP** or **J2EE-STD Technical Product Profile** must be filled out and will be reviewed and discussed once the certification contract has been signed. These documents describe the system environment which your product will utilize during your integration work and provide product technical details. The documents will go hand in hand with the J2EE-DEP or J2EE-STD **Test Reports** (this is the so called certification checklist).
- 3) The J2EE EAR file which needs to be converted to an SCA file must be deployed on the SAP NetWeaver Java application server using SAP deployment tools. The J2EE EAR file is defined as a combination of WARs and / or JARs to form a complete J2EE application. You need to pack an EAR file into the SAP proprietary SCA file format and then deploy this SCA file in order to meet and adhere to SAP support requirements. See SAP note 1223957 how to pack an EAR file into an SCA file. Also, see the file called “UC4 Software GmbH.pdf” which is contained in the folder “How two ISVs did it” within the files “j2eedep70.zip” and / or “j2eestd70.zip” which you downloaded and extracted.
- 4) The J2EE application must start after deployment.
- 5) A **J2EE application functional test** (five tests mutually agreed upon) will be conducted. In addition, a **J2EE application error test** (five error tests mutually agreed upon) requiring you to make use and write error messages into the SAP logging (any open source logging such as log4j are not supported) framework will be mandatory in order to analyze, troubleshoot and resolve J2EE application errors. The SAP NetWeaver Administrator is the preferred tool to use in order to view and locate the error messages within the SAP logging framework. The SAP NetWeaver Visual Administrator can also be used as an alternative. The results should be identical.
- 6) The successfully deployed J2EE application (SCA file) must be visible via the SAP J2EE System Information -> all components as depicted below. This ensures that your certifiable product is “[SAP Solution Manager Ready](#)”.



**System J2E**

Vendor	Name	Version	Provider	Location	Applied
sap.com	KMC-BC	7.00 SP10 (1000.7.00.10.0.20061024215900)	SAP AG	SAP AG	20070108174328
sap.com	KMC-CM	7.00 SP10 (1000.7.00.10.0.20061109230900)	SAP AG	SAP AG	20070108174350
sap.com	RTC-STREAM	7.00 SP10 (1000.7.00.10.0.20061026144000)	SAP AG	SAP AG	20070108174442
sap.com	NET-PDK	7.00 SP10 (1000.7.00.10.0.20061024205200)	SAP AG	SAP AG	20070108164456
sap.com	SAP-JEE	7.00 SP10 (1000.7.00.10.0.20061026144500)	SAP AG	SAP AG	20070108135634
sap.com	CAF	7.00 SP10 (1000.7.00.10.0.20061025062323)	SAP AG	MAIN_APL70VAL_C	20070108161344
sap.com	RTC	7.00 SP10 (1000.7.00.10.0.20061026144000)	SAP AG	SAP AG	20070108164503
sap.com	SAP-EU	7.00 SP10 (1000.7.00.10.0.20061025075445)	SAP AG	MAIN_APL70VAL_C	20070108180415
sap.com	UWLJWF	7.00 SP10 (1000.7.00.10.0.20061109221400)	SAP AG	SAP AG	20070108174544
sap.com	JLOGVIEW	7.00 SP10 (1000.7.00.10.0.20061022041000)	SAP AG	SAP AG	20070108135503
sap.com	VCBASE	7.00 SP10 (1000.7.00.10.0.20061024214800)	SAP AG	SAP AG	20070108174738
sap.com	VCFLX	7.00 SP10 (1000.7.00.10.0.20061024214800)	SAP AG	SAP AG	20070108174548
sap.com	SAP-JEECOR	7.00 SP10 (1000.7.00.10.0.20061026144500)	SAP AG	SAP AG	20070108140041
sap.com	LM-PORTAL	7.00 SP10 (1000.7.00.10.0.20061025062316)	SAP AG	MAIN_APL70VAL_C	20070108174434
sap.com	BASETABLES	7.00 SP10 (1000.7.00.10.0.20061022040500)	SAP AG	SAP AG	20070108135301
sap.com	WDEXTENSIONS	7.00 SP10 (1000.7.00.10.0.20061025062311)	SAP AG	MAIN_APL70VAL_C	20070108174932
sap.com	SAP_JTECHF	7.00 SP10 (1000.7.00.10.0.20061022040800)	SAP AG	SAP AG	20070108140322
sap.com	SAP_JTECHS	7.00 SP10 (1000.7.00.10.0.20061022040900)	SAP AG	SAP AG	20070108155940
sap.com	KM-KW_JKS	7.00 SP10 (1000.7.00.10.0.20061022041300)	SAP AG	SAP AG	20070108150414
sap.com	KMC-COLL	7.00 SP10 (1000.7.00.10.0.20061109233800)	SAP AG	SAP AG	20070108174428
sap.com	CORE-TOOLS	7.00 SP10 (1000.7.00.10.0.20061026144400)	SAP AG	SAP AG	20070108135408
sap.com	EP-PSEPV	7.00 SP10 (1000.7.00.10.0.20061109200900)	SAP AG	SAP AG	20070108174141
sap.com	VCKITGP	7.00 SP10 (1000.7.00.10.0.20061024214800)	SAP AG	SAP AG	20070108174742
sap.com	VCKITXX	7.00 SP10 (1000.7.00.10.0.20061024214800)	SAP AG	SAP AG	20070108174748
sap.com	UMADMIN	7.00 SP10 (1000.7.00.10.0.20061025062309)	SAP AG	MAIN_APL70VAL_C	20070108162506
sap.com	EPBC	7.00 SP10 (1000.7.00.10.0.20061109175900)	SAP AG	SAP AG	20070108150311
sap.com	JSPM	7.00 SP10 (1000.7.00.10.1.20061205154100)	SAP AG	SAP AG	20070105155511
sap.com	EPBC2	7.00 SP10 (1000.7.00.10.0.20061109175900)	SAP AG	SAP AG	20070108174315
sap.com	LM-TOOLS	7.00 SP10 (1000.7.00.10.0.20061025062327)	SAP AG	MAIN_APL70VAL_C	20070108162427
sap.com	BI_MMR	7.00 SP10 (1000.7.00.10.0.20061021201000)	SAP AG	SAP AG	20070108145731
sap.com	BI_LDI	7.00 SP10 (1000.7.00.10.0.20061021205400)	SAP AG	SAP AG	20070108160239

For example, the software component (deployed SCA file) of your J2EE application will appear here.

- 7) The SAP J2EE migration kit, purpose and its location will be reviewed and discussed.
- 8) The SAP service market place (SMP), location, importance, purpose of SAP notes and SAP support packages available for download will be reviewed and discussed.
- 9) We will discuss and document the expectations of both you (SSP) and the SAP customer regarding what the J2EE certification should entail.
- 10) Other sources of information helpful for J2EE certification will be discussed. For example, <http://help.sap.com>, <http://www.sdn.sap.com>, <http://service.sap.com>.

### **Additional test criteria relevant to J2EE-DEP only**

- 1) The SAP – [Software Deployment Manager GUI](#) (RemoteGui.bat) and the SAP [Java Support Package Manager JSPM](#) (go.bat) are mandatory requirements in order to pass J2EE-DEP certification. A deployment from within the SAP NetWeaver Developer studio (you wrote an application from scratch within the studio or imported source from an existing J2EE application into the studio) is recommended. We encourage you to have this option certified in addition to the mandatory requirements mentioned above.
- 2) All the J2EE deployment descriptors must be provided and described by the SSP. For example, this includes if failover with the J2EE application is possible or not.
- 3) You can use SAP WebDynpro, make use of SAP backend applications, including ABAP and the SAP JCO (Java Connector) if needed. In addition to the J2EE-DEP certification, SAP reserves the right to check if other certifications are required, for example, ABAP or integration assessment type of certification.
- 4) A SAP support package (Single Support Packages) update of the JDI (Java Development Infrastructure) utilizing the [JSPM \(Java Support Package Manager\)](#) tool will be tested in order to demonstrate that the SAP J2EE environment can be maintained and supported by the SSP along with their J2EE product. The test will be conducted on a test system designated to you by your integration consultant. Please note, a JDI update test is only used in order to demonstrate to us that you know how to go through the process of updating and maintaining a SAP J2EE environment. No knowledge is needed of the JDI nor are you expected to make use of it.
- 5) Clustering, failover and load balancing requirements of the J2EE application will be discussed.
- 6) The SAP Visual Administrator, the SAP Deploy Tool and the Script File method of deploying a J2EE application are optional.

### **Additional test criteria relevant to J2EE-STD only**

- 1) The SAP – [Software Deployment Manager GUI](#) (RemoteGui.bat) or the SAP [Java Support Package Manager JSPM](#) (go.bat) are mandatory to use in order to pass J2EE-STD certification (SCA file only).
- 2) Any one of the following optional methods of deployment (EAR file only) will be acceptable ([Visual Administrator](#), [Script File](#), [Deploy Tool](#)) to use but are not sufficient alone in order to pass certification.
- 3) Please note that deployment via the SAP NetWeaver Developer studio can not be used with this certification scenario.
- 4) Please ensure that there are no SAP WebDynpro components used in the application. Furthermore, no access to any SAP backend application via the SAP JCO – Java Connector is allowed. No ABAP can be used, for example, you wrote some ABAP coding and your J2EE application makes use of ABAP.



[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/52/a21f407b402402e1000000a1550b0/frameset.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/52/a21f407b402402e1000000a1550b0/frameset.htm)

## Figure – What's New in SAP NetWeaver 7.0 – Release Notes

The screenshot shows a web browser window displaying the SAP Library page for 'What's New in SAP NetWeaver 2004s - Release Notes'. The browser's address bar shows the URL: [http://help.sap.com/saphelp\\_nw2004s/helpdata/en/52/a21f407b402402e1000000a1550b0/frameset.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/52/a21f407b402402e1000000a1550b0/frameset.htm). The page content includes a navigation menu with options like 'Expand All', 'Close All', 'Back', 'Forward', and 'Synchronize'. The main content area is titled 'What's New in SAP NetWeaver 2004s - Release Notes' and contains the following text:

**Use**

This part of the SAP Library gives you an overview of what's new in Release 2004s of SAP NetWeaver. This information is provided as Release Notes. The [Release Notes by IT Scenarios](#) section gives you an overview of the available IT scenarios, together with the relevant Release Notes for each scenario. The [Release Notes by NetWeaver Systems and Standalone Engines](#) section provides you with a complete overview of all Release Notes. These Release Notes are structured according to the usage types that you can activate in a NetWeaver system and the available Standalone Engines.

**Changes to Documentation in SAP NetWeaver 2004s**

- SAP NetWeaver documentation has role-based entry structures. These roles include developer, administration, and technology consultant.
- The role-based entry points are structured by IT scenario.
- The user guides for Portal, Knowledge Management, Collaboration, Universal Worklist, and Mobile Infrastructure have been integrated into *Getting Started - Using SAP Software* (formerly *Getting Started with the SAP System*).

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/45/dc863f455f3417e1000000a114084/frameset.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/45/dc863f455f3417e1000000a114084/frameset.htm)

**Figure – Technical Operations Manual for SAP NetWeaver**

The screenshot shows a web browser window displaying the SAP Library page for the Technical Operations Manual for SAP NetWeaver. The browser's address bar shows the URL: [http://help.sap.com/saphelp\\_nw2004s/helpdata/en/45/dc863f455f3417e1000000a114084/frameset.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/45/dc863f455f3417e1000000a114084/frameset.htm). The page content includes:

**Technical Operations Manual for SAP NetWeaver**

Designing, implementing, and running SAP NetWeaver at peak performance 24 hours a day has never been more vital for your business success than today. This guide provides a starting point for administrators in procedures for the optimal operation and use of SAP NetWeaver. It contains specific information for various administration tasks, and lists the tools that you can use to carry them out. It also refers to documentation required for these tasks. You can use this guide only in connection with other guides such as the Master Guide, and the SAP Library.

**Constraints**

In this document, it is assumed that the system or systems are running, or could at least be started once. This documentation therefore contains no information about installation. Configuration tasks are only described if they also occur during running operation.

**About this Document**

With SAP NetWeaver 2004s, installable software units (systems, Standalone Engines, and client) and IT scenarios have been defined. The documentation in this operations manual reflects the new concept.

For more information about the new division into installable software units and IT scenarios, see section 3 of the Master Guide (<http://service.sap.com/installnw2004s> → Master Guide). For more information about IT landscapes, see section 4 of the Master Guide.

This Technical Operations Manual is accordingly structured into the following main sections:

Sections	Description of the Subsections
<a href="#">General Administration</a>	Contains over-arching topics that cannot be specifically restricted to one SAP NetWeaver system or one standalone engine, such as high availability, security and user administration, database administration, system copy, and licensing.
<a href="#">Administration of SAP NetWeaver Systems</a>	Contains the administration tasks for SAP NetWeaver systems on which one or more Usage Types of SAP NetWeaver are installed and configured. The Usage Types of SAP NetWeaver, which you can select during installation, include: <ul style="list-style-type: none"> <li>• Application Server ABAP (AS ABAP)</li> <li>• Application Server Java (AS JAVA)</li> <li>• EP Core (EPC)</li> <li>• Enterprise Portal (EP)</li> <li>• Business Intelligence (BI)</li> <li>• Mobile Infrastructure (MI)</li> <li>• Process Integration (PI), which covers the contents of the previous product component XI</li> <li>• Development Infrastructure (DI)</li> </ul>
<a href="#">Administration of Standalone Engines</a>	Contains the administration tasks for additional installable entities that function "standalone", and which are not really SAP NetWeaver systems. They provide a specific server function in combination with one or more Usage Types of SAP NetWeaver, which include: <ul style="list-style-type: none"> <li>• Search and Classification (TREX)</li> <li>• SAP LiveCache Technology</li> <li>• RTC Application Sharing Server</li> <li>• SAP Content Server</li> <li>• SAP NetWeaver Landscape-Wide Job Scheduler</li> <li>• SAP Web Dispatcher</li> <li>• Standalone Enqueue Server</li> </ul>
<a href="#">Administration of Client Programs</a>	Contains the administration tasks for client programs. Client programs are additional installable programs that are either on the

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/c8/cdfacc37efa84d914699ad31eb69b8/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/c8/cdfacc37efa84d914699ad31eb69b8/content.htm)

**Figure – Technical Operations Manual for SAP NetWeaver -> AS Java (Application Server for Java)**

The screenshot shows a web browser window displaying the SAP Library page for 'AS Java (Application Server for Java)'. The browser's address bar shows the URL: [http://help.sap.com/saphelp\\_nw2004s/helpdata/en/c8/cdfacc37efa84d914699ad31eb69b8/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/c8/cdfacc37efa84d914699ad31eb69b8/content.htm). The page title is 'SAP Library - Technical Operations Manual for SAP NetWeaver - Microsoft Internet Explorer'. The main content area is titled 'AS Java (Application Server for Java)' and contains the following text: 'This section provides you with an overview of the monitoring and management of the Application Server for Java (AS Java) required to operate the system optimally. It contains information about various administration tasks and an overview of the tools required to perform them. You can also find links to more detailed documentation in the SAP Library.'

**Tasks**

The administration tasks for AS Java can be assigned to the following categories:

- Technical System Landscape**  
This section provides a brief overview of the system architecture, explains the startup and control framework and the most important processes at operating system level.
- Monitoring**  
This section describes the options for monitoring the AS Java, and for identifying and analyzing errors.
- Management**  
This section describes the management tools that are available and provides information about other administration tasks that are required during operation, such as starting and stopping the system, backup and recovery, load balancing and user administration.
- Software Change Management**  
This section describes how you monitor and organize software changes in the AS Java.
- Adaptive Computing**  
This section describes how you can manage your Adaptive Computing Controller (ACC).
- Adobe Document Services**  
This section describes how you can manage Adobe document services in an SAP environment.
- Troubleshooting**

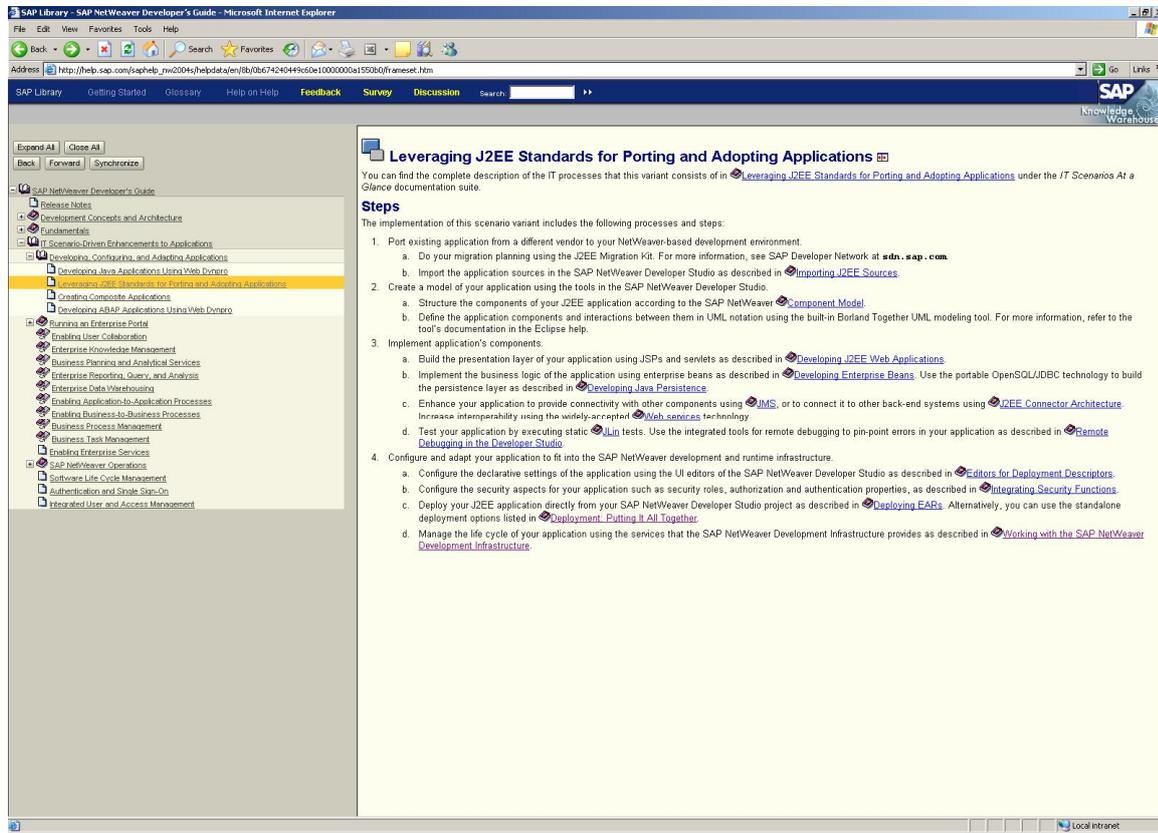
**Additional Information**

You can find detailed documentation on the AS Java in the following manuals. Note that these manuals are available in English only.

- [Architecture Manual](#)
- [Administration Manual](#)

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/e3/88a442d751c911e1000000a1550b0/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/e3/88a442d751c911e1000000a1550b0/content.htm)

**Figure – SAP NetWeaver Developer’s Guide, -> IT Scenario-Driven Enhancements to Applications -> Developing, Configuring, and Adapting Applications -> Leveraging J2EE Standards for Porting and Adopting applications**



[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/3c/52413e7bcd561ee1000000a114084/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/3c/52413e7bcd561ee1000000a114084/content.htm)

## Figure – SAP NetWeaver Developer’s Guide, -> Fundamentals -> Using Java -> Core Development Tasks -> Deployment: Putting It All Together

The screenshot shows a Microsoft Internet Explorer browser window displaying the SAP NetWeaver Developer's Guide. The address bar shows the URL: [http://help.sap.com/saphelp\\_nw2004s/helpdata/en/3c/52413e7bcd561ee1000000a114084/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/3c/52413e7bcd561ee1000000a114084/content.htm). The page title is "SAP Library - Core Development Tasks - Microsoft Internet Explorer". The main content area is titled "Deployment: Putting It All Together" and includes sections for Purpose, Implementation Considerations, and Features. The left sidebar shows a navigation tree with "Deployment: Putting It All Together" selected.

**Deployment: Putting It All Together**

**Purpose**  
This section describes how you deploy a J2EE application on the J2EE Engine. Refer to the J2EE specification about the specifics of the deployment phase. See also the information about the different components for the most suitable way to deploy them.

**Implementation Considerations**  
We recommend you use the SAP NetWeaver Developer Studio when you need to develop an application from scratch and deploy it. For more information, see [Getting Inzobed](#).

**Features**  
Various deployment scenarios require different ways to perform the deployment tasks. The following means of deployment are provided:

- **Software Deployment Manager (SDM)** – groups several different deployment types in a single network interface for the deployment of any software that you develop with the SAP NetWeaver Developer Studio.  
To deploy software that you have developed in the SAP NetWeaver Developer Studio in a local target system, the Developer Studio calls the SDM directly.  
See also:
  - [Building, Deploying, and Running Your Application](#)
  - [Deploying and Running the Calculator Application](#)
- It is especially suitable for:
  - Administrators when they want to deploy ready applications.
  - Administrators when they want to deploy Support Packages for Java applications.
  - Developers who cooperate with other developers. They will be able to deploy the components developed by the other group and test the joint work of their components.
  - developers who deploy their applications locally out of the NetWeaver Developer Studio.
- **Deploy Tool** – This multipurpose tool enables you to generate, assemble and deploy J2EE applications and application components. The Deploy Tool is only necessary if you use the J2EE Engine without the SAP NetWeaver Development Infrastructure.
- **Script Files** – generate, assemble and deploy J2EE applications or application components. Suitable for large-scale projects when you write the procedure once and then execute it many times.
- **Converter Tool** – converts J2EE application components that were written to work on J2EE Engine 6.20 to components that work on J2EE Engine 6.40.

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/41/089142d1d5675ee1000000a155106/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/41/089142d1d5675ee1000000a155106/content.htm)

## Figure – Technical Operations Manual for SAP NetWeaver -> Developing, Configuring, and Adapting Applications

The screenshot shows a web browser window displaying the SAP Library page for the 'Developing, Configuring, and Adapting Applications' manual. The page title is 'SAP Library - Technical Operations Manual for SAP NetWeaver - Microsoft Internet Explorer'. The browser address bar shows the URL: [http://help.sap.com/saphelp\\_nw2004s/helpdata/en/41/089142d1d5675ee1000000a155106/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/41/089142d1d5675ee1000000a155106/content.htm). The page content includes a navigation menu on the left and a main content area with a table of scenario variants.

**Developing, Configuring, and Adapting Applications**

The SAP NetWeaver IT scenario [Developing, Configuring, and Adapting Applications](#) provides a complex development environment, with which you can develop, configure, and adapt professional business applications. For information about administration tasks that are required for this scenario, see the sections on administration of the relevant scenario variants:

Scenario Variant	Description
<a href="#">Developing Java Applications with Web Dynpro</a>	The IT scenario variant <a href="#">Developing Java Applications Using Web Dynpro</a> describes the development of user interfaces for business applications on the Java platform. There are no extra administrative tasks for this scenario variant in addition to the standard administration required for SAP Web Application Server. This scenario variant is based on the <a href="#">Usage Type D</a> . If you want to <a href="#">configure the Web Dynpro runtime in the Visual Administrator</a> , there are various configuration options available.
<a href="#">Using Java 2 Platform, Enterprise Edition (J2EE) standards to port and adjust applications</a>	This variant describes processes, tools, and the underlying application platform for application development based on the Java 2 Enterprise Edition (J2EE) programming model.
Creating business applications with ABAP	There are no additional administrative tasks for the use of this scenario variant that go beyond the standard administration required for the <a href="#">Application Server for ABAP (AS ABAP) Usage Type</a> .
<a href="#">Developing ABAP Applications Using Web Dynpro</a>	The IT scenario variant <a href="#">Developing ABAP Applications Using Web Dynpro</a> covers the development of user interfaces for business applications in the ABAP environment. Since the IT scenario variant also describes tools and methods for optimum development with Web Dynpro ABAP, the administration tasks that could be needed within the scenario variant are already covered by the scenario-unspecific parts of the operating manual. For information about monitoring and administration see the subnode <a href="#">Web Dynpro ABAP Administration of Usage Type AS ABAP</a> .
<a href="#">Creating Composite Applications</a>	The IT scenario variant <a href="#">Creating Composite Applications</a> includes the creation of services and processes and their orchestration for collaborative business scenarios.
<a href="#">Developing Mobile Offline Applications</a>	The IT scenario variant <a href="#">Developing Mobile Offline Applications</a> enables you to develop mobile applications quickly and efficiently as well as to further develop existing SAP Solutions for Mobile Business. The administration tasks that can arise within the scenario variant are covered by the scenario-independent parts of this operating manual. For more information, refer to <a href="#">MII (Mobile Infrastructure)</a> .

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/03/dcd43ff9490d65e1000000a114b1d/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/03/dcd43ff9490d65e1000000a114b1d/content.htm)

**Figure – Technical Operations Manual for SAP NetWeaver -> Software Maintenance -> Java Support Package Manager (JSPM)**

The screenshot shows the SAP NetWeaver Technical Operations Manual for Software Maintenance -> Java Support Package Manager (JSPM). The page is displayed in a Microsoft Internet Explorer browser window. The main content area is titled "Software Maintenance" and contains the following text:

We recommend that you always keep your system as up-to-date as possible. Regular updates are provided in Support Package Stacks. Urgent corrections are provided in Java Support Package Patches.

**Tools**

- [Support Package Manager \(SPAM\)](#)
- [Java Support Package Manager \(JSPM\)](#)

**Tasks**

Task	Description	Tool
Import Support Package Stacks	SAP ships quality enhancements, program corrections, and updates for SAP NetWeaver in Support Packages. Support Packages are grouped in Support Package Stacks (SP Stacks), which can include both ABAP and Java Support Packages and Kernel Patches. When released, an SP Stack contains the optimum combination of Support Package and Patch levels for all NetWeaver components. The Support Packages and Patches listed in an SP Stack must be implemented together. There is a new SP Stack each quarter. Support Package Stacks are available on SAP Service Marketplace at <a href="http://service.sap.com/sp-stacks">service.sap.com/sp-stacks</a> . Here you can also see information about the availability of SP Stacks and the Support Package Stack Guide. This guide gives you detailed information about importing Support Package Stacks. It is updated for each new SP Stack.	Support Package Manager (ABAP) Java Support Package Manager
Importing Java Support Package Patches	Java Support Package Patches contain corrections to Java software components. They are made available as required and always contain the entire software component.	Java Support Package Manager

The left navigation pane shows the following structure:

- Technical Operations Manual for SAP NetWeaver
  - General Administration Tasks
  - Administration of SAP NetWeaver Systems
    - S ABAP (Application Server for ABAP)
    - S Java (Application Server for Java)
  - Technical System Landscape
    - Monitoring
    - Management
    - Software Logistics
      - Development Infrastructure (DI)
      - Backups up and Restoring the NWEC
      - Software Maintenance
    - Adaptive Computing
    - Adobe Document Services
    - Troubleshooting
  - SP (SP Core) and EP (Enterprise Portal)
  - Business Intelligence
  - Mobile Infrastructure
  - Process Integration
  - Development Infrastructure (DI)
  - Administration of Standalone Products
  - Administration of Client Programs
  - Administration of SAP NetWeaver IT Scenarios

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/a8/02784278b66255e1000000a155106/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/a8/02784278b66255e1000000a155106/content.htm)

## Figure – Technical Operations Manual for SAP NetWeaver -> Software Maintenance -> Java Support Package Manager (JSPM) -> Applying a Support Package Stack

The screenshot shows a web browser window displaying the SAP Library help page for 'Applying a Support Package Stack'. The page is titled 'Applying a Support Package Stack' and is part of the 'Java Support Package Manager' section. The left sidebar contains a navigation tree with the following items: 'Java Support Package Manager', 'Software Delivery Link', 'Requirements for Free Disk Space', 'Starting JSPM', 'Detecting and Changing the Global EPS Inbox Directory', 'Viewing the Deployed Components', 'Applying a Support Package Stack' (highlighted), 'Executing the saproot.sh Script', 'Applying Single Support Packages', 'Deploying New Software Components', 'Deploying and Upgrading Business Packages', and 'Troubleshooting'. The main content area is divided into sections: 'Use', 'Prerequisites', 'Procedure', and 'Select Package Type'. The 'Use' section explains that support package stacks are defined by SAP collections of support packages for software components that work best together. The 'Prerequisites' section lists several conditions that must be met before applying a support package stack, such as backing up the SAP NetWeaver Application Server Java (AS Java) and the database, ensuring directories and files are not deleted or renamed, and having the correct permissions for the global EPS inbox directory. The 'Procedure' section describes the process of applying a support package stack via a wizard, which consists of five steps: Select Package Type, Specify Queue, Check Queue, Deploy Queue, and Completed. The 'Select Package Type' section provides instructions on how to select the appropriate support package stack indicator based on the system's configuration and the user's requirements.

**Applying a Support Package Stack**

**Use**

You can update all software components of SAP products that are deployed on the system by applying a support package stack. Support package stacks are defined by SAP collections of support packages for software components that work best together. In addition, you can apply a support package stack, which contains newer versions of SAP software components that have been modified in the NWDI.

**Prerequisites**

- The SAP NetWeaver Application Server Java (AS Java) and the database have been backed up. For more information, see [Backing Up and Restoring AS Java](#).
- Directories and files have not been deleted, renamed, or created in the following directories and their subdirectories: `/usr/sap/<SID>/SYS/exe` and `/usr/sap/<SID>/SYS/prod`. Otherwise, JSPM cannot detect the kernel and the system profiles, and cannot be started. If a backup of the kernel and the system profiles has been required, it has been created in a different directory.
- If your database is MaxDB, the overwrite mode for the log area has been set. For more information, see [Changing Log Settings](#).
- The support package stack you want to apply and the corresponding stack definition XML file have been downloaded to the global EPS inbox directory `/usr/sap/txans/EPS/in`. For more information about SAP products, see SAP Service Marketplace at [service.sap.com/sp-stacks](http://service.sap.com/sp-stacks).
- If the support package stack you want to apply includes the Enterprise Portal (EP), the SDM timeout for the automatic start/stop of the J2EE Engine has been increased to 2 hours. For more information about increasing the SDM timeout, see [SDM Troubleshooting](#).
- The `<SID>adm` user has Read permissions for the global EPS inbox directory `/usr/sap/txans/EPS/in`.
- The database and the SDM repository have been synchronized. For more information, see [JSPM Does Not Update the Versions of the Deployed Components](#).
- There is enough disk space. For more information, see [Requirements for Free Disk Space](#).

**Procedure**

1. Choose the Deployment tab.  
JSPM will guide you through the process of applying a support package stack via a wizard, which consists of the following five steps: Select Package Type, Specify Queue, Check Queue, Deploy Queue, and Completed.

**Select Package Type**

2. Select the Support Package Stack indicator, and then:
  - If your system is not used for NWDI development, select the *No NWDI control* indicator.
  - If your system is used for NWDI development, select the role of your system by selecting one of the following indicators: *DEV*, *QOAS*, *TEST*, or *PROD*.
3. To restore the startup settings of all applications that are running on the J2EE Engine, select the *Restore application settings* indicator.  
The application startup settings control which applications are started automatically with the J2EE Engine. The application startup settings are saved before the deployment (including any manual changes to the settings that you have made) and are restored after the deployment. If you do not select this indicator, all applications that are updated are started, even if some of them have been stopped before the update.  
 The *Restore application setting* indicator is available only if the `sap.com/CORE-TOOLS` component that is deployed on the system is of release 7.00, support package level 05 and higher.  
 If you select the *Restore application settings* indicator, this may cause an additional restart of the J2EE Engine.
4. Choose Next.  
Support package stacks that are available for deployment from the global EPS inbox directory are displayed.  
 If your system is used for NWDI development, and it is either a DEV or a CONS system, and if JSPM has found in the global EPS inbox directory the `sap.com/SAP_BUILD` component, which is part of MAPI, it will also be listed for deployment.

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/b5/e8239ef7bd494f896a84625d4b688f/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/b5/e8239ef7bd494f896a84625d4b688f/content.htm)

**Figure – Technical Operations Manual for SAP NetWeaver -> Load Balancing of Java Applications**

The screenshot shows a web browser window displaying the SAP Library page for 'Load Balancing of Java Applications'. The page content includes:

- Technical System Landscape**  
The purpose of load balancing is to distribute inbound requests optimally to the available resources. The SAP NetWeaver AS provides load balancing at various levels. These are shown as (1) and (2) in the figure below.
- Diagram:** A flow diagram showing a Client (Web Browser) sending HTTP requests to a Load Balancer. The Load Balancer distributes requests to three Java DP (Dispatcher) instances. Each Java DP instance connects to a Server Process (SDM) and a Server Process (SDM). The Server Processes connect to a DB (Database). Below the Server Processes are Central Services, including a Message Server and an Enqueue Server.
- Bullet Points:**
  - Load balancing between many SAP NetWeaver AS instances (1)**  
You can start a system with many Java dispatchers, for which the [SAP Web Dispatcher](#) or a different load balancer is already activated as a Web switch. For more information, see [Load Balancing Between Many Java Instances](#).
  - Load balancing within the SAP NetWeaver AS instance (2)**  
In the [Java Instance](#) the [Java Dispatcher](#) distributes the inbound requests to the [Server Processes](#) to which it is connected. The Java dispatcher runs the load balancing when the first session request arrives. The dispatcher ensures that subsequent requests get to the server process that is processing this session. For more information, see:
    - [Load Balancing by the Java Dispatcher](#)
    - [Load Balancing for J2EE Web Applications](#)
    - [Registering Server Processes for HTTP Load Balancing](#)

[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/ac/e9d8a51c732e42bd0e7de54b9ff4e2/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/ac/e9d8a51c732e42bd0e7de54b9ff4e2/content.htm)

**Figure – Technical Operations Manual for SAP NetWeaver -> Monitoring and Displaying Log Files**

**Monitoring and Displaying Log Files**

The Logs and Traces plug-in in the SAP NetWeaver Administrator allows you to view all list and text formatted logs and traces that are generated from the whole SAP NetWeaver system landscape.

**Tools**

**Tasks on Demand**

The table below shows the tasks you need to perform when required:

Task	Additional Information
Filter and display logs when the J2EE Engine is running	In any <a href="#">predefined view</a> or <a href="#">Custom view</a> , you can filter and display log and trace records on the J2EE Engine that meet a specified filter criterion.
Filter and display logs when the J2EE Engine is not running	If a J2EE Engine is not running on the system to be monitored, you can filter and display log and trace records that meet a specified filter criterion in the <a href="#">Standalone Log Viewer predefined view</a> .
Search logs	You can search for a string in a log record. For more information, see <a href="#">Searching Log and Trace Records</a> .

**Periodic Tasks**

The table below shows tasks that you need to perform periodically:

Task	Additional Information
Display log records with severity ERROR or FATAL	To monitor the SAP NetWeaver system landscape for critical issues, in any predefined view or custom view, you can filter and display <b>only</b> log and trace records with severity ERROR or FATAL.
Delete log and trace files that are extracted from archives to the operating system's temporary directory	When you open archives of logs and traces, the log and trace files of each archive are extracted to a subdirectory of the operating system's temporary directory. The log and trace files are not deleted from the temporary directory. The next time you want to view the same archives, they will be displayed faster.  We recommend that you delete these log and trace files periodically to save disk space. For more information, see <a href="#">Filtering and Viewing Logs and Traces in Archives View</a> .

**Troubleshooting**

If you cannot connect to the Standalone Log Viewer server, see [Error Messages While Connecting to Standalone Log Viewer Server](#).

**Additional Information**

- You can also use the following tools to monitor and display logs:
  - [Online Log Viewer](#) in the Visual Administrator
  - [Standalone Log Viewer](#)
  - [Command Line Log Viewer](#)
- You can use the CCMS (transaction RZ20) to monitor log files and have a notification sent to you if an error occurs.

[http://help.sap.com/saphelp\\_nw70/helpdata/en/31/f0ff69551e4f259fdad799a229363e/content.htm](http://help.sap.com/saphelp_nw70/helpdata/en/31/f0ff69551e4f259fdad799a229363e/content.htm)

## Figure – Technical Operations Manual for SAP NetWeaver -> Regular Tasks in SLD -> Regular Administrative Tasks

**System Landscape Directory**

**Purpose**  
The System Landscape Directory of SAP NetWeaver (SLD) serves as a central information repository for your system landscape. A system landscape consists of a number of hardware and software components that depend on each other with regard to installation, software updates, and demands on interfaces.

Bear in mind that the abbreviation SLD is not intended to define a product, since the System Landscape Directory is part of SAP NetWeaver. This abbreviation is only intended to improve readability.

**Integration**  
The figure below shows the flow of data between the SLD and other components.

The diagram shows the following components and their interactions:

- SAP Side:** PPMS (SAP Planning and Control) and Master Component Repository (containing Component Types, Possible Combinations, and Landscape Patterns).
- Customer Side:** Applications and Tools (Graphical Design Tool, Technical Configuration, Validation Registration, Software Logoff), System Landscape Directory (containing Landscape description and Component information), Any Landscape Element (Customer Landscape), and 3<sup>rd</sup> Party / Customer Component types.
- Data Flow:** PPMS synchronizes data with the Master Component Repository via XML. The Master Component Repository updates the System Landscape Directory. The System Landscape Directory interacts with Applications and Tools and Any Landscape Element. Component information is shared between the System Landscape Directory and 3<sup>rd</sup> Party / Customer Component types.

Information in the SLD is used by various SAP tools, for example, for planning and performing upgrades to the system landscape (Software Lifecycle Manager of SAP NetWeaver), finding destination information for ABAP systems and Web services (Web Dynpro), and for maintaining development information by the SAP NetWeaver Development Infrastructure (NWDI).

**Features**

- The SLD stores information about all installable and installed components of a system landscape. It is based on the standard **Common Information Model (CIM)**. The CIM standard is a general, extensible schema for describing the elements in a system landscape. SAP has enhanced the CIM standard with classes for SAP-specific content.
- SAP provides both a Web-based user interface (UI) for interactive access and client APIs for programmatic access in ABAP and Java.
- SAP provides information about installable SAP software, dependencies and recommended scenarios and regularly publishes updates on SAP Service Marketplace. You can browse this information in the **software catalog** views. You can also manually add information about third-party components to the SLD.
- SAP software components that are installed on technical systems are registered automatically and on a regular basis in the SLD. Thus the SLD always contains up-to-date information about the installed system landscape. You can view this information in the **technical systems** views, and can aggregate and group it in the **landscapes** views.
- In addition, you can use the SLD for **name reservation** in the NWDI. It contains the master list of all reserved names used in development, such as development component names, Java package names, and database object names.
- The Exchange Infrastructure (XI) uses the SLD to store information about **business systems**, which are logically connected to technical systems.

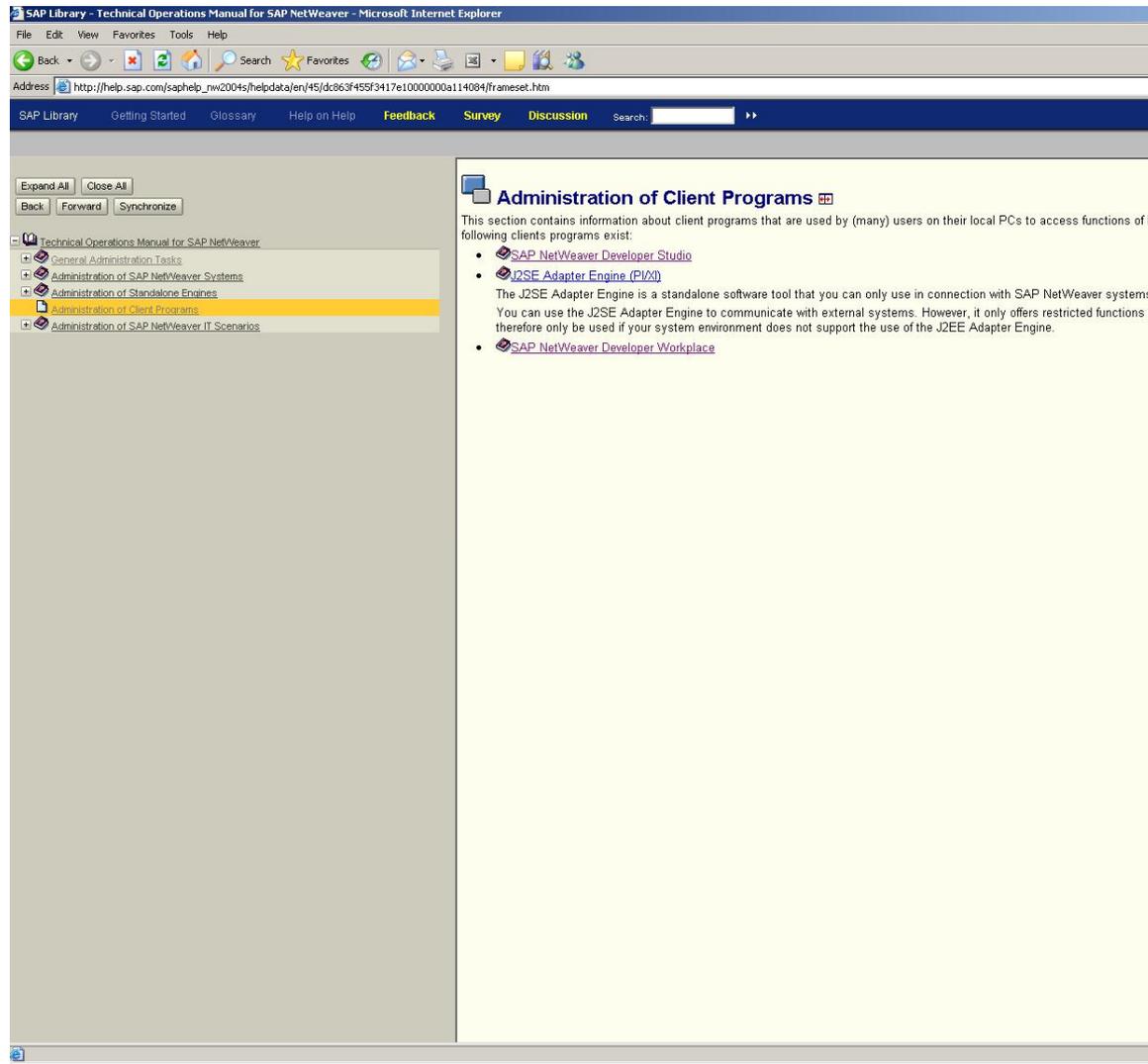
**Additional Information**

If you are reading this documentation offline, bear in mind that this might not be its latest version. You can find the latest version on SAP Help Portal at [help.sap.com](http://help.sap.com)



[http://help.sap.com/saphelp\\_nw2004s/helpdata/en/29/96d64260752a78e1000000a155106/content.htm](http://help.sap.com/saphelp_nw2004s/helpdata/en/29/96d64260752a78e1000000a155106/content.htm)

**Figure – Technical Operations Manual for SAP NetWeaver -> Administration of Client Programs -> see SAP NetWeaver Developer Studio and SAP NetWeaver Developer Workplace**



## **Licensing, Hardware and Software System Requirements**

### **Licensing**

As of SAP NetWeaver 7.0, **at least one SAP NetWeaver development license** will be mandatory in order to go through the certification process. We will check if you have a valid SAP license before you begin with your integration work. It is a requirement to use the **SAP NetWeaver Developer Workplace** environment (<http://service.sap.com/swdc> -> [Support Packages and Patches](#) -> [SAP NetWeaver](#) -> [SAP NETWEAVER](#) -> [SAP NETWEAVER 2004S](#) -> [Entry by Component](#) -> [Developer Workplace](#)) in order to prepare and go through **certification based on SAP NetWeaver 7.0**, and once certification has been achieved, to have a development environment in place enabling you to support your product you are planning to sell to an SAP customer.

**Please note:** If you already have a SAP NetWeaver 7.0 Java environment installed, then this is also fine to use (must contain the SAP J2EE engine, SAP NetWeaver Developer Studio, along with a SAP supported database, and optionally but also recommended the SAP JDI -> Java Development Infrastructure). See also SAP note 883948 in regards to SAP NetWeaver 7.0 usage types.

With the proper SAP development environment installed before, during, and after successful certification, not only enables you as an **SSP (Software Solution Provider)** to support your product running on the **SAP NetWeaver 7.0** platform, but entitles you to have access to SAP support, in order to resolve technical issues encountered within SAP software or to obtain newer SAP support package stacks as they become available. For example, when you purchase a **SAP NetWeaver development license**, you will:

- 1) Have access to the SAP support portal on the SAP Service Marketplace (<http://service.sap.com>). For example, in the SAP Support Portal, SAP customers can obtain their software via download or other important information relating to SAP software.
- 2) Request a development Name space for your Java development -> <http://service.sap.com/namespaces>.
- 3) Have access to valuable information in regards to SAP SLD (SAP System Landscape Directory) -> <http://www.sdn.sap.com/irj/sdn/nw-sld>.
- 4) Have access to SAP supported software covered under your license agreement.
- 5) SAP support packages as they become available.
- 6) SAP notes (they help you solve technical problems).
- 7) The capability to open up a trouble ticket and submit it to SAP support in order to resolve SAP errors.

To use the SAP NetWeaver Developer Workplace you will need **at least “one” SAP NetWeaver development license**.

**Please get in touch with SAP ICC (icc@sap.com) to find out more about SAP software licensing options available to you.**

## **Hardware and Software Requirements**

**For certification purposes a SAP NetWeaver 7.0 J2EE support package stack level of SPS07 or greater is mandatory.**

**Not supported are any so called trial or sneak preview versions, which can be obtained for free at <http://www.sdn.sap.com>.**

**\*RAM:** In regards to the RAM (physical memory) needed, please install at least 3 GB or more of RAM memory. When you use Windows 2003, also check the Microsoft Knowledge Base Article <http://support.microsoft.com/kb/833721/en-us> and adjust your boot.ini file by adding the parameter /3GB.

**\*Pagefile:** In regards to pagefile size(s), create a pagefile at least 2 ½ time greater than the RAM installed. For example, with 3 GB RAM, create a pagefile of at least 7.5 GB RAM or more. Also, check the Microsoft Knowledge Base Article <http://support.microsoft.com/kb/237740/en-us> on how to overcome the 4,095 MB paging file size limit in Windows.

**\*J2SE:** In regards to the J2SE to use (SAP presently supports with SAP NetWeaver 7.0 SUN J2SE 1.4.2\_12 and greater, but not J2SE 1.3 or 1.5), please check SAP note 716604 (Access to Sun J2SE and recommended J2SE options) for the most current and SAP supported J2SE. The note can be accessed via the SAP service market place.

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## **Next steps to take**

Contact the SAP ICC certification centers ( SAP ICC Europe - [ICC@sap.com](mailto:ICC@sap.com), SAP ICC Asia Pacific - [ICC-apa@sap.com](mailto:ICC-apa@sap.com), SAP ICC Americas – [ICC-americas@sap.com](mailto:ICC-americas@sap.com) ), if you have any further questions.

**We look forward to certifying you soon!**

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## Information Sources

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For EMEA: [icc@sap.com](mailto:icc@sap.com)  
For Americas: [icc-americas@sap.com](mailto:icc-americas@sap.com)  
For APA: [icc-apa@sap.com](mailto:icc-apa@sap.com)

### Integration Services:

Apply for services online <http://www.sap.com/partners/apply>  
Please select "Interface Certification" as application type

SAP Integration & Certification Center <https://www.sdn.sap.com/sgdn/icc.sdn>

### General Development Tools

SAP Developer Network <https://www.sdn.sap.com>  
SAP Help Portal <http://help.sap.com>

### Partner Services

SAP Partner & Product Directory  
<http://www.sap.com/ecosystem/customers/directories/SearchSolution.epx>

SAP Service Marketplace  
<http://service.sap.com/partnerportal> (user-ID after certification)

### SAP Solutions

SAP NetWeaver <http://www.sap.com/netweaver>

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