

JAVA-EE-STD 7.1 and JAVA-EE-ADV 7.1

Third-Party Software Product Certification

based on the

SAP NetWeaver Composition Environment (CE) 7.1

Documentation and Test Catalog

SAP Integration & Certification Center

December 2007

Version 1.0

Introduction and Important Things to Know Before You Start

It is assumed that you have a basic understanding of [EE5 concepts](#), hardware, software, operating systems and databases when reading this document.

This document will address the certification requirements for the **JAVA-EE-STD 7.1** and **JAVA-EE-ADV 7.1** integration scenarios based on the [SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition](#), which is part of the [SAP NetWeaver Composition Environment \(CE\) 7.1](#), a platform that enables building and running applications based on Service-Oriented Architecture (SOA) principles.

To enable SOA development, SAP NetWeaver CE provides the following key capabilities:

✓ **A lean and robust application server based on the latest Java EE 5 technology**

With the Java EE 5 certified application server that SAP provides, you can develop Java EE applications based on the newest Java EE standard, in addition to migrating existing J2EE applications.

The application server in SAP NetWeaver CE includes features for ensuring its robustness, scalability, supportability, configurable session failover support, built-in load balancing support, shared on request memory handling, monitoring and the [SAP Java Virtual Machine \(SAP JVM\)](#).

The server offers full support of the latest Java EE 5 features for simplifying the development of enterprise applications, such as EJB 3.0, the new JSF 1.2, the new Java Persistence API 1.0, the updated Web services stack, and more.

✓ **An integrated environment for Java application development**

The SAP NetWeaver Developer Studio is SAP's Integrated Development Environment (IDE) for Java, and is based on Eclipse 3.3, the open-source tools framework. With the SAP NetWeaver Developer Studio, you can develop Java EE 5 applications using its built-in support for new technologies, such as EJB 3.0 and JSF 1.2.

With the [Java EE 5 certified SAP NetWeaver Application Server Java](#), you can [develop Java EE applications](#) (Developer's Guide -> Introduction to the SAP NetWeaver Developer Studio) based on the new [Java EE 5 standard](#), in addition to [migrating existing EE 5 / J2EE applications](#) to the SAP platform, and have such applications certified via an [SAP ICC \(Integration & Certification Center\)](#).

The certification process verifies that an existing J2EE or EE 5 application (your software product) that you either [migrated](#) or [developed from scratch](#) runs on the SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition. **SAP NetWeaver CE 7.1 Support Package Stack SP3 or higher must be used during the certification process.**

Migration is the process of taking an existing J2EE or EE 5 application running on another J2EE or EE 5 application server or an existing J2EE application already running on a previous version of the SAP NetWeaver platform, and porting it on to the [SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition](#).

Developing an EE 5 application from scratch, will be relevant in the situation where you have no existing J2EE / EE 5 application to migrate. In this case you can use the [SAP NetWeaver Developer Studio](#) in order to develop an EE 5 application.

In standard EE 5 / J2EE terminology, the EE 5 / J2EE enterprise archive file is considered the final EE 5 / J2EE product to be used as an application. The EAR file is prepared and deployed according to the [EE 5 specification](#).

In order to have your software product certified, the EE 5 application also known as an **EAR** file (J2EE / EE 5 enterprise archive file) needs to be converted to an SCA file and has to be deployed on the SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition. In the SAP environment this converted EAR file is viewed as one software component. Thus, if you had more than one EE 5 application (several converted EAR files), then each EE 5 application (SCA file) would need to be certified separately, since every individual EAR / SCA file is equivalent to exactly one software component.

A EE 5 / J2EE enterprise application archive file (EAR) can consist of a [WAR file \(Web archives, for example servlets, JSPs, filters and listeners\)](#) and/or [JAR \(Enterprise Java Beans, for example entity, stateless session or message driven beans\)](#). These source or module projects are then deployed or published using SAP standard deployment tools, in order to generate an EE 5 application (EAR file) which can then be deployed and certified on the SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition.

You can also develop an SAP [WebDynpro](#) application (WebDynpro is an SAP NetWeaver user interface (UI) technology for developing data-driven web applications, allowing you to develop a Web representation of a business application) and have this certified (**only with the JAVA-EE-ADV integration scenario**) as an EE 5 application.

If you want you can also develop [JavaServer Faces \(JSF\) applications. A JavaServer Face is a Web User Interface \(UI\) based on JSF technology](#). A JSF web application can also be deployed as an enterprise application archive (EAR) file. JavaServer Faces applications can be certified using either **JAVA-EE-STD** or **JAVA-EE-ADV**

Thus, to be certified, you need to have a Java EE 5 application (**EAR** file), **delivered as an SCA file**.

EAR (your final EE 5 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.

For certification purposes, at least one SAP NetWeaver development license will be mandatory in order to go through the certification process. We will check that you have a valid SAP license before you begin with your certification process.

Having the proper SAP supported development environment installed before, during, and after successful certification enables you to support your product running on the SAP NetWeaver CE 7.1 platform and also entitles you to have access to SAP support.

SAP Support can be used 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](#). For example, in the SAP Support Portal, SAP customers can obtain their software via download, and also have access to other important information relating to SAP software.
- 2) Request a [development name space](#) for your Java development.
- 3) Have access to valuable information regarding [SAP SLD](#) (SAP System Landscape Directory).
- 4) Have access to SAP supported software covered under your license agreement.
- 5) Have access to SAP support packages as they become available.
- 6) Have access to SAP notes (they help you to analyze and solve technical problems).
- 7) Have the capability to open up a trouble ticket and submit it to SAP support in order to resolve SAP errors.
- 8) Have access to information regarding the [SAP Service- and Support Infrastructure](#).

Please get in touch with your local SAP sales office in the country where you intend to install the SAP NetWeaver CE 7.1 software. The offices are located at

<http://www.sap.com/contactsap/directory>

Certification topics covered, tested, reviewed and discussed

Test criteria relevant to both integration scenarios

JAVA-EE-STD and JAVA-EE-ADV

- 1) A [SAP NetWeaver Developer license](#) must be purchased.

The document with the filename **EE_5_Technical_Product_Profile.doc** (relevant for both integration scenarios) must be filled out and will be reviewed and discussed with your designated integration consultant once the certification contract has been signed. The document describes both the system environment and the technical details of your EE 5 product which will be utilized during your integration work. Your designated integration consultant will send this document to you via e-mail. The file **EE_5_Technical_Product_Profile.doc** will go hand in hand with the file **EE_5_Test_Report.doc**.

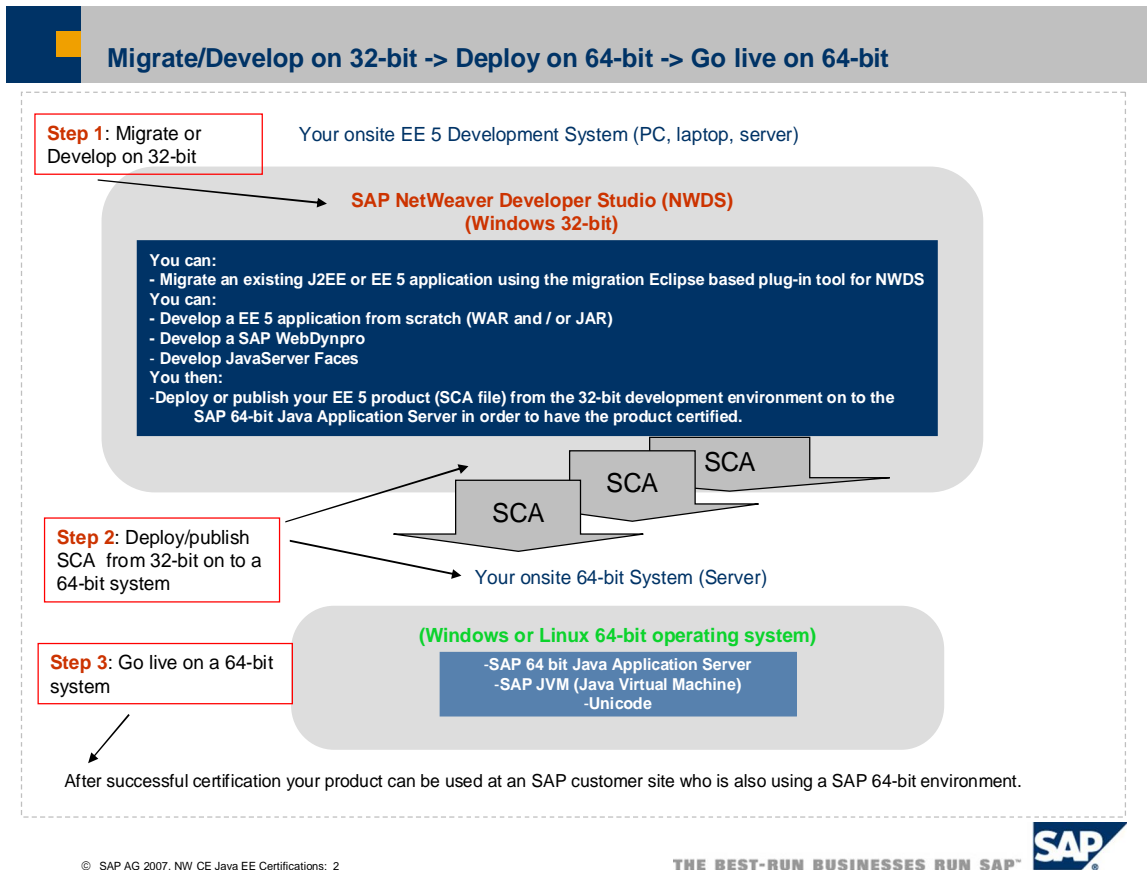
Once the certification contract has been signed, your designated integration consultant will send the file called **EE_5_Test_Report.doc** to you via e-mail. The **EE_5_Test_Report.doc** is used to document the certification test and is filled out by SAP during the certification test process.

- 2) [Utilizing certain command line tools of the SAP NetWeaver CE 7.1 Composition Environment](#) the EAR file (your final EE 5 certifiable software application) needs to be [packed into a SDA file](#) and then the resulting [SDA file must be packed into a SCA file](#). The SCA file will be deployed using either the [SAP Java Support Package Manager \(JSPM\)](#) or the [SAP NetWeaver Developer Studio](#). Please note, 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.

[Read this in order to see how you can change the default preferences for the application server which the SAP NetWeaver Developer Studio uses when deploying applications.](#)

The EE 5 Application must be deployed during the certification test on an SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition running on an SAP supported 64 bit operating system , database and platform.

Thus, you migrate/develop on a 32-bit environment (**Step 1**), deploy the product (EAR) on a 64-bit environment (**Step 2**), and after successful certification, your product (when sold to an SAP customer) will then run on a 64-bit SAP supported environment (**Step 3**) as depicted in the figure below.



- 3) The EE 5 application must start **successfully without any error** (run on the server) after deployment. The EE 5 application must also allow the administrator to stop it correctly without any error. Furthermore, the Java EE 5 application must allow the administrator to completely undeploy it without any error. Details and instructions will be provided either by your designated integration consultant or contained in the zip file which you extracted.
- 4) An **EE 5 application functional test** (minimum five mutually agreed-upon test cases) will be conducted.

In addition, an **intentional EE 5 application error test** (minimum five mutually agreed-upon error test cases) requiring you to have your EE 5 application write error messages into the SAP logging framework will be mandatory in order to allow analyzing, troubleshooting and resolving of EE 5 application errors later on if needed. Thus, with the EE 5 application error test, your EE 5 application will need to create intentional errors in order to demonstrate that these error messages can be written into the SAP logging framework (open source logging frameworks such as log4j are not supported for certification purposes). In order for this to work, your EE 5 coding will need to be adjusted.

The SAP NetWeaver Administrator (NWA) tool will be used to view and locate the error messages within the SAP logging framework (see also on the SAP Service Marketplace **SAP note 1048624** - Logging Categories and Tracing Locations for CE).

See also General Logging Documentation: Monitoring and Displaying Log Files and Log Configuration with the NWA.

See also in the archive you extracted within the folder "Other SAP Documents" the file called **SAP_Logging_Bridge_NW_CE_7.1.pdf**. The document describes how to integrate 3rd party Java logging frameworks into the SAP logging framework via bridging.

- 5) The successfully deployed EE 5 application (SCA file) must be visible via the SAP NetWeaver Administrator tool -> Configuration Management -> Infrastructure -> System Info -> Components Info -> Software Components. In the "Software Components" section we must see the vendor, name, version, location of your deployed software component. This test ensures that your certifiable product is "[SAP Solution Manager Ready](#)".
- 6) You must document any [EE 5 application server configuration changes needed](#) for your application to work. For example, [Configuring Instances](#), [Adding and Removing Server Processes](#), [Viewing and Configuring Communication Ports](#), [Configuring JVM Parameters](#) etc. The configuration changes will be documented in the file called **EE_5_Technical_Product_Profile.doc**.
- 7) The [SAP JVM \(Java Virtual Machine\)](#) must be used during certification, since it provides both enhanced supportability capabilities (monitoring, debugging) as well as the basis to enable fast and reliable session failover. The SAP NetWeaver Application Server Java uses the SAP JVM as its runtime platform. The SAP JVM is based on the Hotspot Java VM provided by Sun Microsystems but also possesses some additional features as mentioned above.
- 8) A SAP [portal application](#) (PAR file) can not be certified as an EE 5 application, [since even if a PAR file could technically be packaged into an EAR file](#), it is not a standard EE 5 application.
- 9) [JavaServer Faces \(JSF\) can be developed, deployed and certified](#).
- 10) [J2EE 1.4 compliant applications can be developed deployed and certified](#).
- 11) [Third-Party Resource Adapters cannot be certified via JAVA-EE-STD or JAVA-EE-ADV. You must use the integration scenario called NW-XI-AF \(Adapter Framework Certification\)](#).
- 12) The [SAP service marketplace](#) (SMP) location and purpose will be discussed. We will discuss and document your product certification expectations and those of your SAP customer.
- 13) Other sources of information helpful for EE 5 certification will be discussed. For example, <http://help.sap.com>, <http://www.sdn.sap.com>, <http://service.sap.com>.

Additional test criteria relevant to JAVA-EE-STD only

- 1) Please ensure that there are no [WebDynpro](#) components used in your application.
- 2) No access to any SAP backend application via [SAP Java Connector](#) is allowed.
- 3) Your EE 5 application is not allowed to make use of [ABAP](#) coding.

Additional test criteria relevant to JAVA-EE-ADV only

- 1) You can develop, deploy and certify a [WebDynpro](#) application, since WebDynpro is also a [component of SAP NetWeaver](#).
- 2) The use of SAP backend applications (including ABAP and the use of [SAP Java Connector](#)) is not mandatory, but is permitted if needed. In such cases, SAP ICC reserves the right to check if other certifications are required, for example, [ABAP](#) or an [Integration Assessment](#) type of certification.
- 3) Clustering, failover, load balancing and high availability requirements of the EE 5 applications will be discussed and documented. This will simply be a discussion and does not mean the EE 5 application needs to fulfill these requirements in order to be certified.

Documentation, Hardware and Software Requirements

Documentation

In order to familiarize yourself with the SAP NetWeaver CE 7.1 Application Server Java™ EE 5 Edition and the EE 5 development environment, both of which are part of the SAP NetWeaver Composition Environment (CE) 7.1, please read the documentation and other sources of information as indicated below:

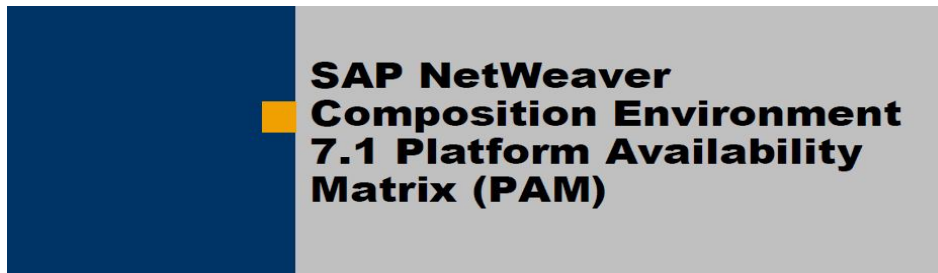
- 1) [Introduction to SAP NetWeaver Composition Environment](#)
- 2) [Required Steps/Guidelines to get started with SAP NetWeaver Composition Environment](#)
- 3) [Application Server Java](#)
- 4) [Administrator's Guide](#)
- 5) [Java Support Package Manager](#)
- 6) [Administering the AS Java from the Developer Studio](#)
- 7) [Deployment Descriptors](#)
- 8) [Release Notes for AS Java](#)
- 9) [Developer's Guide](#)
- 10) [Introduction to the SAP NetWeaver Developer Studio](#)
- 11) [JAVA EE Perspective](#)
- 12) [Developing Java EE 5 Applications](#)
- 13) [Creating and deploying J2EE 1.4 Applications in an EE 5 Environment](#)
- 14) [Javadocs: SAP NetWeaver 7.1 Composition Environment](#)
- 15) *[SAP Service Marketplace](#) (check the SAP Support Portal for up-to-date specific information about SAP NetWeaver 7.1 CE as it becomes available. Some useful quick links are):

<u>/netweaver</u>	SAP NetWeaver information
<u>/pam</u>	SAP Product Availability Matrix
<u>/releasenotes</u>	SAP Release Notes
<u>/developmentnews</u>	SAP Development News (see also the <u>SAP Developer Network</u>)
<u>/installations</u>	SAP Installations & Upgrades
<u>/instguides</u>	SAP Installation & Upgrade Guides
<u>/licensekeys</u>	Request a permanent license key after installing or upgrading a SAP System
<u>/maintenance</u>	SAP Maintenance Strategy
<u>/namespaces</u>	Development Namespaces
<u>/patches</u>	SAP Support Packages and Patches
<u>/platforms</u>	Platform and Technology Information Center (includes information on supported operating system and database release combinations for SAP components)
<u>/releasestrategy</u>	SAP's Release Strategy
<u>/solutionmanager</u>	SAP Solution Manager (see also <u>SAP Solution Manager Ready</u>)
<u>/sp-stacks</u>	SAP Support Package Stacks
<u>/jspm</u>	Java Support Package Manager
<u>/swdc</u>	SAP Supported Software Distribution Center, Download and many other areas you may be interested in.

*You will need a special user to [access certain links and or information on the SAP Service Marketplace.](#)

Hardware and Software Requirements

At the time of creation of this document, the following SAP supported Hardware and Software Requirements were available (*please check the SAP PAM for future SAP supported operating systems, databases, etc.*).



SAP AG

1 August 2007

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SAP NetWeaver Composition Environment 7.1 PAM

	Windows 2003	Linux Suse SLES9, SLES10, RedHat EL 4/5
	Server 2003 on x64 (64-bit)	on x86_64 (64-bit)
SQL Server 2005	X	-
MaxDB 7.6	X	X

PAM for NW CE server
 (Java / JEE core layer and all components running on top of it)

- Unicode only
- 64 bit only
- SAP JVM only

	Windows XP 32bit
SQL Server 2005	X
MaxDB 7.6	X

PAM for NW CE Single PC
 Installation / Developer Workplace

And appropriate follow-on releases

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Please note: [SAP NetWeaver Developer Studio](#) (NWDS - not depicted above) will have to be installed on an SAP supported 32-bit operating system, since NWDS is based on [Eclipse](#), and at the time this documentation was written, no 64-bit Eclipse support was available. Furthermore, NWDS needs to be installed with SUN JDK 1.5.0_11 or higher, downloadable at <http://java.sun.com>.

SAP NetWeaver Composition 7.1 Environment: Browser Support for End Users and Admin Functionality

Rendering Technology \ Browser	IE 7	Firefox 2.0
	Windows XP (incl. SP2)	Windows XP (incl. SP2) Linux RedHat EL 4,5, Linux Suse ≥ 10.1
Web Dynpro	X	X
Adobe Interactive Forms	X	X
Adobe Flex	X	X

Legend
 X Planned
 □ Platform combination not supported

Please note:

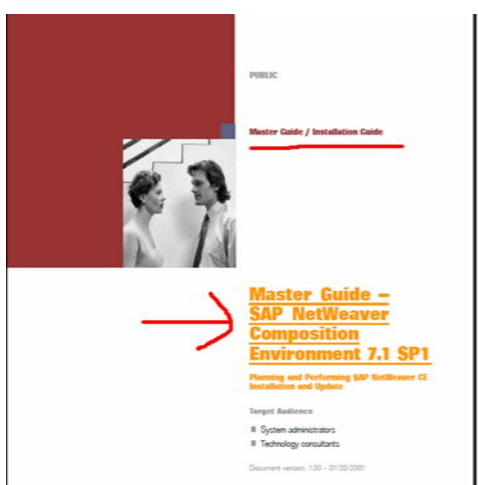
- This matrix shows generic NetWeaver support only and does not make statements about browser support in specific applications
- Browsers based on Firefox 1.5/2.0 engine will be supported „as-is“, i.e., the reference for SAP support is Firefox 1.5/2.0 only.
- In general, the highest available patch level of a browser is recommended (for functional correctness, security etc)
- Client platforms are supported in 32 bit mode only
- Support Windows Vista planned

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See also in the [archive](#) you extracted within the folder “Other SAP Documents” the following document “[Master Guide – SAP NetWeaver Composition Environment 7.1 SP1](#)” (file name is Master Guide – SAP NetWeaver Composition Environment 7.1 SP1.pdf). The document contains installation instructions for SAP NetWeaver CE 7.1. Please note that new Master Installation Guides will become available when new support packages are delivered. **Please regularly check the [SAP Service Marketplace](#) for up-to-date information.**

Master Guide – SAP NetWeaver Composition Environment 7.1 SP1



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Within the installation guide, please refer to “Chapter 3 Installation of a SAP NetWeaver Composition Environment” , in particular chapter 3.1. “Checking Hardware and Software Requirements”. See the example depicted below, which is an excerpt from the above mentioned installation guide.

Chapter 3 Installation of a SAP NetWeaver Composition Environment

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In conclusion, whenever you are in doubt as to what platforms - hardware, operating systems, databases and [Java Virtual Machines \(JVMs\) are supported by SAP](#) and which ones can be used during certification, please either ask your designated ICC integration consultant and / or check the [SAP Service Marketplace](#).

[We look forward to certifying your EE 5 application soon!](#)

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Information Sources

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For Americas: icc-americas@sap.com
For APA: icc-apa@sap.com

Integration Services:

Apply for services online <http://www.sap.com/PartnerApplication/icc>

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

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