

Web Services Stack Guide

Introduction to Web Services Stack

Version 9.5 SP1

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This document applies to Web Services Stack Version 9.5 SP1.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Preface

This document provides general information on the installed Web Services Stack (WSS).

For details on the installation of Web Services Stack, see the *Installation Guide* on the [Software AG Documentation Web site](#). The installation guide provides details on the following information:

- Installation and uninstallation
- Software and hardware support and requirements

Since the general layout of the installed Web Services Stack folders does not differ for Windows and UNIX, the information in this document is relevant for both Windows and UNIX platforms.

The information in this document is organized under the following headings:

[Overview of Web Services Stack](#)

[Verifying Web Services Stack Installation](#)

[Installation Directories](#)

[Dependencies of Web Services Stack Components](#)

[Upgrading to the Latest Version of Web Services Stack](#)

1 Overview of Web Services Stack

Overview of Web Services

Web services provide means for building, extending, integrating and deploying applications based on XML. This approach builds applications that can facilitate the communication process over the Internet, as well as the communication process between applications.

Definition of a Web Service

Web services are software components that impact application structures. They help the interoperability between platforms that have different programming models. For example, services can hide the details about whether the component is a J2EE-based component or a .NET based component.

According to the definition that is provided by <http://www.w3.org/TR/ws-gloss/#webservice>, a web service is “a software system designed to support interoperable machine-to-machine interaction over a network”. The core of web services is the use of common transports (such as HTTP), data formats (XML, XML Schema), and protocols to create an interoperable way to integrate applications.

Characteristics of Web Services

The information that is published about a web service provides details of what the service is and what it does. This can include information about the transport protocols that can be supported to send a message to the service, the wire format of this message expected by the service, whether and how the message has to be encrypted or signed.

A service is available at a particular endpoint in the network, and it receives and sends messages and exhibits behavior according to its specification.

The functional aspects of a service are specified using WSDL, and the constraints and conditions that are associated with the use of the service are specified through policies and configurations that you can attach to various parts of the WSDL. These are published so that the users of the service can discover and be given all the information they need to bind to that service.

Summary of Web Services Standards

- HTTP and SMTP for basic network transport services
- XML (Extensible Markup Language) as data format
- Universal Description, Discovery and Integration (UDDI) for web service registries
- The Web Service Description Language (WSDL) for service descriptions
- The Simple Object Access Protocol (SOAP) for XML messaging and RPC
- Web Services Policies

Software AG Web Services Stack

Software AG Web Services Stack is a toolkit that provides functionality for execution, configuration and management of web services. It handles the complex process of sending and receiving of web services requests in Software AG products. It allows everyone to do web services while knowing only a few of the details about the web services specifications.

The core part of the Web Services Stack runtime is the SOAP engine, based on Apache Axis 2. Incoming SOAP requests are processed by this SOAP engine. The SOAP request is given to the SOAP runtime and sent back to the client as a SOAP response message. If an error occurs a SOAP fault message is sent back to the client.

The option for generation, configuration and deployment of web services into Software AG Web Services Stack runtime allows the products to "wrap" an existing (legacy) server application and make it accessible to clients. Generally speaking, the products services are exposed as web services and deployed to a running Web Services Stack application.

2 Verifying Web Services Stack Installation

The following procedure allows you to verify a Web Services Stack installation, only if Web Services Stack is installed with and used by the following products:

- CentraSite
- EntireX
- Platform Tomcat Server
- Any other third party servlet container where the web application of Web Services Stack may be deployed.



Note: These products use Web Services Stack that is deployed on the Platform Tomcat Server.

▶ To verify Web Services Stack installation

- 1 Enter `http://localhost:10010/wsstack` in a Web browser.



Note: `10010` is the default port that is used when System Management Hub is installed. Otherwise, the default port used by the Platform Tomcat Server is `8083`. During the installation, Software AG Installer checks whether the port is in use. If the port is engaged, the installer suggests a port that is available (for example, if `8083` is in use, `9083` is suggested). Check the port number in case of deployment of Web Services Stack on custom application servers where the port is configured by the corresponding server administration tools.

- 2 Click the *Validate* link on the Web Services Stack web application welcome screen to ensure that all the required libraries are in place.

If there are problems with the installation, you see red warnings notifying you of the problem.



Note: Change your user credentials after you logged on to the administration module. Refer to *Changing Logon Credentials* for guidelines on how to do that.

For more detailed information about the installed Java archives (.jar files) on the Web Services Stack class path, see: *Displaying Version Information*



Note: The following products use Web Services Stack binaries directly and thus, do not allow verification of the installed Web Services Stack in their web interfaces.

- Mediator
- Integration Server

3 Installation Directories

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Software AG Installer sets the Web Services Stack installation in several directories on the file system. Depending on the concrete usage of Web Services Stack in the means of different runtime or repository, you need to provide the corresponding configuration settings into different locations. This chapter outlines the available directory structures and the corresponding configuration files of the Web Services Stack that are set by the installer.

Web Services Stack Web Application

Software AG Installer sets a Web Services Stack installation that uses a Standalone Server into the `\Software AG\WS-Stack` directory on the file system. The table below outlines the contents of the subdirectories and the available configuration files of the Standalone Server.

<code>\argus</code>	Contains binary files and other resources needed by Web Services Stack SMH agents.
<code>\bin</code>	Contains batch files and shell scripts that facilitate the usage of Web Services Stack console utilities.
<code>\conf</code>	Contains the <code>axis2.xml</code> configuration file that is needed for the configuration of the Standalone Server.
<code>\lib</code>	Contains all third party libraries and libraries owned by Software AG that are needed for developing, building, and running of Web services artifacts (clients and services).
<code>\miscellaneous</code>	This directory contains all modules that have experimental or optional status and are not deployed by default. To use the content of the module, copy it manually into the Web Services Stack web application or into the Standalone Server repository that is in use by a given client. For example, the Kandula2 module and the needed libraries are stored into the <code>miscellaneous</code> folder.
<code>\repository</code>	Contains the binary files and text configuration files that are needed on the client side and are spread in separate subdirectories
<code>\repository\conf</code>	Contains the <code>axis2.xml</code> configuration file that is needed to run the Web Service client applications on the Standalone Server.
<code>\repository\modules</code>	Contains the Web Services Stack modules that provide additional functionality to the Standalone Server. For example, security, reliable messaging, and so on. The modules are packed into Java archives and bear the module archives (MAR) file extension.
<code>\repository\services</code>	Contains the Web services either packed into Java archives bearing the Axis archive (AAR) file extension, or in an expanded directory structure. When you deploy a Web service on the Standalone Server, the corresponding <code>.aar</code> file is saved in this directory on the file system.
<code>\webapp</code>	Contains the Web Services Stack web application and a packed WAR file (<code>wsstack.war</code>) for an installation on a custom web application container

<code>\webapp\wsstack\axis2-web</code>	Contains the web resource files <code>*.jsp</code> , <code>*.css</code> , and <code>*.inc</code> that are used by the Standalone Server.
<code>\webapp\wsstack\META-INF</code>	Contains the <code>MANIFEST.MF</code> file for the web archive of the Standalone Server.
<code>\webapp\wsstack\WEB-INF</code>	Contains the <code>web.xml</code> (web application configuration descriptor file) of the Standalone Server.

Web Services Stack Using a Platform Tomcat Server

Software AG Installer sets a Web Services Stack installation that uses a Platform Tomcat Server into multiple directories within the `Software AG_directory` directory. The table below outlines the contents of the subdirectories and the available configuration files of the Tomcat Server.

<code>Software AG_directory\profiles\CTP\workspace\wsstack\repository\conf</code>	Contains the <code>axis2.xml</code> configuration file that is needed to run the Web Service client applications on the Platform Tomcat Server.
<code>Software AG_directory\profiles\CTP\workspace\wsstack\repository\modules</code>	Contains the Web Services Stack modules that provide additional functionality to the Platform Tomcat Server. For example, security, reliable messaging, and so on. The modules are packed into Java archives and bear the module archives (MAR) file extension.
<code>Software AG_directory\profiles\CTP\workspace\wsstack\repository\services</code>	Contains the Web services either packed into Java archives bearing the Axis archive (AAR) file extension, or in an expanded directory structure. When you deploy a Web service on the Platform Tomcat Server, the corresponding <code>.aar</code> file is saved in this directory on the file system.

For additional information on deployment, see *Deployment of the Runtime*

4 Dependencies of Web Services Stack Components

When you install Web Services Stack, the installation components depend on other components that are automatically selected by the Installer. To avoid issues during the installation procedure, the Installer deselects components automatically if you manually exclude a dependent component. The following list describes the available dependencies.



Note: Depending on the product that you install, some of the dependent products or components listed below may not be available.

- All Software AG products depend on the **Java Package 1.6** component. The component installs and configures a version of the Java Development Kit for the products.
- **Infrastructure > Web Services Stack > Core Files 9.0** component does not depend on any other components.
- **Infrastructure > Web Services Stack > Administration 9.0** component depends on the following components
 - **Web Services Stack > Core Files 9.0**
 - **Libraries > Shared Libraries 9.0**
 - **Libraries > CentrSite Libraries 9.0**
 - **Libraries > Security Libraries 9.0**
 - **Shared Platform > Platform 9.0**
 - **Shared Platform > Pluggable UI 9.0**
 - **Shared Platform > Tomcat Server 9.0**
 - **Shared Platform > Web Services Stack 9.0**
 - **System Management Hub 9.0**
- **Infrastructure > Web Services Stack > Web Application Files 9.0** component does not depend on any other components.
- **Designer > Web Services Stack 9.0** component depends on the following components.

- **Eclipse 3.6**
- **Shared Plug-ins > Branding and Naming 9.0**

5 Upgrading to the Latest Version of Web Services Stack

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- Upgrading Web Services Stack Version 8.0 and Higher 12

For more information about upgrading from the latest release of Web Services Stack 8.0 to 9.0, see *Upgrading webMethods Products* on the [Software AG Documentation Web site](#).

The following content outlines the upgrade of Web Services Stack web application.

This chapter provides information about the following topics:

Upgrading Web Services Stack Prior to Version 8.0

The latest versions of Web Services Stack (versions 8.0 and higher) do not upgrade the installation of Web Services Stack prior to versions 8.0. In this case, both installations exist independently on the same system. For example, if you install a product that uses Web Services Stack 9.0 on a system that has an installation of Web Services Stack 1.2 (installed previously with another Software AG product), both versions co-exist independently on the same system. If you want to re-use the Web services that you developed and deployed on the local Tomcat Server, using a previous version of Web Services Stack, you need to manually copy those Web services in the corresponding deployment location of the latest product.

For more information about the file structure of the latest version of Web Services Stack, see *Installation Directories*.

When you upgrade to (install) the latest version of Web Services Stack, verify the installation. For more information about verifying the installation, see *Verifying Web Services Stack Installation*.

Upgrading Web Services Stack Version 8.0 and Higher

For more information about upgrading from the latest release of Web Services Stack 8.0 to 9.0, see *Upgrading webMethods Products* on the [Software AG Documentation Web site](#).

For more information about the file structure of the latest version of Web Services Stack, see *Installation Directories*.

When you upgrade to (install) the latest version of Web Services Stack, verify the installation. For more information about verifying the installation, see *Verifying Web Services Stack Installation*.