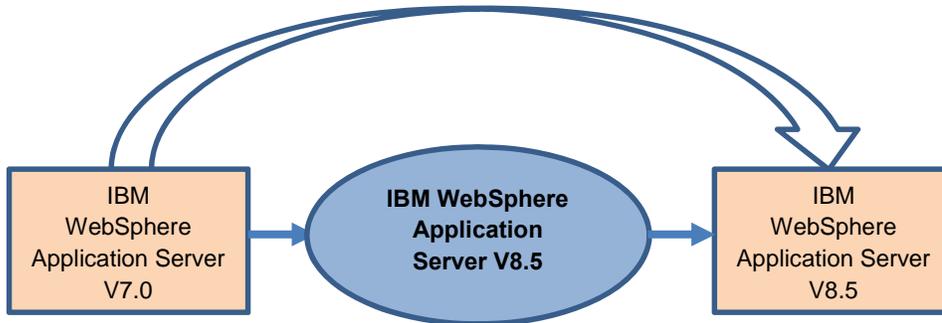


# Upgrading IBM WebSphere Application Server Version 7.0 to Version 8.5 for SAS® 9.3

## Overview

The following figure depicts a high-level overview of the WebSphere Application Server migration from WebSphere Application Server Version 7.0 to WebSphere Application Server Version 8.5 for SAS 9.3.



The process of migrating from WebSphere Application Server V7.0 to V8.5 uses these general steps, which are detailed later in this document. :

- First, you confirm that you have the SAS 9.3 requirements for WebSphere Application Server V8.5. These requirements are available on the “IBM WebSphere Application Server Support for SAS® 9.3” web page. ([support.sas.com/resources/thirdpartysupport/v93/appservers/webspheresw.html](http://support.sas.com/resources/thirdpartysupport/v93/appservers/webspheresw.html))
- Then you back up your environment. Before you start the migration, back up the entire WebSphere Application Server V7.0 cell environment, including all profiles and configurations. To back up your environment, use the WebSphere Application Server V7.0 `backupConfig.bat / .sh` utility. You can also select the backup function from the IBM Migration Wizard.
- Next, you install WebSphere Application Server V8.5 and Fix Pack 1 (8.5.0.1) or later.
- And then you use the WebSphere Application Server V8.5 migration tools (the Migration Wizard or the migration command-line tools) to migrate all profiles from WebSphere Application Server V7.0 to WebSphere Application Server V8.5.

## Migrating to WebSphere Application Server V8.5

The following sections explain how to migrate to WebSphere Application Server V8.5 using either the WebSphere Application Server V8.5 Migration Wizard or the WebSphere Application Server migration command-line tools (the **WASPreUpgrade** and **WASPostUpgrade** commands).

### Using the WebSphere Application Server 8.5 Migration Wizard

1. Launch the WebSphere Application Server V8.5 **First steps** console, which is located in the `WebSphere-home-directory/firststeps` directory. In the console, click the link **WebSphere Customization Toolbox**. From the toolbox, click the **Configuration Migration Tool** tab. If you cannot find this tab, click the **Welcome** tab to launch it. Then click the **New** button to start a migration process.

2. Select the WebSphere Application Server V7.0 installation that you intend to migrate. The IBM Migration Wizard automatically detects existing WebSphere Application Server versions. If the wizard does not detect a WebSphere Application Server V7.0 installation, do the following:
  - a. Enter the location of the WebSphere Application Server V7.0.
  - b. Select the profile that you want to migrate. **Note:** Be sure to migrate the dmgr profile first. For SAS configurations, this profile is typically named SASDmgr01.
  - c. On the next page, select the target WebSphere Application Server V8.5 profile, if you have created one already. Otherwise, create a new profile for WebSphere Application Server V8.5 before you continue the migration process.

**Note:** When you create the profile, before you run the migration wizard ensure that the cell name in the target profile is the same as the cell name in the WebSphere Application Server V7.0 profile from which you are migrating.

3. Enter a directory location (when the wizard prompts you) in which to back up the WebSphere Application Server V7.0 profile. This prompt should appear before the migration begins.
4. Select the appropriate application migration setting when you are prompted. You can select either **Migrate and install applications** or **Migrate but do not install applications**. If you customized the SAS web applications after they were installed on WebSphere Application Server V7.0, you need to select **Migrate but do not install applications**. This selection causes the migration tool to create scripts that you can use at a later time to install your updated web applications.
5. If you select **Migrate and install applications**, the wizard prompts you for additional migration settings. When you receive that prompt, select **Install the applications in the default directory of the target version**.
6. To prevent conflicts, make sure that the deployment manager from the WebSphere Application Server V7.0 profile is disabled during the migration. The migration tool disables the deployment manager as long as you do not select the check box.
7. When you are prompted for port values, be sure to select the check box **Use the port values assigned to the previous (source) installation** to ensure compatibility.
8. If you have customized administrative tasks in the WebSphere Application Server administrative console, save the settings for those tasks (**My Tasks**) to the default location by selecting **Use the default workspace user root location**.
9. If you are prompted, enter your WebSphere Application Server administrative security user ID and password. You are prompted for these credentials if WebSphere Application Server administrative security is enabled.
10. Ensure that the check box **Migrate to support script compatibility** is selected.
11. Review the summary page to verify your selections. Then click **Next** to begin the profile migration process. When the first step of the process is completed, you should see the following message:

The first step of the migration completed successfully.

12. Click **Next** to migrate the profile and output from the post-upgrade processing.

13. Click **Next** to see and review the WASPreMigrationSummary.log and WASPostMigrationSummary.log files for this profile.
14. Click **Next** to either end execution of the IBM Migration Wizard or to continue migration of the next profile.
15. Repeat the entire process to migrate all node profiles under the WebSphere Application Server V7.0 cell.  
**Note:** When you migrate a node profile, you must ensure that the WebSphere Application Server V8.5 dmgr server from the newly created dmgr profile is running before you migrate subsequent WebSphere Application Server V7.0 node profiles.

## Using the WebSphere Application Server 8.5 Migration Command-Line Tools

You can use the **WASPreUpgrade** and **WASPostUpgrade** commands (and the **convertScriptCompatibility** command, in a certain instance) to migrate the WebSphere Application Server V7.0 environment manually to WebSphere Application Server V8.5. The migration wizard actually calls these commands as part of the automated migration process. Because these commands change from release to release, they should always be called from the target version of WebSphere Application Server profile directory (in this case, the V8.5 directory). You can also locate these commands in the **bin** folder of the V8.5 profiles directory. If you choose to use the commands from this directory, you need to specify on which WebSphere Application Server V8.5 profile the commands should be run.

**Caution:** When you use the migration command-line tools, you need to create target profiles before the migration. You must create the deployment-manager profile migration first, followed by individual node profiles.

### The WASPreUpgrade Command

The **WASPreUpgrade** command creates a backup of all pertinent WebSphere Application Server V7.0 configuration information. The contents of the backup are specific to the version and configuration setup.

#### Syntax for the WASPreUpgrade command:

```
WASPreUpgrade backupDirectory currentWebSphereDirectory
    [-traceString trace_spec]
    [-traceFile file_name]
    [-machineChange true | false]
    [-oldProfile old_profile_name]
    [-workspaceRoot user_workspace_folder]
```

### The WASPostUpgrade Command

The **WASPostUpgrade** command migrates the backup that is created by **WASPreUpgrade** to the WebSphere Application Server V8.5 environment.

#### Syntax for the WASPostUpgrade command:

```
WASPostUpgrade backupDirectory
    [-profileName profile_name]
    [-oldProfile profile_name]
    [-backupConfig true | false]
    [-username username]
    [-password password]
```

*(syntax continued)*

```
[-traceString trace_spec [-traceFile file_name]]
[-portBlock port_starting_number]
[-replacePorts true | false]
[-includeApps true | false | script]
[-scriptCompatibility true | false]
[ [-appInstallDirectory user_specified_directory] |
  [-keepAppDirectory true | false]]
[-keepDmgrEnabled true | false]
```

### The `convertScriptCompatibility` Command

The `convertScriptCompatibility` command should not be necessary for the migration process unless you have created your own custom Jython scripts.

The `convertScriptCompatibility` command changes the WebSphere Application Server V8.5 configuration from a mode that supports script compatibility to a mode that does not support script compatibility. Script compatibility mode is enabled either by running **WASPostUpgrade** with the **-scriptCompatibility true** option or by taking the default value.

### Syntax for the `convertScriptCompatibility` command:

```
convertScriptCompatibility [-help]
                           [-backupConfig true | false]
                           [-profileName profile_name]
                           [-nodeName node_name [-serverName server_name]]
                           [-traceString trace_spec]
                           [-traceFile file_name]]
```

## Possible Errors and Solutions

Certain known errors can occur when you migrate your WebSphere Application Server. This section lists those errors as well as possible solutions.

### Failure to Migrate the WebSphere 8.0.0.1 Profile SASDmgr01

When this error occurs, you receive the following message:

```
java.security.PrivilegedActionException: java.net.URISyntaxException: Illegal
character in path at index 16: file:/C:/Program
Files/IBM/WebSphere8.5/WSMigration/SASDmgr01/profiles/SASDmgr01/config/bundlec
ache/.cacheContents MIGR0286E: The migration failed to complete.
```

**Solution:** Delete the folder **bundlecache** and then re-try the migration.

## Failure to Start the Managed Server

After the migration is complete, SAServer1 fails to start. When this failure occurs, you receive the following message:

```
ODCF8005E: There was an unexpected exception while initializing the SON
overlay; the exception is java.io.IOException: The P2P layer was unable to
bind to a UDP port.
```

This problem is caused by a port conflict.

### Solution:

1. Log on to the WebSphere administrative console and select **Application servers ► server-name ► Ports**.
2. Make sure that the two following ports are defined and that they do not conflict:

```
Port Name: OVERLAY_TCP_LISTENER_ADDRESS
Host: *
Port: 11008
```

```
Port Name: OVERLAY_UDP_LISTENER_ADDRESS
Host: *
Port: 11007
```

3. Restart the managed server.

## Recommended Reading

IBM. (2011). "Welcome to the WebSphere Application Server information center." Accessed on November 13, 2013. Available at [publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp](http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp). (This site is for WebSphere Version 8.0.)

IBM. (2013). "Welcome to the WebSphere Application Server 8.5 information center." Accessed on November 13, 2013. Available at [publib.boulder.ibm.com/infocenter/wasinfo/v8r5/index.jsp](http://publib.boulder.ibm.com/infocenter/wasinfo/v8r5/index.jsp).

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