

IBM WebSphere® Process Server 6.0 – Lab Exercise

Deploying Application in WebSphere Process Server

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What this exercise is about

This lab is intended for users who do not have experience with application management in WebSphere Process Server V6 environment. WebSphere Process Server utilizes the administration functionality provided by WebSphere for application deployment and management. There are several options to deploy and manage applications in WebSphere Process Server runtime:

- Deploy source code (generate and compile) into an application ready to be installed to WebSphere Process Server
 - Use WebSphere Integration Developer
 - Use command line based serviceDeploy
- Deploy application (install application) to WebSphere Process Server
 - Use Administrative Console
 - Use command line wsadmin administrative tool

In this exercise you will use serviceDeploy to generate the J2EE EAR file, and will then use both the Administrative Console to install and uninstall the application, and wsadmin.

Lab Requirements

- WebSphere Process Server V6 installed.

What you should be able to do

At the end of this lab you should be able to:

- Use serviceDeploy to deploy (generate and compile) a simple application from the command line.
- Install and uninstall a simple application using Administrative Console.
- Install and uninstall a simple application using wsadmin.

Introduction

One of the most common tasks for an administrator is to install and update applications. There are several ways to install and update applications in WebSphere Process Server. The Web browser based Administrative Console provides an easy to follow wizard. The command line tool wsadmin allows scripting and automation.

Developers will be most likely to use the serviceDeploy command line tool which provides an environment for automating the deployment of source code into applications.

You will go through application deployment and installation using each of these methods.

Exercise Instructions

Some instructions in this lab might be specific for Windows® platforms. If you run the lab on a platform other than Windows, you will need to run the appropriate commands, and use appropriate files (for example .sh in place of .bat) for your operating system. The directory locations are specified in the lab instructions using symbolic references as follows:

Reference Variable	Windows Location	Linux® Location
<WID_HOME>	C:\Program Files\IBM\WebSphere\ID\6.0	/opt/IBM/WebSphere/ID/6.0
<WPS_HOME>	<WID_HOME>\runtimes\bi_v6	<WID_HOME>/runtimes/bi_v6
<LAB_FILES>	C:\Labfiles60	/tmp/Labfiles60
<WORKSPACE>	C:\Labfiles60\admin	/tmp/Labfiles60/admin
<TEMP>	C:\temp	/tmp/Labfiles60

Windows users: When directory locations are passed as parameters to a Java™ program such as EJBdeploy or wsadmin, you must replace the backslashes with forward slashes to follow the Java convention. For example, C:\LabFiles60\ would be replaced by C:/LabFiles60/.

Note that the previous table is relative to where you are running WebSphere Integration Developer. The following table is related to where you are running remote test environment:

Reference Variable	Example: Remote Windows test server location	Example: Remote z/OS® test server location	Input your values for the remote location of the test server
<SERVER_NAME>	server1	cl1sr01	
<WAS_HOME>	C:\Program Files\IBM\WebSphere\AppServer	/etc/cl1cell/AppServerNode1	
<HOSTNAME>	localhost	mvsxxx.rtp.raleigh.ibm.com	
<BOOTSTRAP_PORT>	2809	2809	
<TELNET_PORT>	N/A	1023	
<PROFILE_NAME>	AppSrv01	default	
<USERID>	N/A	cl1admin	
<PASSWORD>	N/A	fr1day	

Instructions for using a remote testing environment, such as z/OS, AIX® or Solaris, can be found at the end of this document, in the section "[Task: Adding Remote Server to WebSphere Integration Developer Test Environment](#)".

Part 1: Deploy an application using serviceDeploy

The serviceDeploy tool allows for the ability to deploy applications (generate and compile) from the command line resulting in a Service Component Architecture (SCA) application .ear file that may be installed to the WebSphere Process Server. Using serviceDeploy, developers can automate their production builds by invoking scripts for the build process.

The archive upon which serviceDeploy will operate is the only mandatory parameter to serviceDeploy, and it must be the first parameter to the command. The archive can be a .jar, .zip, or .ear file. For SCA applications, which include SCA component files and possibly j2ee\index.jsp to use for unit testing, archive these files into a .jar. For SCA applications that also include separate J2EE modules, for example Web, EJB, or connector modules, archive these files into a .zip. If a .zip is passed to serviceDeploy, it expects to find J2EE modules along with the SCA files. If none exist, you will receive an error.

Troubleshooting tips: If errors occur while using serviceDeploy, invoke serviceDeploy with optional -keep parameter to keep the temporary eclipse workspace. Note the name of the workspace, during processing of the serviceDeploy command, change to the <workspace>\.metadata subdirectory and view the .log file.

When passing a .jar to serviceDeploy that includes a top-level j2ee folder with possibly a jsp for testing purposes, remember to use the optional -freeform parameter, which copies the j2ee\xxx files to the most reasonable j2ee staging module.

- ___ 1. Invoke command line tool serviceDeploy to generate an installable SCA application file.
 - ___ a. Open a command window and change to the bin directory of the WebSphere Process Server installation profile subdirectory. For example, in the following command, where <WPS_HOME> is the location of WebSphere Process Server home and prof is the location of your profiles subdirectory.

```
C:\cd <WPS_HOME>\prof\bin
```

If you are using a remote testing environment, the command will be as follows:

```
cd <WPS_HOME>/profiles/default/bin
```

- ___ b. Invoke the serviceDeploy command, passing in the <LAB_FILES>\HelloWorld.jar archive and the -freeform parameters.

```
C:\Program Files\IBM\WebSphere\ID\6.0\prof\bin>serviceDeploy
<LabFiles>\Admin\HelloWorld.jar -freeform
```

If you are using a remote testing environment, the command will be as follows:

```
./serviceDeploy.sh <LabFiles>/Admin/HelloWorld.jar -freeform
```

- ___ 2. Successful completion of the serviceDeploy will result in a **HelloWorldApp.ear** file in the same subdirectory from which the command was invoked.
 - ___ a. The last few lines of the output will look similar to the following:

```
Validating
Exporting application C:\Program
Files\IBM\WebSphere\ID\6.0\prof\bin\HelloWorldApp.ear
Deployment has completed
Waiting for background jobs
Deleting workspace
```

In the following parts, the **HelloWorldApp.ear** will be installed to the WebSphere Process Server.

Part 2: Deploy an application using Administrative Console

- ___ 3. Start the WebSphere Process Server if the server is stopped.

If using a remote testing environment, follow the instructions in [Task: Adding Remote Server to WebSphere Integration Developer Test Environment](#) at the end of this document, to start the remote server.

If using a local testing environment:

- ___ a. Open a Command window and change to the bin directory of the WebSphere Process Server installation directory by entering the following command from the command prompt.

```
cd <WPS_HOME>\prof\bin
```

- ___ b. Start the server with the startserver command by entering the following command from the command prompt.

```
startServer.bat server1
```

- ___ c. Wait for the message “ADMU3000I: Server server1 open for e-business; process id is xxxx” to display.

- ___ 4. Open the Administrative Console.

- ___ a. Open a Web browser and enter <http://<HOSTNAME>:9080/admin> for the location.

- ___ b. When the console appears, enter wsdemo for the user ID and click **Log in** button.

NOTE: The user ID wsdemo is only used to differentiate active users accessing the Administrative Console at the same time. It is not checked whether it is a valid account.

- ___ 5. Expand **Applications** from the Navigator panel at the left and click **Install New Application**.

- ___ 6. If using a remote testing environment, select **Remote File System** and then click **Browse...** and navigate to the `<WPS_HOME>/bin/` directory and select **HelloWorldApp.ear**. Click **Open** and then click **Next**.

If using a local testing environment, click **Browse...** and select the **Local file system** path `<WPS_HOME>\bin\HelloWorldApp.ear` and click **Open** and then Click **Next**.

- ___ 7. Click **Next** to accept the default values for all the screens until you get to the Summary step. This is a simple application that does not require any specific configuration.

- ___ 8. Click the **Finish** button on the **Install New Application** summary screen.

- ___ 9. On the next screen, wait for the message “ADMA5013I: Application HelloWorldApp installed successfully.” to display.

- ___ 10. Save the configuration changes to the master configuration.

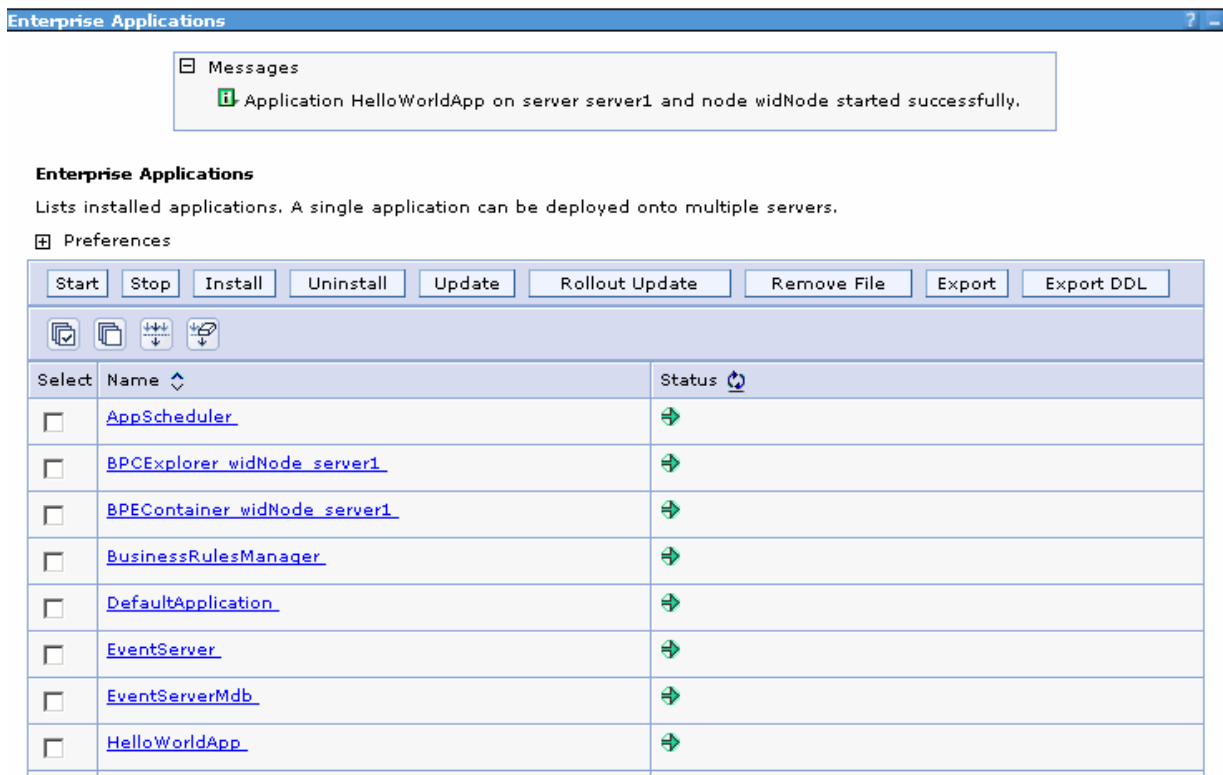
- ___ a. Click to follow the link “**Save to Master Configuration**”.

- ___ b. Expand **Total changed documents** on the Save screen to see what files are modified or added to the master configuration.

- ___ c. Click **Save** button.

NOTE: Now that the application HelloWorldApp has been installed, you must start the application before you can access it.

- ___ 11. Start the HelloWorldApp application.
 - ___ a. On the Navigator panel, expand **Applications** and click **Enterprise Applications**. You should see the HelloWorldApp in the list of applications and the status is in Stopped mode (✖).
 - ___ b. Select the HelloWorldApp by clicking the check box next to it.
 - ___ c. Click the **Start** button. You should see a message “Application HelloWorldApp on server <ServerName> and node widNode started successfully.”



- ___ 12. To run the application: open another browser and type in the URL:
http://<HOSTNAME>:9080/HelloWorldWeb/index.jsp.

NOTE: You have installed and started the HelloWorldApp and verified that you can access the application from a browser. Now, you will uninstall the application and later use wsadmin to install the application.

- ___ 13. Stop the HelloWorldApp application.
 - ___ a. Expand **Applications** on the Navigator panel and click **Enterprise Applications**. You should see the HelloWorldApp in the list of applications and the status is in Started mode (➡).
 - ___ b. Select the HelloWorldApp by clicking the check box next to it.


___ c. Click the **Stop** button. You should see a message “Application HelloWorldApp on server <ServerName> and node widNode stopped successfully.”

___ 14. Uninstall the HelloWorldApp.

___ a. Select the HelloWorldApp on the **Enterprise Applications** page by clicking the checkbox next to it.

___ b. Click **Uninstall** button.

___ c. Click **OK** to confirm.

___ d. You will see this message: “ Changes have been made to your local configuration. Click [Save](#) to apply changes to the master configuration.” Click **Save** link.

___ e. Expand **Total changed documents** to see which files are updated and removed from the master configuration.

___ f. Click **Save** button.

NOTE: In this part, you used the Administrative Console to deploy a simple application, started the application to verify that it is accessible, and then stopped and uninstalled the application.

Part 3: Deploy an application using wsadmin

NOTE: wsadmin is a command line tool that provides most functionality available from the Administrative Console. The primary benefit of using wsadmin is that it allows for automation.

___ 1. Start wsadmin.

___ a. Open a Command window and change to the bin directory of the WebSphere Process Server installation directory by entering the following command from the command prompt.

If using a remote testing environment, follow the instructions in [Task: Adding a Remote Server to WebSphere Integration Developer Test Environment](#) to telnet to the remote server. Once logged in, change to the bin directory using the following command:

```
cd <WPS_HOME>/profiles/default/bin
```

If using a local testing environment, the command is:

```
cd <WPS_HOME>\bin
```

___ b. Start the wsadmin by entering the appropriate command from the command prompt.

If using a remote test environment, the command is:

```
./wsadmin.sh
```

If using a local test environment, the command is:

```
wsadmin.bat
```

NOTE: Now, you will enter the interactive mode of wsadmin. You will see the wsadmin> prompt.

___ 2. Use the built-in AdminApp object to install the application by entering the following command in the wsadmin prompt. (Remember to use forward slashes when specifying the location of the ear file).

```
$AdminApp install <WPS_HOME>/bin/HelloWorldApp.ear {-server  
<ServerName>}
```

___ 3. Save the configuration by entering the following command.

```
$AdminConfig save
```

___ 4. Start the installed application using wsadmin commands.

___ a. Get the application manager object by entering the following command.

```
set appManager [$AdminControl queryNames  
type=ApplicationManager,process=<ServerName>,*]
```

NOTE: This assumes there is only one node.

___ b. Start the HelloWorldApp using the application manager object by entering the following command.

```
$AdminControl invoke $appManager startApplication HelloWorldApp
```

- ____ 5. Verify the HelloWorldApp is accessible by entering the following URL in your Web browser:
<http://localhost:9080/HelloWorldWeb/index.jsp>.

NOTE: You used interactive mode to issue one command at a time. In most cases you would group the commands in a file and run wsadmin using batch mode.

- ____ 6. Stop the application using wsadmin command by entering the following command under the wsadmin prompt.

```
$AdminControl invoke $appManager stopApplication HelloWorldApp
```

- ____ 7. Uninstall the application by entering the following command under the wsadmin prompt.

```
$AdminApp uninstall HelloWorldApp
```

- ____ 8. Save the configuration by entering the following command under the wsadmin prompt.

```
$AdminConfig save
```

- ____ 9. Exit wsadmin by entering the following command at the wsadmin prompt.

```
exit
```

NOTE: Again, in most cases you would group the commands in a file and run wsadmin using batch mode.

- ____ 10. Use wsadmin script to deploy and start the application by issuing the appropriate command: (enter the command on a single line).

If using a remote test environment:

```
<WPS_HOME>/profiles/bin/./wsadmin.sh -f <LAB_FILES>/Admin/installSimpleApp.jacl  
HelloWorldApp.ear
```

If using a local test environment:

```
c:\<WPS_HOME>\bin\wsadmin -f c:\<LAB_FILES>\Admin\installSimpleApp.jacl HelloWorldApp.ear
```

- ____ 11. Verify the HelloWorldApp is accessible by entering the following URL in your Web browser:
<http://<HOSTNAME>:9080/HelloWorldWeb/index.jsp>.

- ____ 12. Use wsadmin script to stop and uninstall the application by issuing the appropriate command:

If using a remote test environment:

```
<WPS_HOME>/profiles/bin/./wsadmin.sh -f <LAB_FILES>/Admin/uninstallSimpleApp.jacl
```

If using a local test environment:

```
c:\<WPS_HOME>\bin\wsadmin -f c:\<LAB_FILES>\Admin\uninstallSimpleApp.jacl
```

- ____ 13. Log out of the Administrative Console.

- ____ 14. Stop the server.

If using a remote test environment:

```
<WPS_HOME>/profiles/bin/./stopServer.sh <ServerName>
```

If using a local test environment:

```
c:\<WPS_HOME>\bin\stopServer.bat <ServerName>
```

NOTE: In this part, you used wsadmin interactively to install a simple application, start the application and verify that it is accessible. You then stopped and uninstalled the application using wsadmin commands.

What you did in this exercise

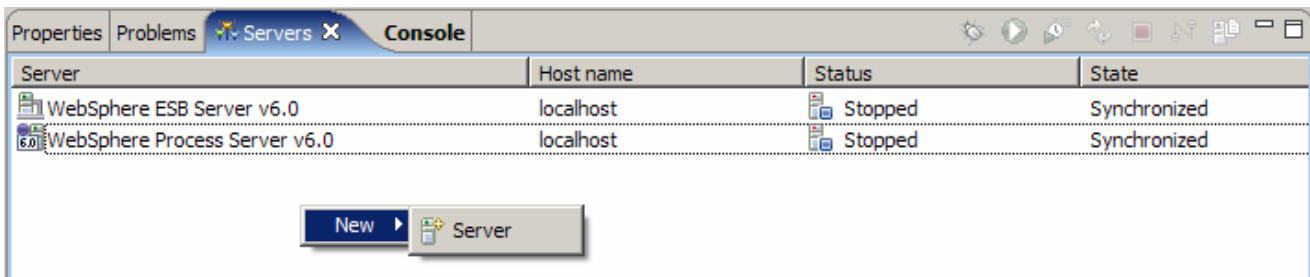
In this exercise you used the following tools to deploy, install, and uninstall a simple application:

- Command line deployment using serviceDeploy
- Web browser based Administrative Console
- Command line based wsadmin

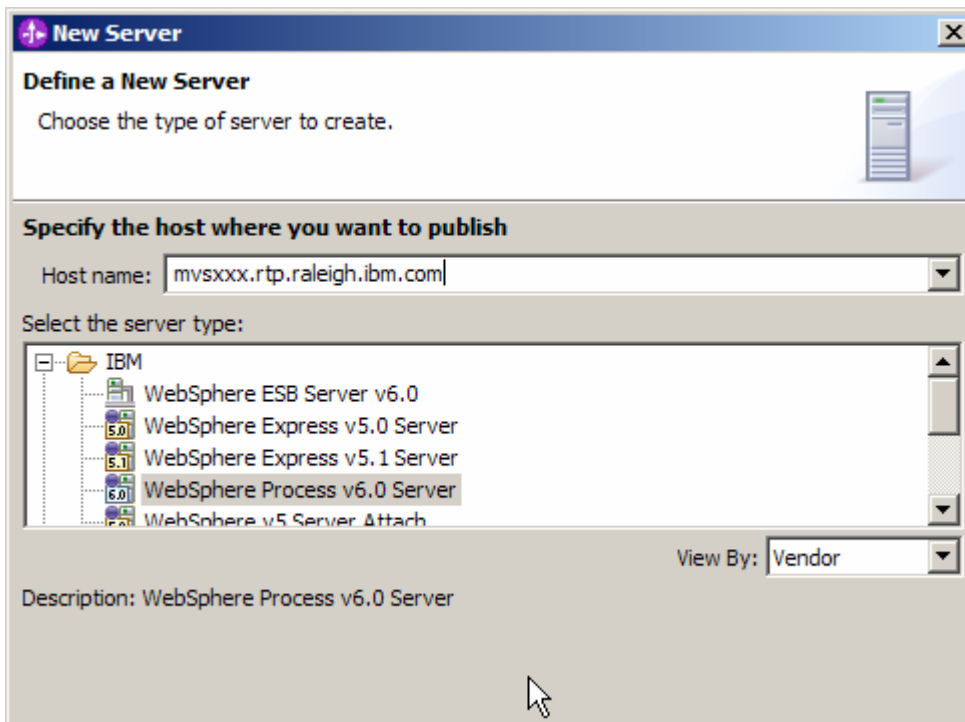
Task: Adding Remote Server to WebSphere Integration Developer Test Environment

This task describes how to add a remote server to the WebSphere Integration Developer Test environment. This sample will use a z/OS machine.

- ___ 1. Create a new remote server.
 - ___ a. Right click on the background of the Servers view to access the pop-up menu.
 - ___ b. Select **New > Server**.



- ___ c. Specify hostname to the remote server, **<HOSTNAME>**.
- ___ d. Ensure that **'WebSphere Process v6.0 Server'** is highlighted in the server type list.



- ___ e. Click **Next**.
- ___ f. On the WebSphere Server Settings page, select the radio button for **RMI** and change the ORB bootstrap port to the correct setting (**<BOOTSTRAP_PORT>**).

New Server

WebSphere Server Settings

Input settings for the new WebSphere server

WebSphere profile name: _____

Server connection type and admin port

RMI (Better performance)

ORB bootstrap port: 9131

SOAP (More firewall compatible)

SOAP connector port: 8880

Run server with resources within the workspace

Security is enabled on this server

Current active authentication settings:

User ID: _____

Password: _____

Server name: server 1

Server type

BASE, Express or unmanaged Network Deployment server

Network Deployment server

Network Deployment server name: _____

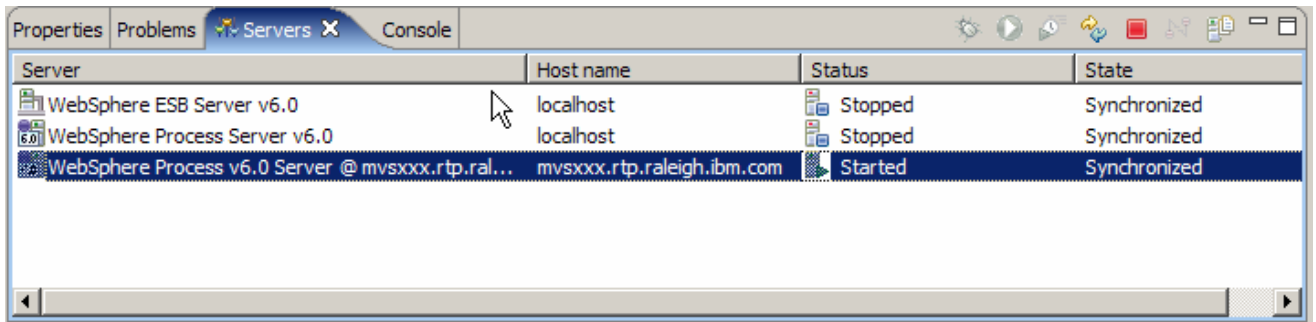
The server name is in the form of:
<cell name>/<node name>/<server name>
For example, localhost/localhost/server1.

Click this button to detect the server type.

< Back Next > Finish Cancel

___ g. Click **Finish**.

___ h. The new server should be seen in the Server view.



___ 2. Start the remote server if it is not already started. WebSphere Integration Developer does not support starting remote servers from the Server View.

___ a. From a command prompt, telnet to the remote system if needed:

'telnet <HOSTNAME> <TELNET_PORT>'

userid : <USERID>

pw : <PASSWORD>

___ b. Navigate to the bin directory for the profile being used:

cd <WAS_HOME>/profiles/<PROFILE_NAME>/bin

___ c. Run the command file to start the server: **./startServer.sh <SERVER_NAME>**

___ d. Wait for status message indicating server has started:

```

ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server c11sr01 open for e-business; process id is 0000012000000002
    
```