



N1 Grid Service Provisioning System 5.0 User's Guide for the BEA WebLogic Plug-In

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Part No: 819-0411
December 2004

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Preface

This book explains how to use the N1 Grid Service Provisioning System software to capture and deploy BEA WebLogic 6.1 and 7 applications and files.

Who Should Use This Book

The main audience for the N1 Grid Service Provisioning System 5.0 User's Guide for the BEA WebLogic Plug-In includes system administrators and operators of N1 Grid Service Provisioning System 5.0 software who want to be able to incorporate BEA WebLogic 6.1 and 7 functionality with N1 Grid Service Provisioning System software. These users are expected to have the following background:

- Familiar with the N1 Grid Service Provisioning System 5.0 product
- Familiar with standard UNIX® and Windows commands and utilities
- Familiar with the general concepts and management features available in the BEA WebLogic 6.1 and 7 product

Before You Read This Book

If you are not already familiar with using the N1 Grid Service Provisioning System software, read the following books:

- *N1 Grid Service Provisioning System 5.0 System Administration Guide*
- *N1 Grid Service Provisioning System 5.0 Operation and Provisioning Guide*
- *N1 Grid Service Provisioning System 5.0 Release Notes*

How This Book Is Organized

[Chapter 1](#) provides an overview of the BEA WebLogic plug-in solution.

[Chapter 2](#) explains how to install and configure the plug-in.

[Chapter 3](#) explains how to capture and deploy BEA WebLogic applications and files through the plug-in and describes the WebLogic-specific component types.

Related Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

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Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> <code>Password:</code>
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	The command to remove a file is <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . Perform a <i>patch analysis</i> . Do <i>not</i> save the file. [Note that some emphasized items appear bold online.]

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	machine_name%
C shell superuser prompt	machine_name#
Bourne shell and Korn shell prompt	\$
Bourne shell and Korn shell superuser prompt	#

Overview of WebLogic Plug-In

This chapter explains general information about using N1 Grid Service Provisioning System to provision BEA WebLogic 6.1 and 7 applications. This chapter includes the following information:

- “Purpose of the WebLogic Plug-In” on page 11
- “What the BEA WebLogic Plug-In Includes” on page 12
- “Requirements for Using the BEA WebLogic Plug-In” on page 12

Purpose of the WebLogic Plug-In

The N1 Grid Service Provisioning System software provides enhanced capabilities in out-of-the-box support for BEA WebLogic 6.1 and 7 applications. You can capture a BEA WebLogic application from a reference server, select precisely how this application should be configured, and deploy the application to standalone, managed, or clustered BEA WebLogic environments.

Note – If you use the plug-in to manage your BEA WebLogic environment, do not deploy or manage BEA WebLogic applications outside of the provisioning software. You must manage your BEA WebLogic applications exclusively with the N1 Grid Service Provisioning System software.

What the BEA WebLogic Plug-In Includes

The BEA WebLogic Plug-In includes several WebLogic-specific component types, along with pre-defined components and resource files that enable you to easily capture, configure and deploy WebLogic Enterprise, Enterprise JavaBeans (EJB), and Web Applications. These component types can be grouped into three families:

- Component types to support three kinds of WebLogic virtual hosts:
 - WebLogic Admin Server
 - WebLogic (Managed) Server
 - WebLogic Cluster
- Special components to deploy and pull applications for deployment on the WebLogic 6.x and 7.x application servers
- Special component logic implemented with the WebLogic platform's Enterprise JavaBeans™ technology-based APIs

Requirements for Using the BEA WebLogic Plug-In

Any host on which you intend to deploy the BEA WebLogic Plug-In must meet the following requirements:

WebLogic software	BEA Systems WebLogic version 6.1 or 7.0 must exist within your N1 Grid Service Provisioning System environment so that you can capture the applications and files to deploy
Operating system	Appropriate version of the UNIX or Windows operating systems, as specified by BEA Systems
Disk space	For Windows systems, approximately 236 Mbytes free storage space for the installed product and 170 Mbytes of temporary storage space required by the installer For UNIX systems, approximately 196 Mbytes free storage space for the installed product and 162 Mbytes of temporary storage space required by the installer

RAM	256 Mbytes (minimum); 512 Mbytes (recommended)
Java run-time environment (JRE)	The WebLogic Server installation program requires a JRE to run. A Java 2 Software Development Kit (SDK), which includes a JRE, is bundled in the Windows installation program and in some UNIX installation programs (those with filenames ending in <code>.bin</code>). For other UNIX platforms, the WebLogic Server installation program does not include the Java 2 SDK in the installation program (those with filenames ending in <code>.jar</code>). To run the <code>.jar</code> installation programs, you must have the appropriate version of the Java 2 SDK installed on your system, and include the <code>bin</code> directory of the SDK at the front of the <code>PATH</code> variable. It is important that you use an SDK because the installation process sets the <code>JAVA_HOME</code> and related variables to point to this directory.

In addition, you must have a current WebLogic environment from which you can capture the WebLogic application to deploy. This environment must meet the following requirements:

WebLogic application	A functional WebLogic 6.1 or 7.0 application that is configured the way that you need
----------------------	---------------------------------------------------------------------------------------

Installing and Configuring the BEA WebLogic Plug-In

This chapter explains how to install and configure the BEA WebLogic plug-in. The chapter contains the following information:

- “Acquiring the BEA WebLogic Plug-In” on page 15
- “Adding the BEA WebLogic Plug-In to the N1 Grid Service Provisioning System” on page 15
- “Customizing the Solution for Your Environment” on page 16

Acquiring the BEA WebLogic Plug-In

The BEA WebLogic Plug-In is packaged as a *plug-in* to the N1 Grid Service Provisioning System software. Plug-ins are packaged in Java™ Archive (JAR) files. The plug-in files for the BEA WebLogic Plug-In are available from the N1 Grid Service Provisioning System 5.0 Supplement CD or from the Sun Download Center.

Adding the BEA WebLogic Plug-In to the N1 Grid Service Provisioning System

To make a given plug-in known to the N1 Grid Service Provisioning System product, you need to import the plug-in. To import a plug-in, follow these steps as explained in detail in Chapter 5, “Plug-In Administration,” in *N1 Grid Service Provisioning System 5.0 System Administration Guide*.

1. In the Administrative section of the main window, click Plug-ins.

2. In the Action column of the Plug-ins page, click Import.
3. Browse to the location where you downloaded the `com.sun.weblogic_1.1.jar` file.
4. Click the Continue to Import button.

When the import completes successfully, a plug-in details page appears that shows you the objects that the plug-in provides.

You can also import a plug-in archive file from the command line. Use the following command:

```
% cr-cli -cmd plg.p.add -path com.sun.weblogic_1.1.jar u username -p password
```

Customizing the Solution for Your Environment

Information about customizing the BEA WebLogic plug-in for your environment is provided in the `readme.txt` file in the `com.sun.weblogic_1.1.jar` file.

Using the BEA WebLogic Plug-In

The BEA WebLogic Plug-In provides a number of specific component types and provides easy access to functions for working with WebLogic applications. This chapter describes the following information:

- [“Creating and Managing WebLogic Servers and Clusters” on page 17](#)
- [“Capturing and Editing WebLogic Applications” on page 25](#)
- [“Component Types” on page 26](#)
- [“Plans” on page 30](#)

Creating and Managing WebLogic Servers and Clusters

Use the WebLogic common tasks page to create and manage WebLogic server and clusters in the provisioning software. You can perform several specific tasks:

- [“To Create a WebLogic Admin Server for 7.0” on page 17](#)
- [“To Create a WebLogic Admin Server for 6.1” on page 19](#)
- [“To Create a WebLogic Cluster” on page 20](#)
- [“To Manage WebLogic Server Instances” on page 22](#)

▼ To Create a WebLogic Admin Server for 7.0

- Steps**
1. From the Common Tasks section in the browser interface, click WebLogic.
 2. On the WebLogic Common Tasks page, click Manage 7.0 Admin Servers.
 3. On the Components Details page for the 7.0 Admin Server component, click the Run action next to default:install.

4. To set variables for this Admin Server, click **Select from List** in the **Plan Parameters** section of the window.

- To create a new set of variables that have different values from the default values, click **Create Set**.

The **Select Variable Setting From List** window appears.

- a. In the text field at the top of the table, enter the name of the new variable settings set.
- b. To specify the name of the WebLogic Admin Server, click the box next to `adminHost` and type the name into the field.
- c. To change the port number for the WebLogic Admin Server from the default value of 7001, click the box next to `adminPort` and type the new number into the field.
- d. To specify that secure HTTP be used to connect to the WebLogic Admin Server, click the box next to `secureConnect` and type **True** into the field.
- e. To change the path to where WebLogic is installed, click the box next to `wlHomeDir` and type the path into the field.
- f. To change the WebLogic domain name, click the box next to `domainName` and type the domain name into the field.

The remaining variables are pre-defined for you, although you can modify them if necessary.

- The `targetRefName` is created based on the values for the host name and for the domain name. This variable follows the format
: `[target:sys.hostName]_admin_: [domainName]`
- The `installPath` is created based on the value for the domain name. This variable follows the format `admin_: [domainName]`
- The `webLogicJARPath` is created based on the value for the WebLogic home directory. This variable follows the format
: `[wlHomeDir]: [/]weblogic700: [/]server: [/]lib: [/]weblogic.jar`
- The `domainRoot` is `user_projects`

- g. After updating the component variable values, click **Save**.

The new variable settings display in the table.

- h. Click **Select**.

- To use variable settings for another component, click **Import Set**.

The **Import Variable Settings** window displays.

- a. If necessary, navigate to the **Folder** that contains the component with the variable settings to import.
- b. Select the component version.

Note – Variable settings can vary between component versions.

- c. **Click Import Variable Settings.**
The imported variable settings display in the table.
 - d. **Click Select.**
5. **Select the target host.**
 6. **Click Run Plan (includes preflight).**

▼ To Create a WebLogic Admin Server for 6.1

- Steps**
1. From the **Common Tasks** section in the browser interface, click **WebLogic**.
 2. On the **WebLogic Common Tasks** page, click **Manage 6.1 Admin Servers**.
 3. On the **Components Details** page for the **6.1 Admin Server** component, click the **Run** action next to **default:install**.
 4. To set variables for this Admin Server, click **Select from List** in the **Plan Parameters** section of the window.
 - To create a new set of variables that have different values from the default values, click **Create Set**.
The **Select Variable Setting From List** window appears.
 - a. In the text field at the top of the table, enter the name of the new variable settings set.
 - b. To specify the name of the WebLogic Admin Server, click the box next to **adminHost** and type the name into the field.
 - c. To change the port number for the WebLogic Admin Server from the default value of 7001, click the box next to **adminPort** and type the new number into the field.
 - d. To specify that secure HTTP be used to connect to the WebLogic Admin Server, click the box next to **secureConnect** and type **True** into the field.
 - e. To change the path to where WebLogic is installed, click the box next to **wlHomeDir** and type the path into the field.
 - f. To change the WebLogic domain name, click the box next to **domainName** and type the domain name into the field.

The remaining variables are pre-defined for you, although you can modify them if necessary.

- The `targetRefName` is created based on the values for the host name and for the domain name. This variable follows the format
: `[target:sys.hostName]_admin_:[domainName]`
- The `installPath` is created based on the value for the domain name. This variable follows the format `admin_:[domainName]`
- The `webLogicJARPath` is created based on the value for the WebLogic home directory. This variable follows the format
: `[wlHomeDir]:[/]lib:[/]weblogic.jar`

g. After updating the component variable values, click Save.

The new variable settings display in the table.

h. Click Select.

- **To use variable settings for another component, click Import Set.**

The Import Variable Settings window displays.

a. If necessary, navigate to the Folder that contains the component with the variable settings to import.

b. Select the component version.

Note – Variable settings can vary between component versions.

c. Click Import Variable Settings.

The imported variable settings display in the table.

d. Click Select.

5. Select the target host.

6. Click Run Plan (includes preflight).

▼ To Create a WebLogic Cluster

A WebLogic server cluster consists of multiple WebLogic server instances running simultaneously and working together to provide increased scalability and reliability. A cluster appears to clients to be a single WebLogic server instance. The server instances that constitute a cluster can run on the same machine, or can be located on different machines. Each server instance in a cluster must run the same version of WebLogic server.

Note – In the N1 Grid Service Provisioning System environment, you must create a cluster, then create the managed servers that are in that cluster. While creating the managed server, one of the optional arguments in the variable list is the cluster host name. When installing a managed server, this cluster host name is used to create a dependency on it. If you create the managed servers before the cluster, there will be no cluster host and therefore the dependency creation will fail.

- Steps**
1. From the Common Tasks section in the browser interface, click WebLogic.
 2. On the WebLogic Common Tasks page, click Manage Clusters.
 3. On the Components Details page for the WebLogic cluster component, click the Run action next to default:install.
 4. To set variables for this cluster, click Select from List in the Plan Parameters section of the window.
 - To create a new set of variables that have different values from the default values, click Create Set.
The Select Variable Setting From List window appears.
 - a. In the text field at the top of the table, enter the name of the new variable settings set.
 - b. To specify the name of the cluster, click the box next to `targetName` and type the cluster name into the field.
 - c. After updating the component variable values, click Save.
The new variable settings display in the table.
 - d. Click Select.
 - To use variable settings for another component, click Import Set.
The Import Variable Settings window displays.
 - a. If necessary, navigate to the Folder that contains the component with the variable settings to import.
 - b. Select the component version.

Note – Variable settings can vary between component versions.

- c. Click Import Variable Settings.
The imported variable settings display in the table.

d. Click Select.

5. Select the target WebLogic Admin server on which to define the cluster.
6. Click Run Plan (includes preflight).
7. Create server instances to be part of the cluster, as described in

▼ To Manage WebLogic Server Instances

For each actual WebLogic admin server, you can run multiple server instances. This task explains how to create, start, and stop WebLogic server instances.

Note – Do not manage your WebLogic applications outside of the N1 Grid Service Provisioning System. If you use the provisioning software, you must manage your WebLogic applications exclusively with the provisioning software.

- Steps**
1. From the Common Tasks section in the browser interface, click WebLogic.
 2. On the WebLogic Common Tasks page, click Manage Server Instances.
 3. To create a managed server instance, click the Run action next to Default: Install in the Components Procedures list.
 - a. To choose a set of variables that apply to this managed server, click Select from List in the Plan Parameters section of the window.
 - To create a new set of variables that have different values from the default values, click Create Set.

The Select Variable Setting From List window appears.

 - i. In the text field at the top of the table, enter the name of the new variable settings set.
 - ii. To specify the name of the WebLogic Admin Server on which this managed service instance will run, click the box next to `adminServerHostName` and type the name into the field. This must be an existing WebLogic Admin Server name.
 - iii. To provide a name for the managed server instance, click the box next to `targetName` and type the name into the field.

This name will be used in the `targetRefName` to create the actual name for the managed server instance.
 - iv. To provide a full name for the managed server instance, click the box next to `targetRefName` and type the name into the field.

By default, the `targetRefName` is created based on the host name, followed by the type of the host (such as “server”), followed by the `targetName` you provided in the previous step.

v. To provide a path to where to install the managed server instance, click the box next to `installPath` and provide a complete path name.

By default, the `installPath` is generated based on the type of the host, followed by the domain name of either the `adminServerHostName` or some other targetable component, followed by the `targetName`.

vi. If this managed server is part of a cluster, provide the `clusterHostName`.

Note – The managed server depends on the existence of this cluster. If the cluster does not yet exist, you must create it and then return to create the managed server instance.

vii. Provide a complete path to the WebLogic startup script.

If an appropriate script does not exist, you cannot start the WebLogic server instance. You might need to modify the default WebLogic startup script. Specifically, make sure that you provide values for the following variables:

- `SERVER_NAME=server_name` — The name of the WebLogic admin server; for example, `managed2`
- `ADMIN_URL=URL_for_server` — The URL to the WebLogic server; for example, `http://myplace.domain.me.com:7001/`
- `WLS_USER=${1}` — The username to be used for the WebLogic server. The `{1}` nomenclature sets the WebLogic username to the first argument that you provide when you call the script. This usage bypasses the username prompt during server startup.
- `WLS_PW=${2}` — The password for the WebLogic username. The `{2}` nomenclature sets the WebLogic password to the password that you provide as the second argument when you call the script. This usage bypasses the password prompt during server startup.

Note – When you make these changes to the startup script, make sure that you delete any old information in the script that would override the values that you defined. Also, be sure to set the script to run in the background, and to redirect the input and output streams for the script.

viii. After updating the component variable values, click Save.

The new variable settings display in the table.

ix. **Click Select.**

You are returned to the Components Details page for the managed server instance.

■ **To use variable settings for another component, click Import Set.**

The Import Variable Settings window displays.

i. **If necessary, navigate to the Folder that contains the component with the variable settings to import.**

ii. **Select the component version.**

Note – Variable settings can vary between component versions.

iii. **Click Import Variable Settings.**

The imported variable settings display in the table.

iv. **Click Select.**

You are returned to the Components Details page for the managed server instance.

b. **On the Components Details page for the managed server instance, select the target host on which to run this managed server instance.**

c. **Click Run Plan (includes preflight).**

4. **To start a WebLogic managed server instance, click the Run action next to Start in the Component Procedures list on the Components Details page for the managed server instance.**

a. **Choose a managed server.**

b. **Click Run Selected Installations.**

c. **Click Run Plan (includes preflight).**

5. **To stop a WebLogic managed server instance, click the Run action next to Stop in the Component Procedures list on the Components Details page for the managed server instance.**

a. **Choose a managed server.**

b. **Click Run Selected Installations.**

c. **Click Run Plan (includes preflight).**

Capturing and Editing WebLogic Applications

The WebLogic Common Tasks page enables you to capture, configure, and deploy WebLogic Enterprise, EJB™, and Web Applications.

You can perform several specific tasks:

- [“To Capture a WebLogic Enterprise Application or EAR File” on page 25](#)
- [“To Capture a WebLogic Web Application or WAR File” on page 25](#)
- [“To Capture a WebLogic JAR File” on page 26](#)

Note – Do not deploy or manage your WebLogic applications outside of the N1 Grid Service Provisioning System. If you use the provisioning software, you must manage your WebLogic applications exclusively with the provisioning software.

▼ To Capture a WebLogic Enterprise Application or EAR File

- Steps**
1. From the Common Tasks section in the browser interface, click **WebLogic**.
 2. Click **Create New** in the Enterprise Applications (EARs) section of the WebLogic Common Tasks page.
 3. Type a label for this component.
 4. Type a description for this component.
 5. Select the WebLogic Admin Server on which this enterprise application resides.
 6. Navigate through the hierarchy to find the enterprise application to capture.
 7. Click **Check-in Selected Item**.
 8. Confirm the information on the check-in page, then click **Continue to Check-in**.

▼ To Capture a WebLogic Web Application or WAR File

- Steps**
1. From the Common Tasks section in the browser interface, click **WebLogic**.

2. Click **Create New** in the **Web Applications (WARs)** section of the **WebLogic Common Tasks** page.
3. Type a label for this component.
4. Type a description for this component.
5. Select the **WebLogic Admin Server** on which this web application resides.
6. Navigate through the hierarchy to find the web application to capture.
7. Click **Check-in Selected Item**.
8. Confirm the information on the check-in page, then click **Continue to Check-in**.

▼ To Capture a WebLogic JAR File

- Steps**
1. From the **Common Tasks** section in the browser interface, click **WebLogic**.
 2. Click **Create New** in the **Java Archives Containing EJBs (JARs)** section of the **WebLogic Common Tasks** page.
 3. Type a label for this component.
 4. Type a description for this component.
 5. Select the **WebLogic Admin Server** on which this JAR file resides.
 6. Navigate through the hierarchy to find the JAR file to capture.
 7. Click **Check-in Selected Item**.
 8. Confirm the information on the check-in page, then click **Continue to Check-in**.

Component Types

The BEA WebLogic Plug-In includes several WebLogic-specific component types. These component types enable you to quickly model many of the most common WebLogic application components and to automatically associate install, uninstall, export, and snapshot behavior with a particular resource. Many of the component types are used by the software when you create and manage servers and clusters. As a result, there are only a few component types that you will work with directly:

- Enterprise application (EAR)

- Web application (WAR)
- Java Archive (JAR) files that contain Enterprise JavaBeans (EJB)

Enterprise Application (EAR) Component Type

A component of this type models an enterprise application. The component can contain either an enterprise application archive (EAR) or the expanded version of an EAR as a package.

Browsing for an Enterprise Application

You can use one of the following browsers to select your enterprise application for this component type:

- An admin server browser from which you can select one of the installed applications and its relevant settings. The admin server browser provides an alphabetical list of enterprise applications on the admin server. You can choose one enterprise application for a component.
- A file system browser from which you can select the EAR file to create a component that does not include settings. The file system browser provides a list of files and directories from which you can choose. You can choose to see only those files or type *.ear in the browser.

Installing an Enterprise Application

To install an enterprise application component, you must use a WebLogic server or cluster as the target host. The installation process performs three main tasks:

1. Install the EAR file on that target.
2. Register the EAR with the WebLogic admin server.
3. Apply any properties previously captured during domain browse.

Uninstalling an Enterprise Application

When you uninstall an enterprise application component, the enterprise application is untargeted from the target. If the enterprise application is not targeted elsewhere, the registration component is removed from the admin sever.

Error Conditions

TABLE 3-1 WebLogic Enterprise Application Error Conditions

Action	Condition	Result
Install	The topology is incorrectly configured (target host does not point at correct domain host)	Targeting fails
Install	The target host is not a valid WebLogic target.	Installation prohibited
Browsing/Install/Uninstall	Credentials are not properly configured.	Operation fails
Browsing	Path not correctly configured in domain host.	Browsing fails

Web Application (WAR) Component Type

A component of this type includes a web application. The component can contain either a web application and its relevant settings or the web application without its settings.

Browsing for a Web Application

You can use one of the following browsers to select your web application for this component type:

- An admin server browser from which you can select one of the installed applications and its relevant settings. The admin server browser provides an alphabetical list of web applications on the admin server. You can choose one web application for a component.
- A file system browser from which you can select the WAR file to create a component that does not include settings. The file system browser provides a list of files and directories from which you can choose. You can choose to see only those files or type *.war in the browser.

Installing a Web Application

To install a web application component, you must use a WebLogic server or cluster as the target host. The installation process will install the component on that target, and install the contained registration component on the admin server of the target.

Uninstalling a Web Application

When you uninstall a web application component, the web application is untargeted from the target. If the web application is not targeted elsewhere, the registration component is removed from the admin sever.

Error Conditions

TABLE 3-2 WebLogic Web Application Error Conditions

Action	Condition	Result
Install	The topology is incorrectly configured (target host doesn't point at correct domain host)	Targeting fails.
Install	The target host is not a valid WL target.	Installation prohibited.
Browsing/Install/Uninstall	Credentials aren't properly configured.	Operation fails.
Browsing	Path not correctly configured in domain host.	Browsing fails.

Java Archive Files Containing EJBs Component Type

Browsing

You can use one of the following browsers to select your EJB or JAR files for this component type:

- An admin server browser from which you can select one of the installed applications and its relevant settings. The admin server browser provides an alphabetical list of applications on the admin server. You can choose one EJB for a component.
- A file system browser from which you can select the JAR file to create a component that does not include settings. The file system browser provides a list of files and directories from which you can choose. You can choose to see only those files or type *.jar in the browser.

Installation

When you install a component of this type, the file or directory is copied to the filesystem based on the install path. Once that copy finishes, the file or directory is registered with the WebLogic admin server.

Uninstall

When you uninstall a component of this type, the file or directory is removed from the master server.

Error Conditions

TABLE 3-3 WebLogic EJB container Error Conditions

Action	Condition	Result
Uninstall	A dependant WebLogic EJB is still installed.	Uninstall fails indicating the dependency.

Plans

There are no pre-defined plans included with the BEA WebLogic Plug-In.

Resources

There are no additional resources included with the BEA WebLogic Plug-In.

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