Novell Access Manager

3.0 SP2

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J2EE* AGENT GUIDE

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Contents

About This Guide

This guide describes the J2EE Agents and explains how to install, configure, and manage them:

Audience

This guide is intended for Access Manager administrators. It is assumed that you have knowledge of evolving Internet protocols, such as:

- Extensible Markup Language (XML)
- Simple Object Access Protocol (SOAP)
- Security Assertion Markup Language (SAML)
- Public Key Infrastructure (PKI) digital signature concepts and Internet security
- Secure Socket Layer/Transport Layer Security (SSL/TSL)
- Hypertext Transfer Protocol (HTTP and HTTPS)
- Uniform Resource Identifiers (URIs)
- Domain Name System (DNS)
- Web Services Description Language (WSDL)

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Documentation Updates

For the most recent version of the *Access Manager J2EE Agent Guide*, visit the Novell Access Manager Documentation Web site (http://www.novell.com/documentation/novellaccessmanager).

Additional Documentation

Before proceeding, you should be familiar with the *Novell Access Manager 3.0 SP2 Installation Guide*, the *Novell Access Manager 3.0 SP2 Setup Guide*, and the *Novell Access Manager 3.0 SP2 Administration Guide*, which provide information about setting up the Access Manager system.

Documentation Conventions

In Novell® documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path.

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When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux* or UNIX*, should use forward slashes as required by your software.

Installing the J2EE Agents

1

Users of application servers, such as J2EE servers, commonly fall into one of three abstract roles: buyer, seller, or administrator. For example, a rental car company might apply a variety of Enterprise JavaBeans* (EJB) components that offer different products and services to clients. One service could be a specific component that enables a Web-based reservation process. In this case, the customer could access a Web site to reserve a rental car. The seller could access a site that provides a list of available cars and prices. Then the administrator could access a site that tracked inventory and maintenance schedules. These components provide the basic business services for the application to function and the tasks they accomplish require a security policy to enforce appropriate use of such services.

Using the deployment descriptors, the application developer can set up a method to protect the components by using abstract security role names. For example, there can be a role called Service Representative, which protects the component that creates a rental agreement. Similarly, there can be a role called Approver, which protects the component that approves the agreement. Although these roles convey the intent of the application vendor or developer to enforce such security policies, they are not useful unless these abstract role names are mapped to real life principals such as actual users or actual roles.

The J2EE Agent allows you to use roles and other types of policies to restrict access to specific application modules and Enterprise JavaBeans. These agents leverage the Java Authentication and Authorization Service (JAAS) and Java Authorization Contract for Containers (JACC) standards for Access Manager-controlled authentication and authorization to Java Web applications and Enterprise JavaBeans.

Access Manager currently has J2EE agents for JBoss*, WebLogic*, and WebSphere* servers running on Linux and Windows*.

This section describes how you install the agents.

1.1 Agent Requirements

Access Manager ships with three agents: JBoss, WebLogic, and WebSphere. They are available as a Web download from Novell (http://www.novell.com/products). Both Linux and Windows versions of these agents are available. As other agents become available, they will be posted on the Web for download.

1.1.1 JBoss Agent Requirements

The agent for JBoss should be installed on a computer without any other Access Manager components.

- "Linux JBoss Requirements" on page 10
- "Windows JBoss Requirements" on page 10

Linux JBoss Requirements

The computer must have the following:

- ❑ A minimum of 512 MB of RAM.
- ❑ SUSE Linux Enterprise Server (SLES) 9 SP3 or SLES 10, either on x86-32 or x86-64 platforms.
- ❑ The following packages must be installed:
  - gettext: The required library and tools to create and maintain message catalogs.
  - python (interpreter): The basic Python* object-oriented programming package.
- ❑ Static IP address. If the address is assigned at boot and that address changes, the J2EE Agent and the Administration Console can no longer communicate with each other.
- ❑ JBoss 4.0.3 SP1. The JBoss server package does not ship on the SLES installation media. To download and install JBoss version 4.0.3 SP1, see JBoss Application Server Downloads (http://labs.jboss.com/portal/jbossas/download).

  Minimal testing has been done with JBoss 4.0.4 and 4.0.5.
- ❑ JRE* 1.4.2-8 or later. To download, see Java SE Downloads (http://java.sun.com/javase/downloads/index.jsp). The JBoss Agent has not been tested with the IBM JRE.

Windows JBoss Requirements

The computer must have the following:

- ❑ A minimum of 512 MB of RAM.
- ❑ Windows Server 2003 with latest support patches.
- ❑ JRE 1.4.2-8 or later. To download, see Java SE Downloads (http://java.sun.com/javase/downloads/index.jsp). The JBoss Agent has not been tested with the IBM JRE.
- ❑ JBoss 4.0.3 SP1. To download and install JBoss version 4.0.3 SP1, see JBoss Application Server Downloads (http://labs.jboss.com/portal/jbossas/download).

  Minimal testing has been done with JBoss 4.0.4 and 4.0.5.

1.1.2 WebSphere Agent Requirements

The agent for WebSphere should be installed on a computer without any other Access Manager components.

- "Linux WebSphere Requirements" on page 11
- "Windows WebSphere Requirements" on page 11

Linux WebSphere Requirements

The computer must have the following:

- ❑ A minimum of 512 MB of RAM.
- ❑ SLES 9 SP3 or SLES 10, either on x86-32 or x86-64 platforms.
- ❑ The following packages must be installed:
  - gettext: The required library and tools to create and maintain message catalogs.
  - python (interpreter): The basic Python object-oriented programming package.
- ❑ Static IP address. If the address is assigned at boot and that address changes, the J2EE Agent and the Administration Console can no longer communicate with each other.
- ❑ WebSphere 6.0.2.x.

WebSphere 6.1 is not supported. The agent fails to import into the Administration Console when it is installed on WebSphere 6.1.

Windows WebSphere Requirements

The computer must have the following components installed:

- ❑ A minimum of 512 MB of RAM
- ❑ Windows Server 2003 with latest support patches
- ❑ WebSphere 6.0.2.x

WebSphere 6.1 is not supported. The agent fails to import into the Administration Console when it is installed on WebSphere 6.1.

1.1.3 WebLogic Agent Requirements

The agent for WebLogic should be installed on a computer without any other Access Manager components.

- "Linux WebLogic Requirements" on page 11
- "Windows WebLogic Requirements" on page 12

Linux WebLogic Requirements

The computer must have the following:

- ❑ A minimum of 512 MB of RAM.
- ❑ SLES 9 SP3 or SLES 10, either on x86-32 or x86-64 platforms.
- ❑ The following packages must be installed:
  - gettext: The required library and tools to create and maintain message catalogs.
  - python (interpreter): The basic Python object-oriented programming package.
- ❑ Static IP address. If the address is assigned at boot and that address changes, the J2EE Agent and the Administration Console can no longer communicate with each other.
- ❑ BEA WebLogic 9.2.

Windows WebLogic Requirements

The computer must have the following components installed:

- ❑ A minimum of 512 MB of RAM
- ❑ Windows Server 2003 with the latest support patches
- ❑ BEA WebLogic 9.2

1.2 Installing the JBoss Agent

The agent needs to be installed on the same machine as your JBoss server, and your JBoss server needs to be installed on a machine without any other Access Manager components. For other requirements, see "JBoss Agent Requirements" on page 10.

1.2.1 JBoss Server Prerequisites

You must know the following about your JBoss installation:

- ❑ The base directory for the JBoss server.
- ❑ The server configuration set you have selected for your JBoss server.

For information on these items, please consult the JBoss documentation.

1.2.2 Linux Installation

To install the agent on a Linux JBoss server:

1. Verify that the machine meets the minimum requirements. See Section 1.1.1, "JBoss Agent Requirements," on page 10.
2. If JBoss is running, stop JBoss.
3. Download the agent from Novell (http://www.novell.com/products).
4. Untar the file.
5. Change to the Novell Access Manager Agent directory.
6. At the command prompt, enter the following:
   ```
   ./install.sh
   ```
7. Press Enter to review the License Agreement, then accept the License Agreement.
8. Enter the IP address of the Administration Console machine.
9. Enter the name of the administrator for the Administration Console.
10. Enter and re-enter the password of this administrator.

    The installation starts as soon as you enter the password the second time.
11. Enter the base directory for the JBoss server. The installation program expects JBoss to be installed in `/opt/jboss`. If you have installed it in another location, enter the path.

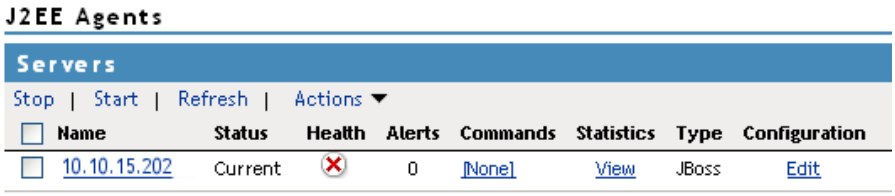
12 Enter the JBoss server configuration set. Standard values are *default*, *all*, or *minimal*. If you have created a custom configuration, enter its name.

13 When the installation completes, start JBoss.

The agent is not imported into the Administration Console until the JBoss server is running.

14 (Optional) To verify the installation of the agent, log in to the Administration Console, then click *Access Manager* > *J2EE Agents*.

If the installation was successful, the IP address of your agent appears in the *Server* list. The import into Administration Console can take a few minutes, so if your agent does not appear in the list, wait a few minutes, then refresh the screen.



If an agent starts to import into the Administration Console but fails to complete the process, the following message appears:

```
Server agent-<name> is currently importing. If it has been several
minutes after installation, click repair import to fix it.
```

If you have waited at least ten minutes, but the message doesn't disappear and the agent doesn't appear in the list, click the *repair import* link. If the agent isn't in the list and you don't receive a repair import message, verify that you have restarted the J2EE server after installing the agent. The J2EE server must be running for the import process to begin. For additional help, see Section 8.1, "Troubleshooting the J2EE Agent Import," on page 83.

15 The agent must be configured before its status turns green. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

1.2.3 Windows Installation

To install the agent on a Windows JBoss server:

1 Verify that the machine meets the minimum requirements. See Section 1.1.1, "JBoss Agent Requirements," on page 10.

2 If JBoss is running, stop JBoss.

3 Download the agent from Novell (http://www.novell.com/products).

4 Execute the file.

5 Read the welcome information, then click *Next*.

6 Note where additional information can be found, then click *Next*.

7 Review the License Agreement, accept it, then click *Next*.

8 Select the installation directory for the Server Communications module, then click *Next*.

9 Select *JBoss*, then click *Next*.

10 Select the directory where you have installed the JBoss server, then click *Next*.

11 Select the server configuration folder, then click *Next*.

12 Enter the information required for server communication between the agent and the Administration Console. Fill in the following fields and carefully review your information:

Administration Console Admin Username: Specify the username of the admin user of the Administration Console.

Administration Console Admin Password: Specify the password for the admin user of the Administration Console. Confirm the password by re-entering it.

Administration Console IP Address: Specify the IP address of your Administration Console.

IP Address of the Application Server: Review the entered address. If your server is configured for more than one IP address, make sure the one you want to use is specified in this box.

13 Click *Next*, then review the installation summary.

14 To install the agent, click *Install*.

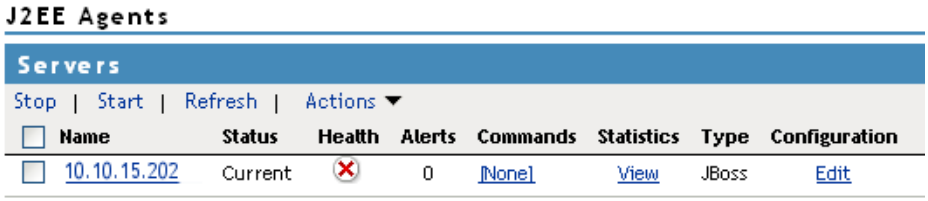
15 When the installation finishes, start JBoss.

The agent is not imported into the Administration Console until the JBoss server is running.

16 To exit the installer, click *Done*.

17 (Optional) To verify the installation of the agent, log in to Administration Console, then click *Access Manager > J2EE Agents*.

If the installation was successful, the IP address of your agent appears in the Server list. The import into Administration Console can take a few minutes, so if your agent does not appear in the list, wait a few minutes, then refresh the screen.



If an agent starts to import into the Administration Console but fails to complete the process, the following message appears:

```
Server agent-<name> is currently importing. If it has been several
minutes after installation, click repair import to fix it.
```

If you have waited at least ten minutes, but the message doesn't disappear and the agent doesn't appear in the list, click the *repair import* link. If the agent isn't in the list and you don't receive a repair import message, verify that you have restarted the J2EE server after installing the agent. The J2EE server must be running for the import process to begin. For additional help, see Section 8.1, "Troubleshooting the J2EE Agent Import," on page 83.

18 The agent must be configured before the Server Status turns green. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

1.3 Installing the WebSphere Agent

The agent needs to be installed on the same machine as your WebSphere server, and your WebSphere server needs to be installed on machine that does not contain any Access Manager components.

1.3.1 WebSphere Prerequisites

You need to know the following about your WebSphere installation:

- ❑ Base directory of the application server.
- ❑ Name of the administrator.
- ❑ Password of the administrator.
- ❑ The WebSphere server must be enabled for global security and disabled for Java 2 security.

  To verify, check your global security options in the WebSphere console. When you enable global security, Java 2 security is enabled by default.

  IMPORTANT: If you have not enabled global security before installing the agent, the installation program enables it for you.

1.3.2 Linux Installation

To install the agent on a Linux WebSphere server:

1. Verify that the machine meets the minimum requirements. See Section 1.1.2, "WebSphere Agent Requirements," on page 10.
2. Make sure that the WebSphere server is running.
3. Download the agent from Novell (http://www.novell.com/products).
4. Untar the file.
5. Change to the Access Manager directory.
6. At the command prompt of the Access Manager directory, enter the following:

   ```
   ./install.sh
   ```
7. Press Enter to review and accept the License Agreement.
8. Enter the IP address of the Administration Console machine.
9. Enter the username of the administrator user you created for the Administration Console.
10. Enter and re-enter the password for this administrator.
11. Enter the base directory for the WebSphere server.

    The default directory is `/opt/IBM/WebSphere/AppServer`.
12. Enter the name for the WebSphere administrator.
13. Enter and re-enter the password for the WebSphere administrator.

14 When the installation completes, restart the WebSphere server.

The agent is not imported into the Administration Console until the WebSphere server is restarted.

15 (Optional) To verify the installation of the agent, log in to Administration Console, then click *Access Manager > J2EE Agents*.

If the installation was successful, the IP address of your agent appears in the *Server* list. The import into Administration Console can take a few minutes, so if your agent does not appear in the list, wait a few minutes, then refresh the screen.

If an agent starts to import into the Administration Console but fails to complete the process, the following message appears:

```
Server agent-<name> is currently importing. If it has been several
minutes after installation, click repair import to fix it.
```

If you have waited at least ten minutes, but the message doesn't disappear and the agent doesn't appear in the list, click the *repair import* link. If the agent isn't in the list and you don't receive a repair import message, verify that you have restarted the J2EE server after installing the agent. The J2EE server must be running for the import process to begin. For additional help, see Section 8.1, "Troubleshooting the J2EE Agent Import," on page 83.

16 The agent must be configured before it can be used for access control. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

1.3.3 Windows Installation

To install the agent on a Windows WebSphere server:

1 Verify that the machine meets the minimum requirements. See Section 1.1.2, "WebSphere Agent Requirements," on page 10.

2 Make sure that the WebSphere server is running.

3 Download the agent from Novell (http://www.novell.com/products).

4 Execute the file.

5 Read the welcome information, then click *Next*.

6 Note where additional Access Manager information can be found, then click *Next*.

7 Review the License Agreement, accept it, then click *Next*.

8 Select the installation directory for the Server Communications module, then click *Next*.

9 Select *WebSphere*, then click *Next*.

10 Enter the information required for modifying the WebSphere server:

WAS Administrator ID: Specify the name of the WebSphere administrator.

WAS Administrator Password: Specify the password of the WebSphere administrator. Confirm the password by re-entering it.

11 Enter the information required for server communication between the agent and the Administration Console. Fill in the following fields and carefully review your information:

Administration Console Admin Username: Specify the username of the admin user of the Administration Console.

Administration Console Admin Password: Specify the password for the admin user of the Administration Console. Confirm the password by re-entering it.

Administration Console IP Address: Specify the IP address of your Administration Console.

IP Address of the Application Server: Review the entered address. If your server is configured for more than one IP address, make sure the one you want to use is specified in this box.

12 Click *Next*, then review the installation summary.

13 To install the agent, click *Install*.

14 When the installation has finished, click *Done*.

15 Determine when you want to restart WebSphere:

- To restart it immediately, select *Restart WebSphere*, then click *Next*.
- To select another time to restart WebSphere, click *Next*. The agent does not import into the Administration Console until WebSphere is restarted.

16 (Optional) To verify the installation of the agent, log in to Administration Console, then click *Access Manager* > *J2EE Agents*.

If the installation was successful, the IP address of your agent appears in the *Server* list. The import into Administration Console can take a few minutes, so if your agent does not appear in the list, wait a few minutes, then refresh the screen.

If an agent starts to import into the Administration Console but fails to complete the process, the following message appears:

```
Server agent-<name> is currently importing. If it has been several
minutes after installation, click repair import to fix it.
```

If you have waited at least ten minutes, but the message doesn't disappear and the agent doesn't appear in the list, click the *repair import* link. If the agent isn't in the list and you don't receive a repair import message, verify that you have restarted the J2EE server after installing the agent. The J2EE server must be running for the import process to begin. For additional help, see Section 8.1, "Troubleshooting the J2EE Agent Import," on page 83.

17 The agent must be configured before its health status turns green. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

1.4 Installing the WebLogic Agent

The installation program does not configure the agent so that it can automatically import into the Access Manager Administration Console. For the WebLogic Agent, installation is a two part process.

- Run the installation program to copy the files to the server. See Section 1.4.1, "Linux Installation," on page 17 or Section 1.4.2, "Windows Installation," on page 18.
- Configure the agent so that it auto-imports into the Administration Console. See Section 1.4.3, "Configuring for Auto Import," on page 19.

1.4.1 Linux Installation

1 Verify that the machine meets the minimum requirements. See Section 1.1.3, "WebLogic Agent Requirements," on page 11.

2 Download the agent from Novell (http://www.novell.com/products).

3 Untar the file.

4 Change to the Access Manager directory.

5 At the command prompt of the Access Manager directory, enter the following:

```
./install.sh
```

6 Review and accept the License Agreement.

7 Enter the IP address of the Administration Console machine.

8 Enter the name of the administrator for the Administration Console.

9 Enter and confirm the password for this administrator.

This starts the installation of some components.

10 When prompted, enter the base directory of the application server.

This is the directory where you installed the WebLogic server.

A few more modules are installed and then configured.

11 Configure the agent so that it imports into the Administration Console. See Section 1.4.3, "Configuring for Auto Import," on page 19.

1.4.2 Windows Installation

1 Verify that the machine meets the minimum requirements. See Section 1.1.3, "WebLogic Agent Requirements," on page 11.

2 Download the agent from Novell (http://www.novell.com/products).

3 Execute the file.

4 Read the welcome information, then click *Next*.

5 Note where additional Access Manager information can be found, then click *Next*.

6 Review the License Agreement, accept it, then click *Next*.

7 Specify where you want the WebLogic Agent installed.

The default directory is `c:\Novell`. WebLogic does not deal well with spaces in directory names, so if possible do not use a space in the directory name (such as `Program Files`).

8 Select to install the WebLogic Agent.

If the installation program cannot detect that you have installed a WebLogic server on the machine where you are installing the agent, you are notified of this condition. You can install the WebLogic server after you have installed the agent.

9 Enter the information required for server communication between the agent and the Administration Console. Fill in the following fields and carefully review your information:

Administration Console Admin Username: Specify the username of the admin user of the Administration Console.

Administration Console Admin Password: Specify the password for the admin user of the Administration Console. Confirm the password by re-entering it.

Administration Console IP Address: Specify the IP address of your Administration Console.

IP Address of the Application Server: Review the entered address. If your server is configured for more than one IP address, make sure the one you want to use is specified in this box.

10 Click *Next*, then review the installation summary.

11 To install the agent, click *Install*.

12 When the installation has finished, review the logs to see if you need to remove any sensitive data.

13 Click *Next*, then *Done*.

A browser appears with the J2EE installation documentation displayed.

14 Configure the agent so that it imports into the Administration Console. See Section 1.4.3, "Configuring for Auto Import," on page 19.

1.4.3 Configuring for Auto Import

The WebLogic installation program installs the files, but it does not configure either the `nesp.ear` application or the JAAS module so that the WebLogic J2EE Agent can automatically import into the Administration Console. To enable the import, complete the following:

Configuring the CLASSPATH

1 Determine the following paths on your machine:

- **WL_HOME:** The WebLogic home path, which defaults to `/root/bea/weblogic92` in Linux and `C:\bea\weblogic92` in Windows.
- **WL_DOMAIN:** The domain home path, which defaults to `/root/bea/user_projects/domains/base_domain` in Linux and `C:\bea\user_projects\domains\base_domain` in Windows.
- **AGENT_HOME:** The Agent install location, which defaults to `/opt/novell/nids_agents/lib` in Linux and `C:\Novell` in Windows.

2 Copy the `NidsWebLogicAgentMBeans.jar` from the `AGENT_HOME/lib` directory to the `WL_HOME/server/lib/mbeantypes` directory.

This jar contains the Novell Access Manager Authentication Provider for WebLogic as well as the JACC provider.

3 Edit the common environment variable file:

- **Linux:** For the Linux platform, edit the `WL_HOME/common/bin/commEnv.sh` file and add the lines below to the end of the script:

```
#Novell J2EE Agent Settings
AGENT_LIB="/opt/novell/nids_agents/lib"

WEBLOGIC_CLASSPATH="${AGENT_LIB}/xml-apis.jar/
${PATHSEP}${AGENT_LIB}/xercesImpl.jar${PATHSEP}${AGENT_LIB}/
xalan.jar${PATHSEP}${AGENT_LIB}/
serializer.jar${PATHSEP}${WEBLOGIC_CLASSPATH}${PATHSEP}${AGENT_
LIB}/NidsCommonAgent.jar${PATHSEP}${AGENT_LIB}/
NidsWebLogicAgent.jar${PATHSEP}${AGENT_LIB}/
LogEvent.jar${PATHSEP}${AGENT_LIB}/
jcc.jar${PATHSEP}${AGENT_LIB}/nxpe.jar${PATHSEP}${AGENT_LIB}/
```

```
nxpe-toolkit.jar${PATHSEP}${AGENT_LIB}/commons-jxpath-1.2.jar"
export WEBLOGIC_CLASSPATH

#Set library path to /usr/lib so the Agent can Audit Events.
export LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:/usr/lib
```

The `WEBLOGIC_CLASSPATH` value needs to be added to the file without adding line breaks or spaces.

- **Windows:** For the Windows platform, edit the `WL_HOME\common\bin\commEnv.cmd` file and add the following lines to the bottom. Modify `AGENT_LIB` to point `AGENT_HOME/lib`:

```
@rem Novell J2EE Agent Settings
set AGENT_LIB=C:\novell\lib
set WEBLOGIC_CLASSPATH=%AGENT_LIB%\xml-
apis.jar;%AGENT_LIB%\xercesImpl.jar;%AGENT_LIB%\xalan.jar;%AGEN
T_LIB%\serializer.jar;%WEBLOGIC_CLASSPATH%;%AGENT_LIB%\NidsComm
onAgent.jar;%AGENT_LIB%\NidsWebLogicAgent.jar;%AGENT_LIB%\LogEv
ent.jar;%AGENT_LIB%\jcc.jar;%AGENT_LIB%\nxpe.jar;%AGENT_LIB%\nx
pe-toolkit.jar;%AGENT_LIB%\commons-jxpath-1.2.jar
```

The `WEBLOGIC_CLASSPATH` value needs to be added to the file without adding line breaks or spaces.

4 Save the changes.

Configuring the JACC Provider

1 Edit the domain environment variable file.

- **Linux:** 1. For the Linux platform, edit the `WL_DOMAIN/bin/setDomainEnv.sh` file and add the following lines to the end of the script. The JAVA_OPTIONS need to be copied into the file with no line breaks.

```
# Java Properties for Novell Access Manager JACC Provider
JAVA_OPTIONS="${JAVA_OPTIONS} -Djava.security.manager -
Djava.security.policy=${WL_HOME}/server/lib/weblogic.policy -
Djavax.security.jacc.policy.provider=com.novell.nids.agent.poli
cy.weblogic.WebLogicPolicy -
Djavax.security.jacc.PolicyConfigurationFactory.provider=com.no
vell.nids.agent.policy.weblogic.WebLogicPolicyConfigurationFact
ory -
Dweblogic.security.jacc.RoleMapperFactory.provider=com.novell.n
ids.agent.policy.weblogic.WebLogicRoleMapperFactory -
Dweblogic.net.http.URLStreamHandlerFactory=com.novell.nids.agen
t.util.JsseURLStreamHandlerFactory"
export JAVA_OPTIONS
```

- **Windows:** For the Windows platform, edit `WL_DOMAIN\bin\setDomainEnv.cmd` and add the following lines to the end of the file. If you installed the Agent into a directory other than `C:\Novell`, update the `Djcc.dir` option. The set command needs to be copied into the file with no line breaks.

```
@REM Java Properties for Novell Access Manager JACC Provider

set JAVA_OPTIONS=%JAVA_OPTIONS% -Djava.security.manager -
Djava.security.policy=%WL_HOME%\server\lib\weblogic.policy -
Djavax.security.jacc.policy.provider=com.novell.nids.agent.poli
```

```
cy.weblogic.WebLogicPolicy -
Djavax.security.jacc.PolicyConfigurationFactory.provider=com.no
vell.nids.agent.policy.weblogic.WebLogicPolicyConfigurationFact
ory -
Dweblogic.security.jacc.RoleMapperFactory.provider=com.novell.n
ids.agent.policy.weblogic.WebLogicRoleMapperFactory -
Djcc.dir=C:\Novell\devman\jcc -
Dweblogic.net.http.URLStreamHandlerFactory=com.novell.nids.agen
t.util.JsseURLStreamHandlerFactory
```

2 Edit the `WL_HOME/server/lib/weblogic.policy` file and add the following lines to the end of the script:

```
grant {
      permission java.security.AllPermission;
};
```

For information on why we grant Java 2 permission to everything, see "Understanding the Permission Configuration for JACC" on page 24.

3 Continue with "Configuring Log In" on page 21

Configuring Log In

To configure log in, you can use either the WebLogic Administration Console or a script:

- "Using a Script to Configure Log In" on page 21
- "Using the WebLogic Administration Console" on page 23

Using a Script to Configure Log In

1 Start WebLogic.

2 Execute the WebLogic scripting tool. Specify the command appropriate for the platform:

Linux: `WL_HOME/common/bin/wlst.sh`

Windows: `WL_HOME\common\bin\wlst.cmd`

3 To the command, add the appropriate parameters to execute the `weblogic_config.jy` script. Separate each parameter with a space. Running the script without additional parameters prints the required parameters.

Parameter	Possible Value	Description
WebLogic administrator username	weblogic	The name of the administrator that you specified when you installed WebLogic.
WebLogic administrator password	password	The password for the specified user.
Domain name	base_domain	
Server name	AdminServer	By default, WebLogic names the server AdminServer. If you changed this name during installation, specify your name.

Parameter	Possible Value	Description
Hostname and port	localhost:7001	The host and port are separated with a colon.

Linux Example: `/opt/bea/weblogic92/common/bin/wlst.sh /opt/novell/nids_agents/bin/weblogic_config.jy weblogic password base_domain AdminServer localhost:7001`

Windows Example: `C:\bea\weblogic92\common\bin\wlst.cmd C:\Novell\bin\weblogic_config.jy weblogic password base_domain AdminServer localhost:7001`

4 Use the WebLogic scripting tool to execute the `weblogic_nesp_deploy.jy` script. Separate each parameter with a space. Running the script without additional parameters prints the required parameters.

Parameter	Possible Value	Description
WebLogic administrator username	weblogic	The name of the administrator that you specified when you installed WebLogic.
WebLogic administrator password	password	The password of the specified user.
Server name	AdminServer	By default, WebLogic names the server AdminServer. If you changed this name during installation, specify your name.
Hostname and port	localhost:7001	The host and port are separated with a colon.

Path and filename of the `nesp.ear` application	`/root/temp/nesp.ear`
	or
	`C:\Novell\nesp.ear`
		The path to the application depends upon whether you are configuring Linux or Windows.

Linux Example: `/opt/bea/weblogic92/common/bin/wlst.sh /opt/novell/nids_agents/bin/weblogic_nesp_deploy.jy weblogic password AdminServer localhost:7001 /root/temp/nesp.ear`

Windows Example: `C:\bea\weblogic92\common\bin\wlst.cmd C:\Novell\bin\weblogic_nesp_deploy.jy weblogic password AdminServer localhost:7001 C:\Novell\nesp.ear`

5 Restart the WebLogic server.

The agent should import into Access Manager Administration Console when the WebLogic server starts. Before restarting the WebLogic server, decide whether you want to deploy the Payroll application to test the agent. See "Deploying the Example Payroll Application" on page 24.

6 The J2EE Agent must be configured before users can access resources. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

Using the WebLogic Administration Console

In the WebLogic Administration Console, you need to complete the following tasks:

- "Configuring the JAAS Login Module" on page 23
- "Deploying the nesp.ear Application" on page 23

Configuring the JAAS Login Module

1. Start WebLogic.
2. In a browser, log in to the WebLogic Administration console:
   `http://<weblogic ip>:7001/console`
   Replace `<weblogic ip>` with the IP address or DNS name of your WebLogic Administration Console.
3. In the *Domain Structure* list, click *Security Realms*.
4. Click the default realm (*myrealm*).
5. Click the *Providers* tab.
6. In the top right corner, click *Lock and Edit*.
7. In the *Authentication Providers* list, click *New*.
8. Specify a name in the *name* field, select *NovellAccessManagerAuthenticator* for the *type*, then click *OK*.
9. In the *Authentication Providers* list, click *DefaultAuthenticator* and change the *Control Flag* from *Required* to *Sufficient*.
10. Return to the *Authentication Providers* list.
11. Change the *NovellAccessManagerAuthenticator Control Flag* to *Sufficient*.
12. Click *Activate Changes*.
    Wait until you have deployed the `nesp.ear` file before restarting the WebLogic server.
13. Continue "In the WebLogic Administration console, click Deployments in the Domain Structure list." on page 23.

Deploying the nesp.ear Application

The nesp.ear application is a required component of the J2EE Agent.

1. In the WebLogic Administration console, click *Deployments* in the *Domain Structure* list.
2. Click *Lock and Edit*.
3. Click *Install*.
4. In the *location* field, click the server.
5. Browse to the directory containing the nesp.ear application.
6. Click the radio button next to the *nesp.ear* application.
7. Click *Next*.
8. Select *Install this deployment as an application*, then click *Next*.
9. Accept the default settings, then click *Finish*.
10. Click *Activate Changes*.

11 Start nesp by selecting the nesp application, clicking *Start* and selecting *Servicing All Requests*. Click *Yes* when asked if you want to start the deployment.

12 Log out and restart the WebLogic server.

The agent should import into Access Manager Administration Console when the WebLogic server starts. Before restarting the WebLogic server, decide whether you want to deploy the Payroll application to test the agent. See "Deploying the Example Payroll Application" on page 24.

13 The J2EE Agent must be configured before users can access resources. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

Deploying the Example Payroll Application

Whenever you deploy a new application, you need to restart the WebLogic server. To deploy the payroll application, use the same process that you used for the `nesp.ear` application. See "In the WebLogic Administration console, click Deployments in the Domain Structure list." on page 23.

1 Use the following values:

- **Location:** The `PayrollApp.ear` application is located in `/opt/novell/nids_agents/examples` directory on Linux and `<Install_Directory>\sampleapp` directory on Windows.
- **Type:** When prompted, select *Install this deployment as an application*.

2 To start the Payroll application, click *Activate Changes*.

3 Restart the WebLogic server.

4 The J2EE Agent must be configured before users can access resources. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

Understanding the Permission Configuration for JACC

When you enable JACC, WebLogic requires that you enable Java 2 Security with the `-Djava.security.manager` option. Java 2 Security uses the `weblogic.policy` file to determine access to resources. In addition, you should be able to specify permissions inside the `weblogic-ejb-jar.xml` and `weblogic.xml` files for deployed applications.

There appears to be a bug in WebLogic 9.2 because even the Administration Console application does not function with the default permissions in the `weblogic.policy` file. In addition, if you look at the `weblogic.xml` deployment descriptor for the console application, it has the lines:

```
grant {
      java.security.AllPermission
};
```

This should configure the console application so that it does not have any issues with Java 2 permissions, but when you enable the security manager, the console does indeed have some problems with permissions.

This bug also prevents some of the permissions for the agent to be explicitly set. The only workaround Novell has found is to grant Java 2 permissions to everything. This should not add any additional security risk than running WebLogic without the security manager enabled, which is the default configuration for WebLogic.

1.5 Upgrading the J2EE Agents

This section describes how to upgrade the following agents on Linux and Windows:

- Section 1.5.1, "Upgrading the WebSphere or JBoss Agent on Linux," on page 25
- Section 1.5.2, "Upgrading the WebSphere or JBoss Agent on Windows," on page 26
- Section 1.5.3, "Upgrading the WebLogic Agent," on page 26

1.5.1 Upgrading the WebSphere or JBoss Agent on Linux

1. (JBoss only) Stop the JBoss server.
2. Download the Access Manager Agent file for Linux from Novell (http://support.novell.com/patches.html) and extract the file.
3. After downloading the file, unpack the `tar.gz` file by using the following command:

   ```
   tar -xzvf [filename]
   ```
4. Change to the Access Manager Agent directory.
5. At the command prompt of the Access Manager Agent directory, enter the following:

   ```
   ./install.sh
   ```
6. When prompted, enter Y to perform an upgrade.
7. Review and accept the License Agreement.
8. At the prompt to enter the Administration Server IP address, enter the IP address of the Administration Console machine.
9. Enter the name of the administrator for the Administration Console.
10. Enter and confirm the password for this administrator.

    This starts the installation of some components.
11. Enter the base directory for the J2EE server.
12. (WebSphere only) Make sure that the server is running, then confirm that it is.
13. (WebSphere only) Enter the information required for modifying the WebSphere server:

    WebSphere administrator username: Specify the name of the WebSphere administrator.

    WebSphere administrator password: Specify the password of the WebSphere administrator. Confirm the password by re-entering it.

    A few more modules are installed and then configured.
14. (JBoss only) Enter the JBoss server configuration set. Standard values are *default*, *all*, or *minimal*. If you have created a custom configuration, enter its name.

    Verify that the JBoss server is stopped, then press Enter.

    A few more modules are installed and then configured.
15. Restart the J2EE server.
16. (Optional) Verify the upgrade:

    16a Log in to the Administration Console.

    16b Click *Access Manager* > *J2EE Agents* > *[Name of Agent]*.

    16c Verify that the *Server Version* field contains the correct information.

1.5.2 Upgrading the WebSphere or JBoss Agent on Windows

1. Download the Access Manager Agent file for Windows from Novell (http://support.novell.com/patches.html).
2. Execute the file.
3. Select to upgrade the agent.
4. Read the welcome information, then click *Next*.
5. Note where additional information can be found, then click *Next*.
6. Review the License Agreement, accept it, then click *Next*.
7. Select the current communication server directory where the device manager directory is located, then click *Next*.
8. Select the type of agent you are upgrading, then click *Next*.
9. (WebSphere only) Confirm that the WebSphere server is running, then enter the information required for modifying the WebSphere server:

   WAS Administrator ID: Specify the name of the WebSphere administrator.

   WAS Administrator Password: Specify the password of the WebSphere administrator. Confirm the password by re-entering it.
10. (JBoss only) Complete the following steps:

    10a Stop the JBoss server.

    10b Select the directory where you have installed the J2EE server, then click *Next*.

    10c Select the server configuration folder, then click *Next*.
11. (WebLogic only) Confirm that you understand that the WebLogic configuration is manual.
12. Click *Next*, then review the installation summary.
13. To upgrade the agent, click *Install*.
14. If you are prompted to overwrite existing file, select to overwrite all files.
15. (WebSphere only) Select to restart the server, then click *Next*.
16. Review the log information, then click *Next*.
17. To exit the installer, click *Done*.
18. (JBoss only) When the installation finishes, restart the J2EE server.
19. (Optional) Verify the upgrade:

    19a Log in to the Administration Console.

    19b Click *Access Manager > J2EE Agents > [Name of Agent]*.

    19c Verify that the *Server Version* field contains the correct information.

1.5.3 Upgrading the WebLogic Agent

Because the install and configuration of the J2EE Agent for WebLogic is manual, the upgrade process is also manual. To upgrade the WebLogic Agent, you need to stop the embedded service provider of the agent and stop the WebLogic server. Select a time when users do not need access to the WebLogic applications.

1. Undeploy the embedded service provider:

1a In the WebLogic Administration console, click *Deployments* in the *Domain Structure* list.

1b Click *Lock and Edit*.

1c Select the name of the embedded service provider application.

The default name is AccessManagerEmbeddedServiceProvider. If you deployed it manually, the name is nesp.

1d Click *Stop*, then select *Force Stop Now*.

1e To stop the deployment, click *Yes*.

1f Select the name of the embedded service provider application, click *Delete*, then confirm the action.

1g Click *Activate Changes*.

2 Stop the WebLogic server.

3 Delete the `nesp` directory.

On Linux, the directory is `WL_DOMAIN/nesp`.

On Windows, the directory is `c:\Novell\nesp.ear`.

4 Run the standard agent upgrade program for your platform.

- For Linux, see Section 1.5.1, "Upgrading the WebSphere or JBoss Agent on Linux," on page 25.
- For Windows, see Section 1.5.2, "Upgrading the WebSphere or JBoss Agent on Windows," on page 26.

5 Copy the `NidsWebLogicAgentMbeans.jar` file from `AGENT_HOME/lib` to `WL_HOME/server/lib/mbeantypes`, replacing the existing file.

6 Start the WebLogic server.

7 Execute the WebLogic scripting tool with the parameters required to run the `weblogic_nesp_deploy.jy` script. This script needs the following parameters:

- The location of the script
- The name of the WebLogic admin user
- The admin's password
- The server name
- The local host with port (usually localhost:7001)
- The path to the nesp.ear file

Linux Example:
```
/root/bea/weblogic92/common/bin/wlst.sh /opt/novell/nids_agents/bin/weblogic_nesp_deploy.jy username password AdminServer localhost:7001 /root/bea/weblogic92/nesp/nesp.ear
```

Windows Example:
```
C:\bea\weblogic92\common\bin\wlst.cmd C:\Novell\bin\weblogic_nesp_deploy.jy username password AdminServer localhost:7001 C:\Novell\nesp.ear
```

8 (Optional) Verify the upgrade:

8a Log in to the Administration Console.

8b Click *Access Manager* > *J2EE Agents* > *[Name of Agent]*.

8c Verify that the *Server Version* field contains the correct information.

1.6 Uninstalling the J2EE Agent

1.6.1 Uninstalling the JBoss or WebSphere Agent on Linux

1. Change to the Access Manager directory.
2. At the command prompt of the Access Manager directory, enter the following:
   `./uninstall.sh`
3. Answer *Yes* to uninstall each component of the agent.
4. After uninstalling the agent, log in to the Administration Console.
5. Click *Access Manager* > *J2EE Agents*.
6. Select the agent that you have just uninstalled, then click *Actions* > *Delete*.
7. At the confirmation prompt, click *OK*.

   This removes the configuration object for the agent, which is automatically created when an agent is installed.

1.6.2 Uninstalling the JBoss or WebSphere Agent on Windows

1. From the *Control Panel*, select *Add or Remove Programs*.
2. Select to uninstall the Access Manager Agents and follow the prompts.

   The uninstall program for WebSphere must stop and start the WebSphere server to complete a successful removal of the agent.
3. After uninstalling the agent, log in to the Administration Console.
4. Click *Access Manager* > *J2EE Agents*.
5. Select the agent that you have just uninstalled, then click *Actions* > *Delete*.
6. At the confirmation prompt, click *OK*.

   This removes the configuration object for the agent, which is automatically created when an agent is installed.

1.6.3 Uninstalling the WebLogic Agent

Because the install and configuration of the J2EE Agent for WebLogic is manual, the uninstall is also manual. You need to use the WebLogic scripting tool to run the following scripts:

- `weblogic__nesp_undeploy.jy`
- `weblogic_de-config.jy`

To uninstall the WebLogic Agent:

1. Make sure the WebLogic server is running.

2 Execute the WebLogic scripting tool with the parameters required to run the `weblogic_nesp_undeploy.jy` script. This script needs the name of the WebLogic admin user, the admin's password, and the local host with port (usually localhost:7001).

Linux Example: `/opt/bea/weblogic92/common/bin/wlst.sh /opt/novell/nids_agents/bin/weblogic_nesp_undeploy.jy username password localhost:7001`

Windows: `C:\bea\weblogic92\common\bin\wlst.cmd C:\Novell\bin\weblogic_nesp_undeploy.jy username password localhost:7001`

3 Execute the WebLogic scripting tool with the parameters required to run the `weblogic_de-config.jy` script. This script needs the name of the WebLogic admin user, the admin's password, the domain name, and the local host with port (usually localhost:7001).

Linux Example: `/opt/bea/weblogic92/common/bin/wlst.sh /opt/novell/nids_agents/bin/weblogic_de-config.jy username password base_domain localhost:7001`

Windows Example: `C:\bea\weblogic92\common\bin\wlst.cmd C:\Novell\bin\weblogic_de-config.jy username password base_domain localhost:7001`

4 Delete the `NidsWebLogicAgentMBeans.jar` file from the `WL_HOME/server/lib/mbeantypes` directory.

5 Run the standard uninstall program for the platform.

Linux: At the command prompt of the Access Manager directory, execute the `uninstall.sh` script. For more information, see Section 1.6.1, "Uninstalling the JBoss or WebSphere Agent on Linux," on page 28.

Windows: From the *Control Panel*, select *Add or Remove Programs* and select to uninstall the agent. For more information, see Section 1.6.2, "Uninstalling the JBoss or WebSphere Agent on Windows," on page 28.

6 After uninstalling the agent, log in to the Administration Console.

7 Click *Access Manager* > *J2EE Agents*.

8 Select the agent that you have just uninstalled, then click *Actions* > *Delete*.

9 At the confirmation prompt, click *OK*.

This removes the configuration object for the agent, which is automatically created when an agent is installed.

Configuring the Agent for Authentication

2

You can configure the Access Manager to interact with your application server in one of two ways:

- As an identity provider for the user authentication and user roles. In this configuration, the application server is accessed directly by the user, and the agent is configured to redirect the user to the Identity Server for authentication and user roles. If you need the security of SSL, you need to configure the application server for SSL.
- As a protected resource of the Access Gateway. When the agent is configured to be an Access Gateway protected resource, the IP address of the application server is hidden from the user and the user must access it through the Access Gateway. You can configure the Access Gateway to require SSL connections without configuring the application server for SSL.

This section describes how to set up both of these configurations.

2.1 Prerequisites

- ❑ You have set up a basic configuration. See “Setting Up a Basic Access Manager Configuration” in the *Novell Access Manager 3.0 SP2 Setup Guide*.
- ❑ You have a J2EE application server containing an application with security constraints. Novell® provides a test application, `PayrollApp.ear`, that requires an Employee role and a Manager role. After installation, the location of this application is platform-specific:
  - On a Linux J2EE server, this application is copied to the `/opt/novell/nids_agents/example` directory.
  - On a Windows J2EE server, this application is copied to the `<Install_Directory>\sampleapp` directory.

  To use the application, copy it to the `deploy` directory of your J2EE server. The first page of this application, which is configured for public access, contains a link to a page that explains how to add security constraints to a J2EE application.
- ❑ You have configured the Identity Server with policies for the roles required by your application. For the sample payroll application, this is an Employee role and a Manager role. See “Creating Roles” in the *Novell Access Manager 3.0 SP2 Administration Guide*.
- ❑ You have the agent installed on your J2EE server. See Chapter 1, “Installing the J2EE Agents,” on page 9.

2.2 Possible Configurations

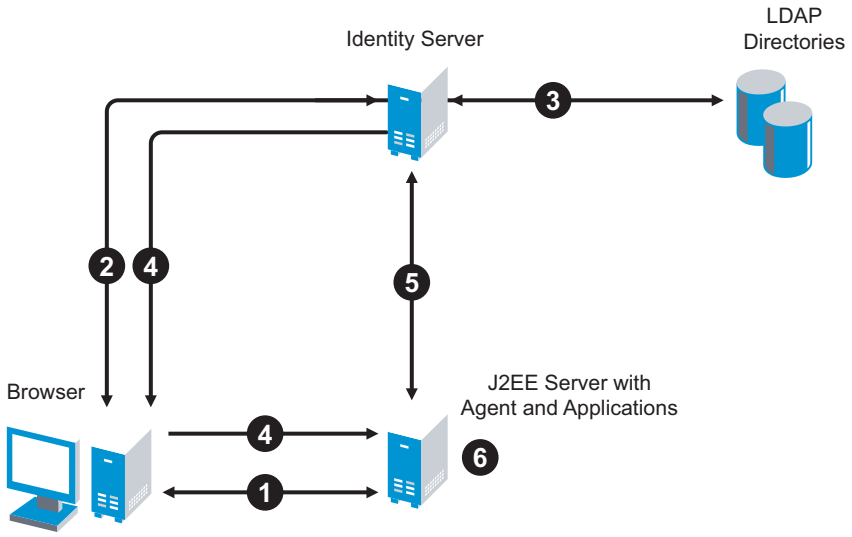
You can configure your J2EE server so that users have direct access to it or so that it is a protected resource of the Access Gateway. Both configurations use the Identity Server for authentication.

- Section 2.2.1, “Allowing Direct Access to the J2EE Server,” on page 32
- Section 2.2.2, “Protecting the Application Server with the Access Gateway,” on page 33

2.2.1 Allowing Direct Access to the J2EE Server

When you configure the Identity Server to provide authentication for the applications on the J2EE server, the communication process follows the paths illustrated in Figure 2-1.

Figure 2-1 *JBoss Applications Using the Identity Server*



1. The user requests access to an application on the J2EE server. The user is redirected to the Identity Server.
2. The Identity Server prompts the user for a username and password.
3. The Identity Server verifies the username and password against a user store (an LDAP directory).
4. The Identity Server builds the roles for the user and redirects the user back to the application server.
5. The agent verifies the user’s credentials and obtains the user’s role information.
6. The application server allows access to the requested application.

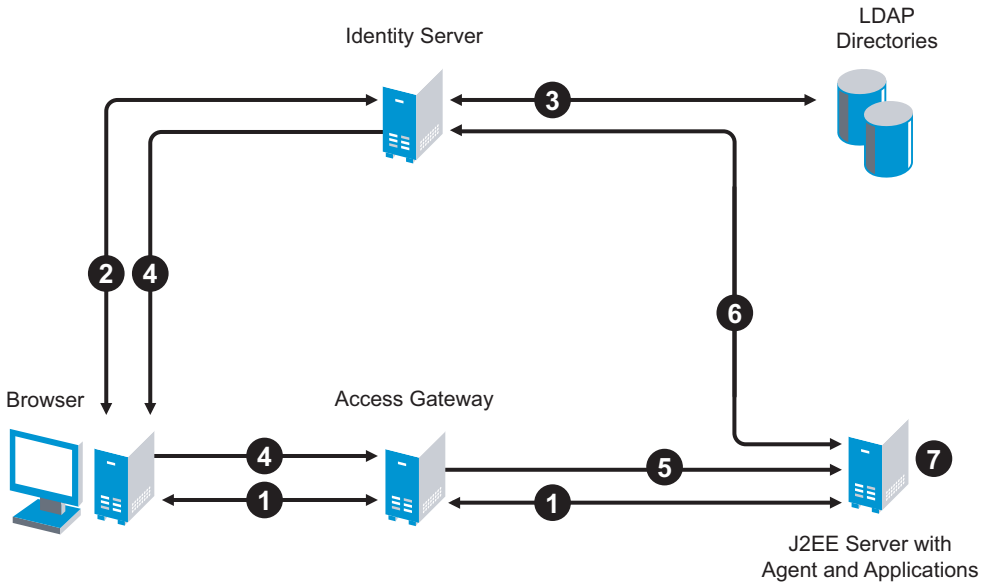
This scenario is most often used when you have users behind your firewall that need access to the application server. You also have an internal DNS server that resolves the DNS name of the application server to its IP address.

For configuration information, see Section 2.3, “Configuring the Agent for Direct Access,” on page 33.

2.2.2 Protecting the Application Server with the Access Gateway

When you configure the Access Gateway to protect the application server, the communication process follows the paths illustrated in Figure 2-2.

Figure 2-2 *The J2EE Server as a Protected Resource*

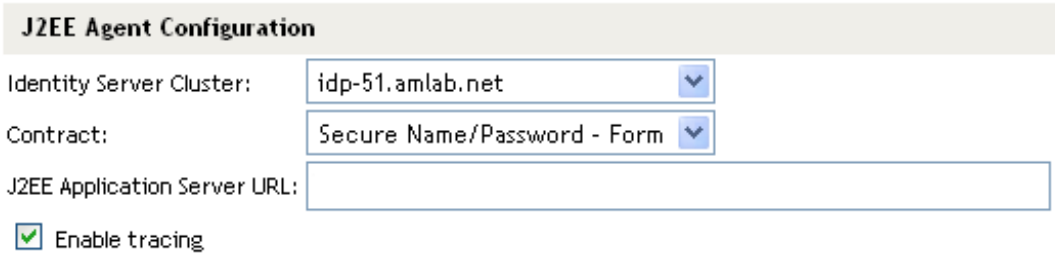


1. The user requests access to the application server by using a published DNS name. The request is sent to the Access Gateway, and the Access Gateway proxies the request to the agent.
2. The agent redirects the request back to the Access Gateway, and the Access Gateway redirects the user to the Identity Server, which prompts the user for a username and password.
3. The Identity Server verifies the username and password against a user store (an LDAP directory).
4. The Identity Server builds the roles for the user and redirects the user back to the Access Gateway.
5. The Access Gateway directs the user's request to the application server.
6. The agent verifies the user's credentials and obtains the user's role information.
7. The application server allows the user to access to the requested application.

For configuration information, see Section 2.4, "Protecting the Application Server with the Access Gateway," on page 35.

2.3 Configuring the Agent for Direct Access

1 In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit*.



2 Fill in the fields:

Identity Server Cluster: Select the Identity Server you want the agent to trust for authentication by selecting the configuration you have assigned to the Identity Server.

The [None] option is used as the default, before you configure the agent.

Contract: Select the type of contract, which determines the information a user must supply for authentication. By default, the Administration Console allows you to select from the following contracts and options when specifying an authentication contract.

- **Name/Password - Basic:** Specifies basic authentication over HTTP, using a standard login pop-up provided by the Web browser.
- **Name/Password - Form:** Specifies a form-based authentication over HTTP, using the Access Manager login form.
- **Secure Name/Password - Basic:** Specifies basic authentication over HTTPS, using a standard login pop-up provided by the Web browser.
- **Secure Name/Password - Form:** Specifies a form-based authentication over HTTPS, using the Access Manager login form.
- **Any Contract:** If the user has authenticated, allows any contract defined for the Identity Server to be valid; or if the user has not authenticated, prompts the user to authenticate by using the default contract assigned to the Identity Server configuration.

You can configure other contract types. See "Configuring Authentication Contracts" in the *Novell Access Manager 3.0 SP2 Administration Guide*.

J2EE Application Server URL: Specify the URL of your application server, including the port. For example, if the DNS name of your J2EE server is j2ee.mycompany.com, enter the following:

```
https://j2ee.mycompany.com:8443
```

The URL has three parts:

- **Scheme:** For the scheme, specify the scheme you have configured the application server to use for connections (http or https). See your application server documentation for information on configuring SSL so you can use HTTPS. For more information on SSL and the required certificates for the agent, see Section 4.3, "Configuring SSL Certificate Trust," on page 55.
- **Domain:** You need to specify a DNS name in the URL if you want to configure the application server so that it is accessible internally behind your firewall and externally outside the firewall.
- **Port:** Port 8443 is the standard HTTPS port for an SSL connection to a JBoss server, port 7002 for an SSL connection to a WebLogic server, and port 9443 for an SSL connection to a WebSphere server. The HTTP port is 8080 for JBoss, 7001 for WebLogic, and 9080 for WebSphere. If you have configured a different port, use that port.

3 Click *OK*, then click *Update* > *OK*.

4 To update the Identity Server, click *Identity Servers*, then click *Update* > *OK*.

Whenever you set up a new trusted identity configuration, you need to update the Identity Server configuration.

5 Continue with "Preparing the Applications and the J2EE Servers" on page 45.

2.4 Protecting the Application Server with the Access Gateway

When you configure the Access Gateway so it can protect your application server, the Access Gateway must be configured to protect multiple resources. The first reverse proxy and proxy service combination of the Access Gateway is assigned to perform authentication. The agent must be set up as a secondary proxy service because the proxy service for an agent cannot be used for authentication.

If the Access Gateway has multiple IP addresses, you can configure the Access Manager so that users access different types of Web resources from each IP address. If the Access Gateway has only one IP address, you still can configure it so users access different types of resources. In this case, you configure the resources to use multi-homing. The following configuration steps assume that you have only one IP address and that you must use multi-homing to access multiple resources, either domain-base or path-based.

With path-based multi-homing, you use one DNS name for the Access Gateway, and have the user specify a path-based URL to access the correct resource. For example:

- You configure the name, www.mytest.com, to resolve to the Access Gateway, and the Access Gateway is configured to proxy the request to a Web server.
- You have users access the application server with the URL www.mytest.com/j2ee. The domain name, www.mytest.com, resolves to the Access Gateway, and the Access Gateway uses the path portion of the URL to proxy the request to the J2EE server.

For more information, see Section 2.4.1, "Setting Up a Path-Based Proxy Service for an Application Server," on page 35.

With domain-based multi-homing, your Access Gateway uses domain names to access multiple resources. For example:

- You configure the name mytest.company.com to resolve to the Access Gateway, and the Access Gateway is configured to proxy the request to a Web server.
- You configure the name j2ee.company.com to resolve to the Access Gateway, and the Access Gateway is configured to proxy it to the application server.

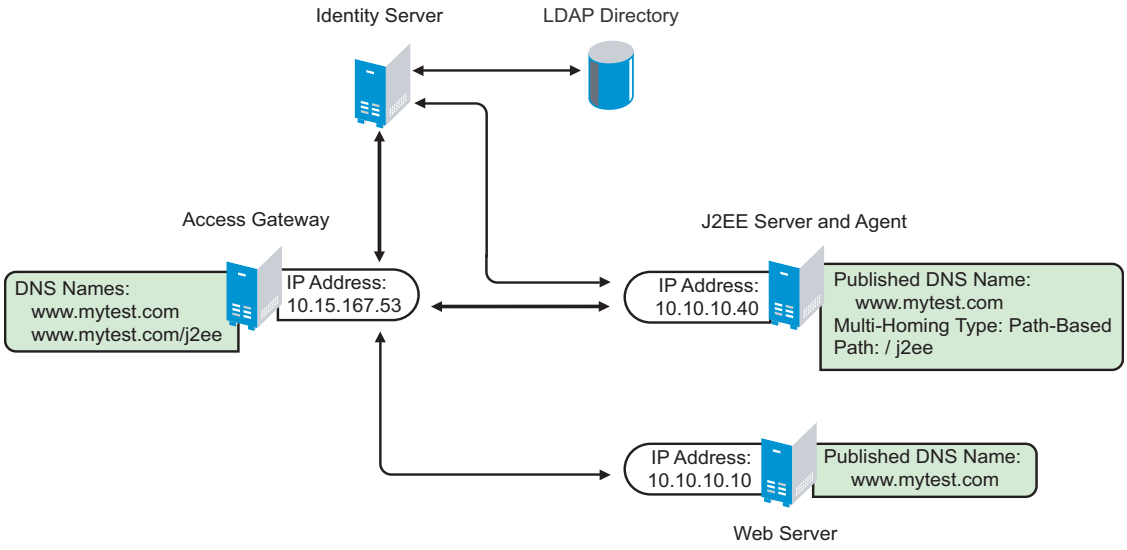
For more information, see Section 2.4.2, "Setting Up a Domain-Based Proxy Service for an Application Server," on page 39.

2.4.1 Setting Up a Path-Based Proxy Service for an Application Server

Figure 2-3 illustrates the basic configuration for a path-based proxy service. The www.mytest.com name is the published DNS name of the parent proxy service that protects the Web servers. The

www.mytest.com/j2ee name resolves to the Access Gateway, and the Access Gateway uses the /j2ee path to proxy the request to the application server.

Figure 2-3 *Protecting the Application Server with Path-Based Multi-Homing*

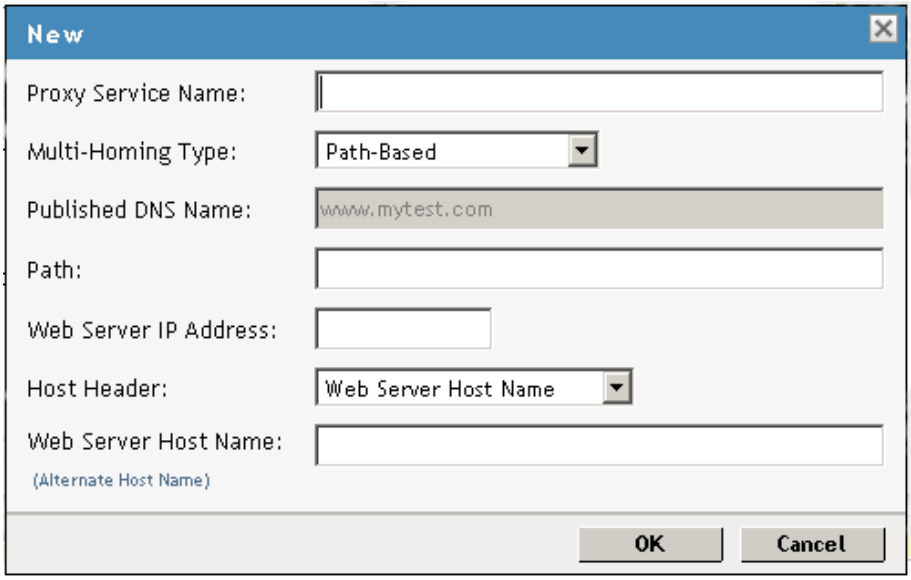


Your DNS server needs to be configured to resolve www.mytest.com and www.mytest.com/j2ee to the Access Gateway.

1. In the Administration Console, click *Access Manager* > *Access Gateways* > *Edit* > *[Reverse Proxy Name]*.

   The following steps assume that you have already enabled SSL between the Access Gateway and the browsers. If you haven't, see "Configuring SSL Communication with the Browsers and the Identity Server " in the *Novell Access Manager 3.0 SP2 Administration Guide*.

2. In the *Proxy Service List* section, click *New*.



3 Fill in the following fields:

Proxy Service Name: Specify a display name for this configuration.

Multi-Homing Type: Select *Path-Based*.

Path. Specify the path for J2EE server. For this example, this is `/j2ee`.

Web Server IP Address: Specify the IP address of the application server. For the configuration in Figure 2-3, enter 10.10.10.40.

Host Header: Select *Web Server Host Name*.

Web Server Host Name: Specify the DNS name of the application server.

4 Click *OK*.

5 To create a protected resource for the application server, select the name of the parent proxy in the *Proxy Service List*.

6 Click *Protected Resources,* then click *New*.

7 Specify a name for the resource, then click *OK*.

Specify a name that allows you to associate this protected resource with your path-based service.

8 Configure the resource for the type of protection you want.

Public Access to the First Page: If you want users to be able to access the first page of the application without authentication, select *None* for the type of contract and accept the default path of `/*` in the *URL Path List*. Click *OK* and continue with Step 9. If you have already created this type of protected resource, you don't need to create another one.

J2EE Agent configuration allows you to set up authentication and access restrictions to the pages in the application.

Authentication Required for the First Page: If you want users to authenticate before they have access to the first page of the application, you need to create two protected resources: one to prompt for authentication and one to allow public access to the nesp application. A path-based service can only have multiple protected resources if the multi-homing path exists on the Web server and the path is not removed when the request is sent to the Web server (see Step 10). To create the multiple resources:

8a For this first protected resource, select *None* for the contract.

8b In the *URL Path List*, specify the path to the nesp application. For this example:
`/j2ee/nesp`

8c Click *OK* twice.

8d To add a second protected resource, click *New*, specify a name, then click *OK*.

8e For the contract, select the contract you want to use for authentication.

8f In the *URL Path List*, specify the path to the application. For the sample payroll application, this is the following path:
`/j2ee/payroll`

8g Click *OK* three times.

9 In the *Proxy Service List*, select the path-based proxy service.

10 Configure the *Remove Path on Fill* option.

- If the path you specified for the proxy service exists on the Web server and specifies the location of the Web resource, do not select this option.

- If the path you specified for the proxy service does not exist on the Web server, select this option. The *Reinsert Path in "set cookie" Header* option is also selected.

11 In the *Path List* on the Path-Based Multi-Homing page, configure the paths.

- **Remove Path on Fill Service:** If the path is removed before sending the request to the J2EE server, the path specified here must allow public access (no authentication required) to the nesp application. A path is automatically created for you (in this example, `/j2ee`) and a protected resource is assigned. Click the *Protected Resource* link, verify that the contract for this resource is *None* and the path is `/*`, then click *OK*.

  If the wrong type of protected resource is assigned, return to Step 8 and create a protected resource that allows public access.

- **Keep Path on Fill Service:** If you are keeping the path, select the default path and delete it. Click *New*, specify the path to the nesp application (for example, `/j2ee/nesp`), then click *OK*. The protected resource that you created for this path should be automatically assigned to the path.

  Create the path to the application. Click *New*, specify the path to the application (for example, `/j2ee/payroll`), then click *OK*. The protected resource that you created for this path should be automatically assigned to the path.

  If the wrong protected resource is assigned, return to Step 8 and create protected resources with the correct paths.

12 Click the *Web Servers* tab.

13 To configure SSL, select *Connect Using SSL*.

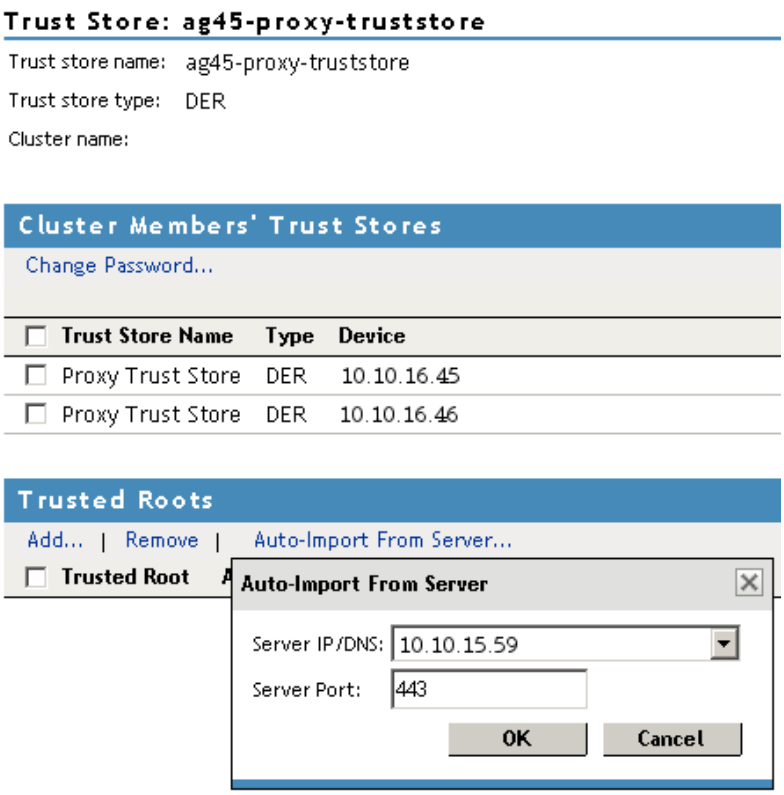
This option is not available if you have not set up SSL between the browsers and the Access Gateway. See "Configuring SSL Communication with the Browsers and the Identity Server " in the *Novell Access Manager 3.0 SP2 Administration Guide* and select the *Enable SSL between Browser and Access Gateway* field.

14 Configure how you want the certificate verified. The Access Gateway platforms support different options:

- **Linux Access Gateway:** The Linux Access Gateway supports the following options.
  - To not verify this certificate, select *Do not verify*.
  - To allow the certificate to match any certificate in the trust store, select *Any in Reverse Proxy Trust Store*. Continue with Step 18.
  - To add a certificate to the trust store for the application server, click the *Manage Reverse Proxy Trust Store* icon. Continue with Step 15.
- **NetWare Access Gateway:** The NetWare Access Gateway requires that the application server certificate match a certificate in its trust store.

  To add a certificate to the trust store for the application server, click *Any in Reverse Proxy Trust Store*. Continue with Step 15.

The auto import screen appears.



15 Select the IP address of the application server and change the port if the application server is using a different port for SSL.

16 Click *OK*.

The server certificate, the root CA certificate, and any CA certificates from a chain are displayed and selected.

17 Specify an alias, then click *OK*.

18 In the *Connect Port* option, specify the port that your application server uses for SSL connections. For JBoss, the default value is 8443. For WebSphere, the default value is 9443. For WebLogic, the default value is 7002.

19 Click *OK*.

20 Click the *Access Gateways* link.

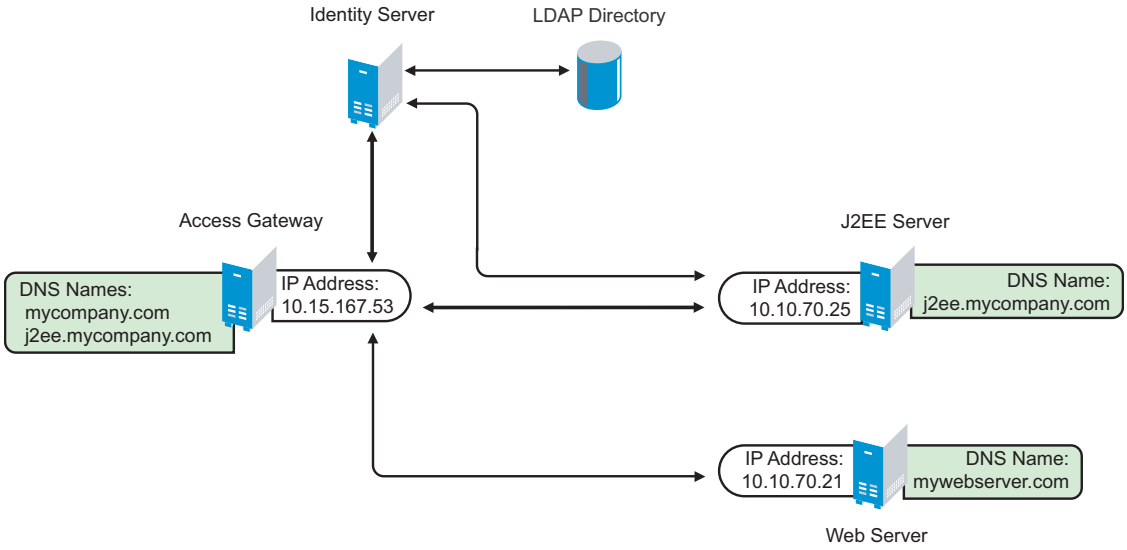
21 On the *Access Gateways* page, click *Update*.

22 Continue with "Configuring a Protected Agent for Access" on page 43.

2.4.2 Setting Up a Domain-Based Proxy Service for an Application Server

Figure 2-4 illustrates the basic configuration for a domain-based proxy service. The mycompany.com name is the published DNS name of parent proxy service that protects the Web server. The j2ee.mycompany.com name is the published DNS name of the proxy service that protects the J2EE server.

Figure 2-4 *J2EE Server as a Domain-Based Protected Resource*

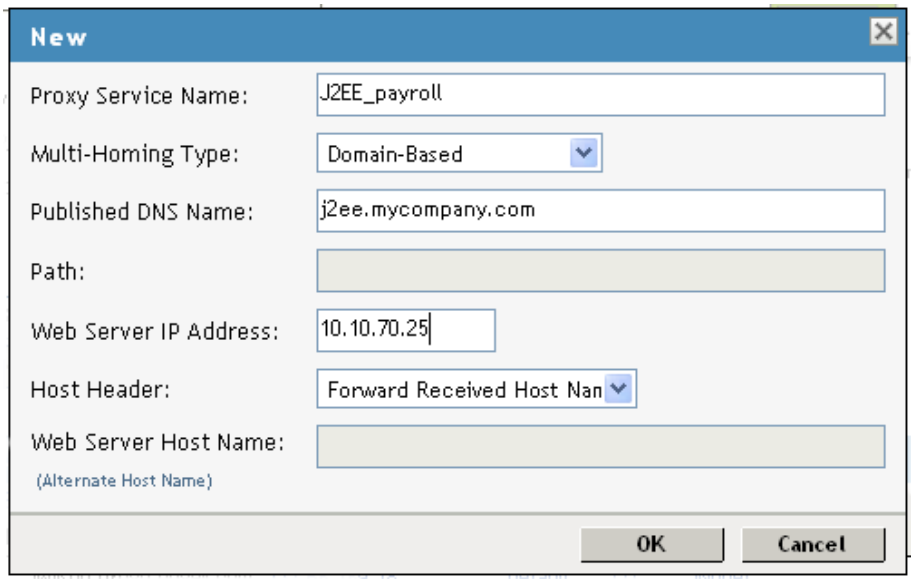


You must set up your DNS configuration so that it resolves mycompany.com and j2ee.mycompany.com to the IP address of your Access Gateway. The Access Gateway proxies URL requests for mycompany.com to the Web server (mywebserver.com) and requests for j2ee.mycompany.com to the application server.

1. In the Administration Console, click *Access Manager* > *Access Gateways* > *Edit* > *[Reverse Proxy Name]*.

   The following steps assume that you have already enabled SSL between the Access Gateway and the browsers. If you haven't, see "Configuring SSL Communication with the Browsers and the Identity Server " in the *Novell Access Manager 3.0 SP2 Administration Guide*.

2. In the *Proxy Service List* section, click *New*.



3. Fill in the following fields.

Proxy Service Name: Specify a display name for this configuration.

Multi-Homing Type: Because this configuration example uses a domain name to access the J2EE server, select *Domain-Based*.

Published DNS Name. Specify the domain name for the application server.

Web Server IP Address: Specify the IP address of the application server. For the configuration in Figure 2-4, enter 10.10.70.25.

Host Header: Select either *Forward Received Host Name* or *Web Server Host Name*.

4 Click *OK*.

5 Click the name of the proxy service you just created.

6 Click *Web Servers*.

7 To configure SSL, select *Connect Using SSL*.

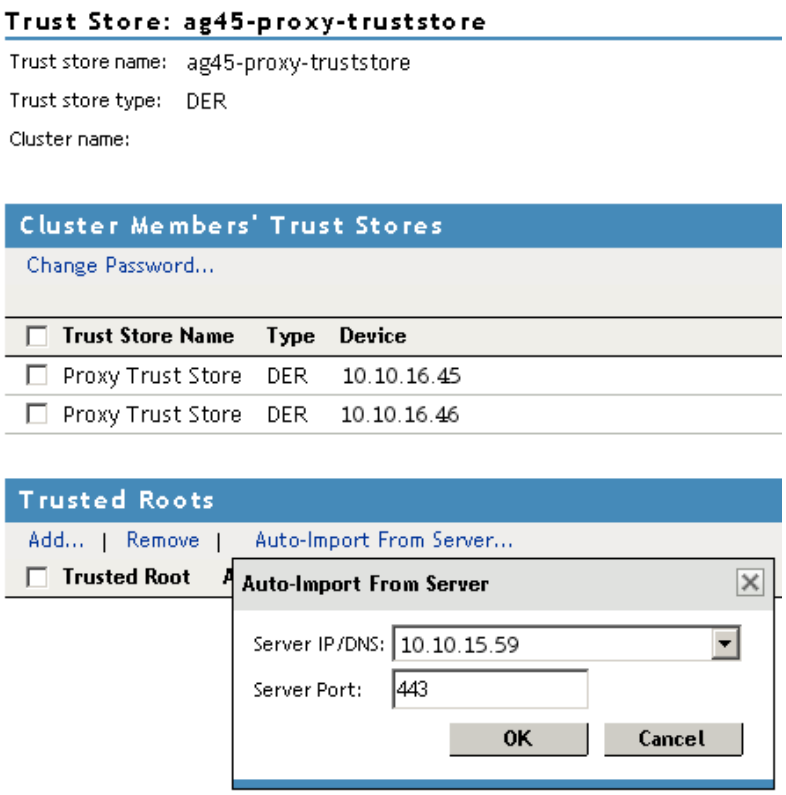
This option is not available if you have not set up SSL between the browsers and the Access Gateway. See "Configuring SSL Communication with the Browsers and the Identity Server " in the *Novell Access Manager 3.0 SP2 Administration Guide* and select the *Enable SSL between Browser and Access Gateway* field.

8 Configure how you want the certificate verified. The Access Gateway platforms support different options:

- **Linux Access Gateway:** The Linux Access Gateway supports the following options:
  - To not verify this certificate, select *Do not verify*.
  - To allow the certificate to match any certificate in the trust store, select *Any in Reverse Proxy Trust Store*. Continue with Step 12.
  - To add a certificate to the trust store for the Web server, click the *Manage Reverse Proxy Trust Store* icon. Continue with Step 9.
- **NetWare Access Gateway:** The NetWare Access Gateway requires that the Web server certificate match a certificate in its trust store.

  To add a certificate to the trust store for the application server, click *Any in Reverse Proxy Trust Store*. Continue with Step 9.

The auto import screen appears.



9 Select the IP address of the application server and change the port if the application server is using a different port for SSL.

10 Click *OK*.

The server certificate, the root CA certificate, and any CA certificates from a chain are displayed and selected.

11 Specify an alias, then click *OK*.

12 In the *Connect Port* option, specify the port that your application server uses for SSL connections. For JBoss, the default value is 8443. For WebSphere, the default value is 9443. For WebLogic, the default value is 7002.

13 To create a protected resource for the application server, click *Protected Resources,* then click *New*.

14 Specify a name for the resource, then click *OK*.

15 Configure the resource for the type of protection you want.

Public Access to the First Page: If you want users to be able to access the first page of the application without authentication, select *None* for the type of contract and accept the default path in the *URL Path List*. Click *OK,* then continue with Step 16.

J2EE Agent configuration allows you to set up authentication and access restrictions to the pages in the application.

Authentication Required for the First Page: If you want users to authenticate before they have access to the first page of the application, you need to create two protected resources: one to prompt for authentication and one to allow public access to the nesp application.

15a For this first protected resource, select *None* for the contract.

15b In the *URL Path List*, specify the following path:

```
/nesp
```

15c Click *OK* twice.

15d To add a second protected resource, click *New*, specify a name, then click *OK*.

15e For the contract, select the contract you want to use for authentication.

15f In the *URL Path List*, specify the path to the application. For the sample payroll application, this is the following path:

```
/payroll
```

15g Click *OK* twice.

16 In the *Protected Resource List*, make sure your J2EE protected resources are enabled, then click *OK*.

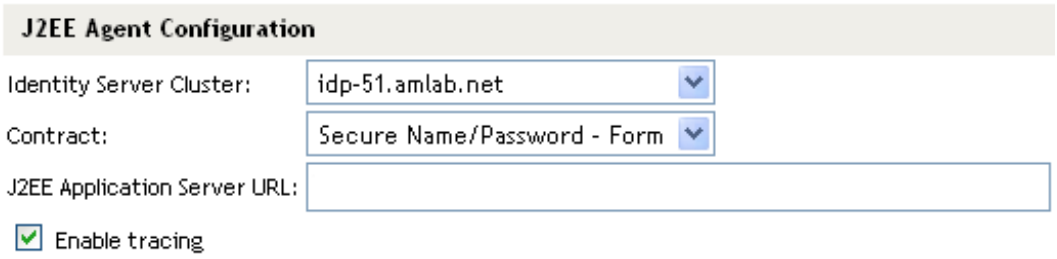
17 Click the *Access Gateways* link.

18 On the *Access Gateways* page, click *Update*.

19 Continue with "Configuring a Protected Agent for Access" on page 43.

2.4.3 Configuring a Protected Agent for Access

1 In the Administration Console, click *J2EE Agents* > *Edit*.



2 Fill in the fields:

Identity Server Cluster: Select the Identity Server you want the agent to trust for authentication by selecting the configuration you have assigned to the Identity Server.

The [None] option is used as the default, before you configure the agent.

Contract: Select the type of contract, which determines the information a user must supply for authentication. By default, the Administration Console allows you to select from the following contracts and options when specifying an authentication contract.

- **Name/Password - Basic:** Specifies basic authentication over HTTP, using a standard login pop-up provided by the Web browser.
- **Name/Password - Form:** Specifies a form-based authentication over HTTP, using the Access Manager login form.
- **Secure Name/Password - Basic:** Specifies basic authentication over HTTPS, using a standard login pop-up provided by the Web browser.
- **Secure Name/Password - Form:** Specifies a form-based authentication over HTTPS, using the Access Manager login form.

- **Any Contract:** If the user has authenticated, allows any contract defined for the Identity Server to be valid; or if the user has not authenticated, prompts the user to authenticate by using the default contract assigned to the Identity Server configuration.

You can configure other contract types. See "Configuring Authentication Contracts" in the *Novell Access Manager 3.0 SP2 Administration Guide*

J2EE Application Server URL: Specify the URL of your application server. Select the format based on whether the agent is protected by a path-based or a domain-based proxy service.

- If the agent is protecting a path-based proxy service, enter the published DNS name of the Access Gateway proxy service, including the path. For example:

  `http://j2ee.mycompany.com/j2ee`

- If the agent is protecting a domain-based proxy service, enter the published DNS name of the Access Gateway proxy service. For example:

  `http://j2ee.mycompany.com`

The URL has the following parts:

- **Scheme:** For the scheme, specify the scheme you have configured the Access Gateway to use for connections (http or https). If you have configured the Access Gateway to use SSL, the scheme needs to be https.
- **Domain:** Specify the published DNS name of the Access Gateway proxy service.
- **Path:** (Conditional) If the proxy service is a path-based service, specify the path. For this example, this is `/j2ee`.

3 Click *OK*, then click *Update* > *OK*.

4 To update the Identity Server, click *Identity Servers* > *Update*.

Whenever you set up a new trusted identity configuration, you need to update the Identity Server.

5 Continue with "Preparing the Applications and the J2EE Servers" on page 45.

Preparing the Applications and the J2EE Servers

3

After installing the J2EE Agent and configuring it to use an Identity Server for authentication, you need to configure your applications to use the Identity Server authentication and to configure the security of the J2EE server to interact with the J2EE Agent for authentication and authorization.

3.1 Preparing the Application for the Agent

For each Web application that you want to use with the J2EE Agent, you need to configure the Web application to use the J2EE Agent for login and for logout. You do this by configuring the application’s `web.xml` file:

The `web.xml` file of the sample application (`PayrollApp.ear`) has these modifications. The location of this application is platform-specific:

- On a Linux J2EE server, this application is copied to the `/opt/novell/nids_agents/examples` directory.
- On a Windows J2EE server, this application is copied to the `<Install_Directory>\sampleapp` directory.

3.1.1 Configuring for Login

The Web application needs to be able to log in to the Identity Server that you have configured the J2EE Agent to trust. You accomplish this by specifying that the Web application uses FORM authentication. This is specified in the `<login-config>` section of the application's descriptor in the `WEB-INF/web.xml` file. For example:

```
<login-config>
    <auth-method>FORM</auth-method>
    <form-login-config>
        <form-login-page>/login</form-login-page>
        <form-error-page>/login</form-error-page>
    </form-login-config>
</login-config>
```

The `<form-login-page>` and `<form-error-page>` elements need to be set to a URL that is mapped to the following servlet class:

```
com.novell.nids.agent.auth.LoginServlet
```

The above <login-config> element specifies /login as the login page and the error page. The /login URL needs a servlet mapping within the application's web.xml file:

```
<servlet>
    <servlet-name>LoginServlet</servlet-name>
       <servlet-class>
          com.novell.nids.agent.auth.LoginServlet
       </servlet-class>
</servlet>

<servlet-mapping>
    <servlet-name>LoginServlet</servlet-name>
    <url-pattern>/login</url-pattern>
</servlet-mapping>
```

3.1.2 Configuring for Logout

As part of single sign-on and single logout, the J2EE Agent supports the following:

- Notifying the Identity Server about application-level logout events.
- Informing the J2EE applications when the Identity Server logs a user out.

For global logout to function, you need to add a logout servlet and its servlet mapping to the web.xml file:

```
<servlet>
    <servlet-name>LogoutServlet</servlet-name>
    <servlet-class>
        com.novell.nids.agent.auth.LogoutServlet
    </servlet-class>
    <init-param>
        <param-name>postLogoutURL</param-name>
        <param-value>/loggedOut</param-value>
    </init-param>
</servlet>

<servlet-mapping>
    <servlet-name>LogoutServlet</servlet-name>
    <url-pattern>/logout</url-pattern>
</servlet-mapping>
```

The URL pattern of the LogoutServlet can be customized for the application's requirements. The function of the LogoutServlet is to notify the Identity Server about the application logout. The Identity Server is responsible for notifying all other components about the logout. To cause the LogoutServlet to notify the Identity Server about a user logging out, the user must invoke one of the URLs of the LogoutServlet.

More than one <url-pattern> value can be specified for the LogoutServlet. After the logout is complete, the user is redirected to the URL in the Web module as specified by the postLogoutURL servlet initialization parameter. If it is not specified, the LogoutServlet defaults the postLogoutURL to /.

3.2 Configuring Applications on the JBoss Server

3.2.1 Configuring a Security Domain

JBoss needs to know that your Web application is a part of the security domain that requires the Identity Server JAAS login module. You do this by specifying your application's security domain in the `<jboss-web>` element of the `jboss-web.xml` file located in your application’s `WEB-INF` directory. You might need to create this file, if your application hasn’t already required you to create it.

The J2EE Agent installation program modifies the `login-config.xml` file in the `${JBOSS_HOME}/server/default/conf` directory and sets the name attribute of the `<application-policy>` element to `novell-idp`.

You need to set the `<security-domain>` element in the `jboss-web.xml` file to this value. Add the following lines to this file:

```
<jboss-web>
    <security-domain>java:jaas/novell-idp</security-domain>
</jboss-web>
```

The `jboss-web.xml` file of the sample application (`PayrollApp.ear`) has these modifications. (For the location of this application, see Section 2.1, “Prerequisites,” on page 31.)

3.2.2 Configuring Security Constraints

If you specify a security constraint similar to the following in the `web.xml` file of an application, the users are redirected for authentication as soon as they access any URL of the application:

```
<security-constraint>
   <web-resource-collection>
      <web-resource-name>All web resources</web-resource-name>
      <url-pattern>/*</url-pattern>
   </web-resource-collection>
   <auth-constraint>
      <role-name>Manager</role-name>
   </auth-constraint>
</security-constraint>
```

After authenticating to the Identity Server, all users receive an error:

- If the user has the Manager role, the user sees a 404 error stating that j_security_check is not available.
- If the user does not have the Manager role, the user sees a 403 Access Denied error to the login servlet.

When using the J2EE Agent with a JBoss server, you cannot give the `<url-pattern>` element a value of /* or / for a login page that requires authentication. The JAAC provider in the JBoss server

is not informed about the login servlet. For example, suppose that the login page for the application has a configuration similar to the following:

```
<login-config>
   <auth-method>FORM</auth-method>
   <form-login-config>
      <form-login-page>/login</form-login-page>
      <form-error-page>/error.jsp</form-error-page>
   </form-login-config>
</login-config>
```

You need to configure the `/login` directory to allow access. For example:

```
<security-constraint>
   <web-resource-collection>
      <web-resource-name>Allow Form Login page</web-resource-name>
      <url-pattern>/login</url-pattern>
   </web-resource-collection>
</security-constraint>
```

3.2.3 Configuring for Roles

For the J2EE Agent to enforce authentication for a `.war` file, the JBoss server must have a `web.xml` file that contains a URL with a role restriction. You can use the generic authenticated role for this URL. This policy triggers authentication, and the J2EE Agent policies can then be used to determine authorization. The following is a sample security constraint for a `web.xml` file that triggers authentication for any path below the `protected` directory:

```
<security-constraint>
   <web-resource-collection>
      <web-resource-name>Protected Content</web-resource-name>
      <url-pattern>/protected/*</url-pattern>
   </web-resource-collection>
   <auth-constraint>
      <role-name>authenticated</role-name>
   </auth-constraint>
</security-constraint>

<security-role>
    <description></description>
    <role-name>authenticated</role-name>
</security-role>
```

The role must be declared with the `<security-role>` tags when it is used inside a security constraint.

3.3 Configuring Applications on the WebSphere Server

3.3.1 Configuring for Authentication

You need to create policies that deny access to the anonymous user. You can do this either with the `web.xml` file within the `.war` file or with Access Manager policies. In Access Manager, you deny access to the anonymous user by creating an authorization policy that denies access to anyone who has not been assigned the `authenticated` role. Anonymous users who haven't authenticated do not have this role, and users who have authenticated to Access Manager are automatically assigned this role.

If you have pages that call Enterprise JavaBeans that are protected, you should assign a policy to these pages that denies access to users who have not authenticated.

If you have WebSphere applications already deployed when you installed the J2EE Agent, you need to run the wsadmin tool to update the agent with the security policies of the applications. For more information about updating a security policy, see Propagating a Security Policy (http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/tsec_jaccmigrate.html).

3.3.2 Configuring for RunAs Roles

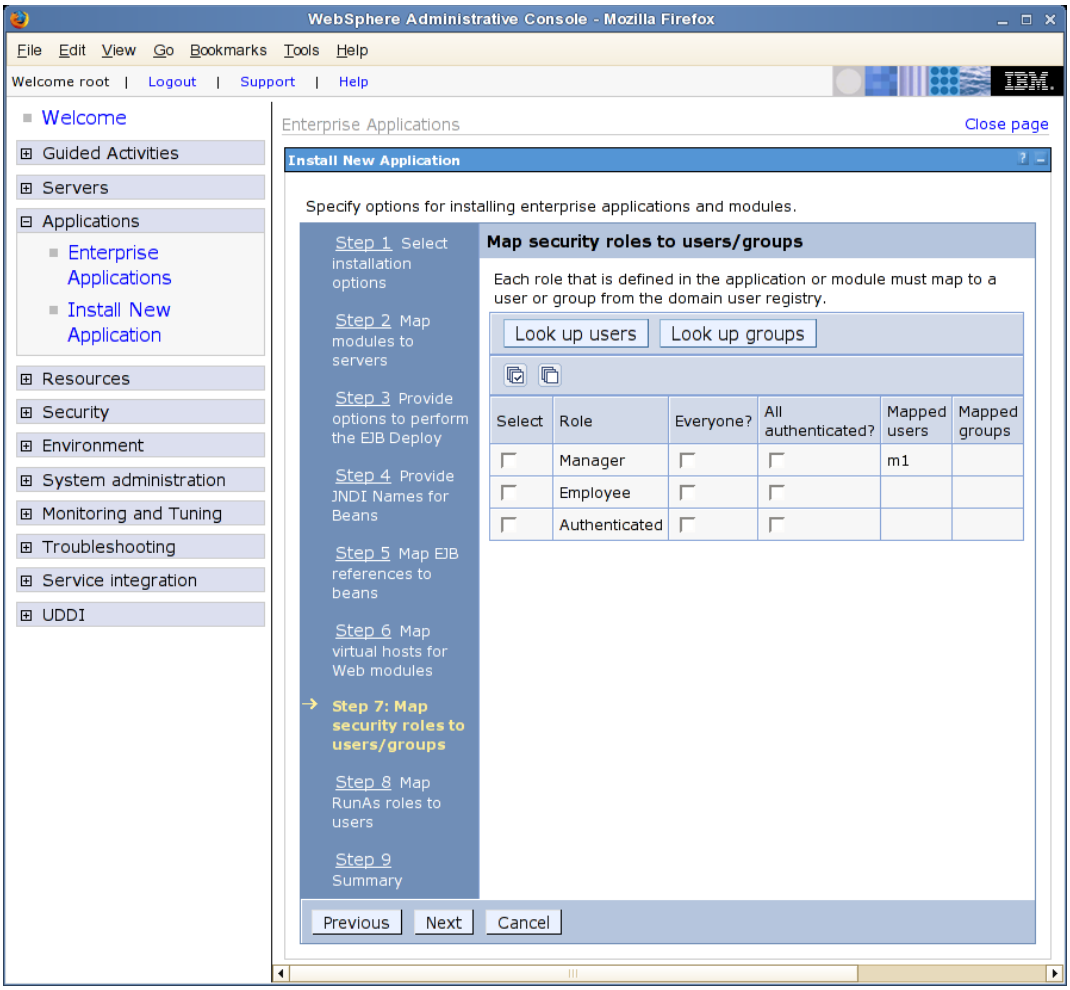
An Enterprise JavaBean deployment descriptor can state that an Enterprise JavaBean must run with a particular role. The the sample application (`PayrollApp.ear`) includes such a statement in its descriptor:

```
<security-identity>
    <run-as>
       <role-name>Manager</role-name>
    </run-as>
</security-identity>
```

Without configuring WebSphere to map a RunAs role to a user, WebSphere ignores this statement. If a user is mapped to a RunAs role, the agent cannot know which J2EE roles the user has unless the role is also mapped.

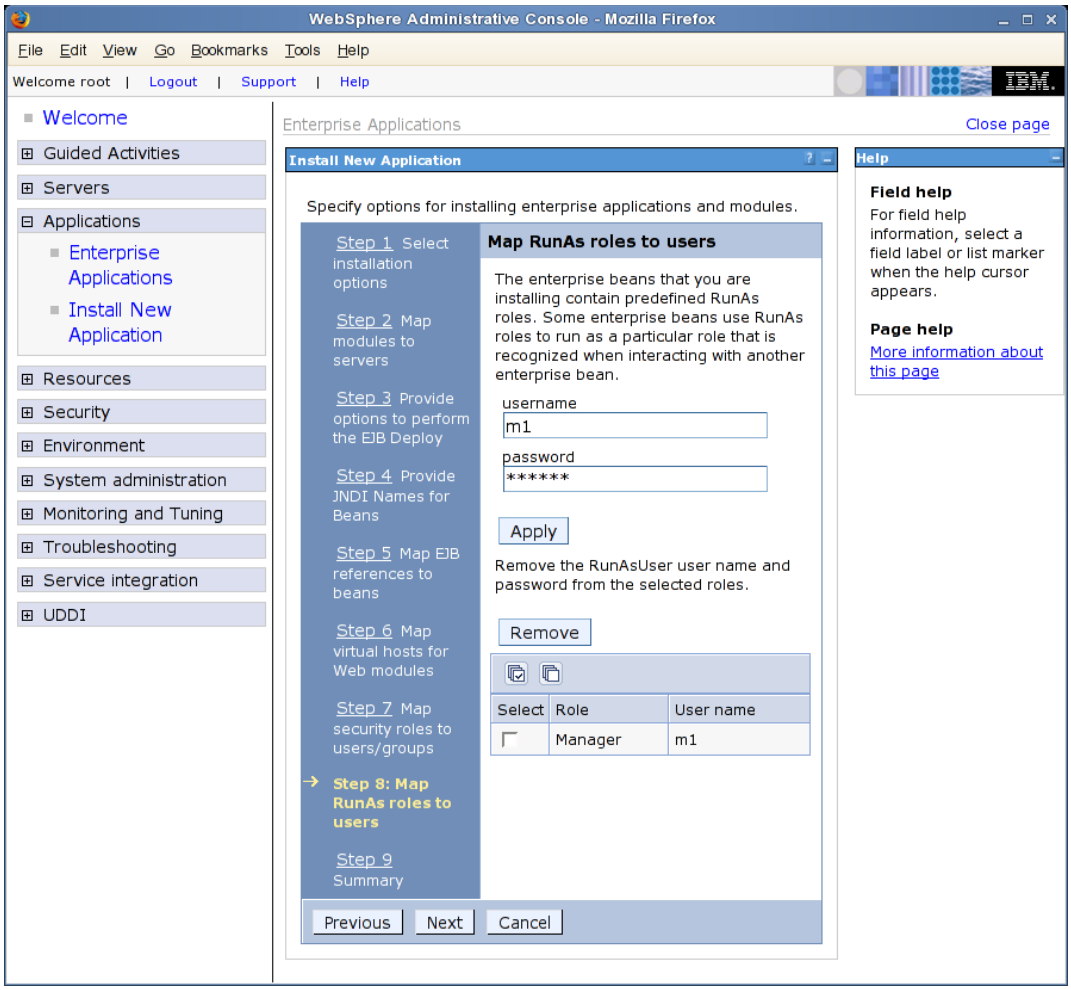
To configure mapping for RunAs roles, complete the following during WebSphere deployment:

1. Map the user or group to J2EE roles. This is Step 7 of the deployment process.



The J2EE Agent uses this mapping to discover which role a user or a user's group belongs to.

2 Map a RunAs role to a user. This is Step 8 of the deployment process.



The WebSphere server uses this mapping to assign a user to execute an Enterprise JavaBeans method.

3.4 Configuring Applications on the WebLogic Server

If the application is using RunAs roles in the `weblogic-ejb-jar.xml` file, the role needs to be mapped to a user in the WebLogic domain. To enable this configuration on the server, two elements need to be added to this file:

- `<run-as-principal-name>` element for the EJB that is configured to use RunAs roles
- `<security-role-assignment>` element for the role

Run-As-Principle-Name Element

The `<run-as-principal-name>` element resides inside the `<weblogic-enterprise-bean>` element for the EJB. The element tells the server to run the EJB as the specified user. The sample below uses weblogic as the username because this is the default name of the WebLogic admin user. The entry should look similar to the following:

```
<run-as-principal-name>weblogic</run-as-principal-name>
```

The value (`weblogic`) must be the name of a user that exists in the domain. When this user is mapped to the Manager role, all users with the Manager role can run the EJB. The `<weblogic-enterprise-bean>` section of the file should look similar to the following for the sample payroll application. These sample lines configure the EmployeeSessionEJB:

```
<weblogic-enterprise-bean>
        <ejb-name>EmployeeSessionEJB</ejb-name>
        <reference-descriptor>
            <ejb-local-reference-description>
                <ejb-ref-name>ejb/EmployeeEJB</ejb-ref-name>
                <jndi-name>ejb.EmployeeEJB</jndi-name>
            </ejb-local-reference-description>
        </reference-descriptor>
        <enable-call-by-reference>True</enable-call-by-reference>
        <run-as-principal-name>weblogic</run-as-principal-name>
        <jndi-name>ejb.EmployeeSessionEJB</jndi-name>
    </weblogic-enterprise-bean>
```

Security-Role-Assignment Element

The `<security-role-assignment>` element needs to be placed outside of the `<weblogic-enterprise-bean>` element, and it needs to map the Manager role to the weblogic user specified in the `<run-as-principal-name>` element. It should look similar to the following for the sample payroll application:

```
<security-role-assignment>
    <role-name>Manager</role-name>
    <principal-name>weblogic</principal-name>
</security-role-assignment>
```

Configuring the Basic Features of the J2EE Agent

4

This section describes how to configure the J2EE Agent for the following features:

For information about configuring the J2EE Agent for authentication and access control, see the following:

4.1 Enabling Tracing and Auditing of Events

You can use either a Novell® Audit server or the J2EE server log files to record information about what is being processed by the J2EE Agent.

4.1.1 Tracing Events to Log Files

Tracing adds more information about events (such as logins, logouts, and policy enforcement) to the J2EE server log files.

To enable tracing:

1. In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit*.
2. Select the *Enable Tracing* option. The messages are sent to the following log files, depending upon the type of application server you are using:
   - **JBoss Server:** For a JBoss server, the log messages are logged to the `$JBOSS_HOME/log/jboss.log` file if you launched the JBoss server using the `run.sh` script found in the `bin` folder. Messages are also sent to the console, so you should check the console or the `$JBOSS_HOME/server/default/log/server.log` file.
   - **WebSphere Server:** For a WebSphere server, the log messages are logged to files in the `$WAS_BaseDir/profiles/$ProfileName/logs` directory. Check the `SystemOut.log` and `SystemErr.log` files.
   - **WebLogic Server:** For a WebLogic server, the log messages are sent to standard out.
3. Click *Apply Changes*.

4 To trace policy enforcement, you also need to enable and set the level of logging for the embedded service provider. See "Turning on Logging for Policy Evaluation" in the *Novell Access Manager 3.0 SP2 Administration Guide*.

4.1.2 Enabling the Auditing of Events

The Access Manager ships with a Novell Audit server that is installed when you install the first instance of the Administration Console. You can configure the J2EE Agent to send events to this audit server or to another Novell Audit server on your network. (To configure access to the Novell Audit server, see "Enabling Auditing" in the *Novell Access Manager 3.0 SP2 Administration Guide*.)

1 In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit*.

2 In the *Audit Configuration* section, select from the following events:

Event	Description
Startup, shutdown, and reconfigure	Generated when the agent is started or stopped and when the configuration of the agent is modified.
Successful authentications	Generated when someone successfully authenticates to the agent.
Allowed EJB access	Generated when someone is granted access to Enterprise JavaBeans.
Allowed web resource access	Generated when someone is granted access to a Web resource.
Allowed clear text access	Generated when a user is granted clear text access to a Web resource.
Denied clear text access	Generated when someone is denied clear text access to a Web resource.
Unsuccessful authentications	Generated when someone is unsuccessful in attempting to authenticate.
Denied EJB access	Generated when someone is denied access to Enterprise JavaBeans.
Denied web resource access	Generated when someone is denied access to a Web resource.

3 Click *OK*, then click *Update* > *OK*.

4.2 Managing Embedded Service Provider Certificates

You can view and modify the private keys, certificate authority (CA) certificates, and certificate containers associated with the embedded service provider. The embedded service provider module is the J2EE Agent module that communicates with the Identity Server. This module handles all the authentication requests that need to be forwarded to the Identity Server for verification.

1 In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit*.

2 To view the assigned certificates, click one of the following keystores in the *Service Provider Certificates* section:

Signing: The signing certificate keystore. Click this link to access the keystore and replace the signing certificate as necessary. The signing certificate is used to sign the assertion or specific parts of the assertion.

Mutual SSL: The mutual SSL connector keystore. Click this link to access the keystore and replace the certificate. This certificate is used for mutual SSL connections with the Identity Server. If you set up services on the Identity Server that require mutual SSL, the Identity Server uses this certificate to established the mutual SSL connection.

The Web Services Framework allows each service (such as a personal profile or employee profile) defined on the Identity Server to specify various security mechanisms that are a combination of transport-level and messages-level security as depicted in Liberty ID-WSF specification. This can be selected by the administrator, depending upon the nature of data and optimizations. If a service on the Identity Server specifies that any Web service consumer (which includes the embedded service provider) must authenticate itself using a client certificate, the Web service consumer needs to support mutual SSL. For information on how to set up a profile to require mutual SSL, see "Editing Web Service Descriptions" in the *Novell Access Manager 3.0 SP2 Administration Guide*.

The Access Manager automatically populates this keystore with the certificate that you select when enabling SSL between the agent and the Identity Server. If you replace this certificate, you need to replace it with a certificate whose subject name (cn) matches the DNS name of the agent.

Trusted Roots: The trusted root certificate container for CA certificates associated with the agent. Click this link to access the trust store, where you can change the password or add trusted roots to the container.

The embedded service provider must trust the certificate of the Identity Server that the agent has been configured to trust. The public certificate of the CA that generated the Identity Server certificate must be in this trust store. If you configured the Identity Server to use a certificate generated by a CA other than the Access Manager CA, you must add the public certificate of this CA to the Trusted Roots store.

3 Click *OK*, then click *Update* > *OK*.

4.3 Configuring SSL Certificate Trust

The Identity Server must be configured to trust the CA that created the SSL key pair certificate of your application server. The public key of this CA needs to be added to the NIDP Trust Store of the Identity Server. For instructions, see "Importing Public Key Certificates (Trusted Roots)" in the *Novell Access Manager 3.0 SP2 Administration Guide*, select the NIDP Trust Store, and specify the IP address and port of your application server.

The embedded service provider of the agent, which the agent uses for communication with the Identity Server, must be configured to trust the CA that generated the certificate for the Identity Server. If you configured the Identity Server to use a certificate generated by a CA other than the Access Manager CA, you must add the public certificate of this CA to the trusted roots store of the embedded service provider. See Section 4.2, "Managing Embedded Service Provider Certificates," on page 54.

4.4 Modifying the Display Name and Other Details

1. In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent] > Edit.*
2. (Optional) Modify the following fields:

   Name: Specifies the console display name for the agent. The default name is a randomly generated unique number. You should probably modify this name to one that you can pronounce. You cannot leave this field blank.

   The name must use alphanumeric characters and can include spaces, hyphens, and underscores.

   Location: (Optional) Specifies the physical location of this J2EE Agent.

   Description: (Optional) Describes the purpose of this agent. This is a useful field if your network has multiple J2EE Agents.
3. To save your changes, click *OK*.

To change the Management IP Address, see Section 4.5, "Changing the IP Address of the J2EE Agent," on page 56.

4.5 Changing the IP Address of the J2EE Agent

If you configure your J2EE server to use a different IP address after you have installed the J2EE Agent, the communication channel between the Administration Console and the J2EE Agent breaks. The Administration Console needs to be updated to use the new IP address for communication.

WARNING: The agent must be informed of the pending change in the IP address before you actually change the address on the J2EE server. If you change the address on the J2EE server before configuring the change in the Administration Console, you must uninstall the agent and reinstall it to establish communication with the Administration Console.

---

1. In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent] > Edit.*
2. In the *Management IP Address* option, specify the IP address of the J2EE server. If you have changed the IP address of the J2EE server, specify this address here.
3. To save your changes, click *OK*.
4. To verify your settings for the *J2EE Application Server URL* option, click *J2EE Agents > Edit*.

   If you used a DNS name for the *J2EE Application Server URL*, make sure your DNS server has been updated to resolve the DNS name to the new IP address.

Protecting Web and Enterprise JavaBeans Modules

5

The J2EE Agent mechanisms for protecting Web and EJB (Enterprise JavaBeans) modules have far more granularity than what you can configure on the J2EE application server. With the agent, you can be very selective of what you are protecting. For a Web application, you can select to protect a specific page or group of pages. For an Enterprise JavaBean, you can select to protect a bean, an interface, a method, or a parameter. After you have selected the granularity of the resource you want to protect, you can then configure a policy that grants access to this resource. You can use roles as part of this policy, but you can refine it by using other criteria such as LDAP attributes, credential profile attributes, or the day of the week.

The J2EE Agent also allows you to decide how you want authorization handled. You can use the security settings configured on the application server, you can use the Authorization policies configured on the J2EE Agent, or you can use both methods.

The following sections explain how to set up security for your J2EE resources:

5.1 Configuring Access Control

The access control configuration determines which Authorization policies are used to allow access to resources. The application server must be configured to allow the J2EE Agent to enforce authorization:

After you have configured the J2EE server for authorization, you need to configure the J2EE Agent for access control:

1. In the Administration Console, click *J2EE Agents* > *Edit*.
2. In the *Access Control Configuration* section, select one or more of the following:

   Enforce application server policy: Allows access based on the policy of the application server. These policies are defined on the application server in a `web.xml` file for a `.war` file and in a `ejb-jar.xml` file for a `.jar` file.

   IMPORTANT: If you select this option and you are using a JBoss server, see Section 3.2.2, “Configuring Security Constraints,” on page 47 for additional information.

   Enforce additional authorization policies: Allows access based on the policies assigned to the protected resources. If you do not configure any protected resources, users are denied

access to all resources. If a resource does not match any of the protected resource configurations, all users are denied access to that resource.

You can enable both of these options, only one, or none. If you select neither, any user can access the resources on the application server.

If you select to use only the J2EE Agent policies for authorization and you disable the *Enforce application server policy* option, remember that authentication is triggered by the Web page for a `.jar` file and by the `web.xml` file for a `.war` file.

IMPORTANT: Do not disable *Enforce application server policy* until you have configured and tested the J2EE Agent policies and know that they are enforcing the security you require and that users have access to the resources they require.

---

3 If you decided to use just the application server policies, click *OK*, then click *Update* > *OK*.

If you enabled *Enforce additional authorization policies*, click *Define authorization policies* and continue with one of the following:

- Section 5.2, “Protecting Web Resources,” on page 58
- Section 5.3, “Protecting Enterprise JavaBeans Resources,” on page 60

5.2 Protecting Web Resources

Because you can define multiple protected resources for each Web application, you can protect some URLs with one policy and other URLs with a different policy. For example, you might have some pages in the application that you want all employees to access, and some pages that you want only managers to access. For this application, you would create two protected resources, one for all employees and one for managers. You would then assign a policy to each protected resource. The following sections explain this process:

- Section 5.2.1, “Creating a Protected Resource for a Web Application,” on page 58
- Section 5.2.2, “Assigning a Web Authorization Policy to the Resource,” on page 60

5.2.1 Creating a Protected Resource for a Web Application

1 In the Administration Console, click *J2EE Agents* > *Edit* > *Manage authorization policies*.

2 Click *New* and supply the following information:

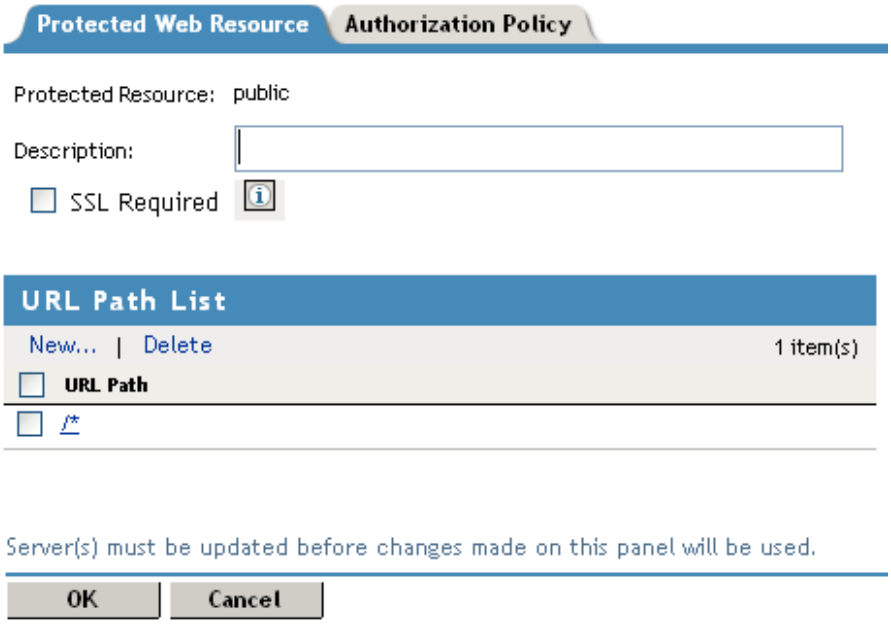
Module File Name: The filename of the application. Specify the name of the file you are protecting, including the file extension (`.war` for a Web application).

Type: The type of application. Select *Web Module* for a Web application.

3 Click *OK*.

4 To add a protected resource to the list, click *New*, specify a display name for the resource, then click *OK*.

If possible, this name should indicate the URLs that you are going to configure for this resource.



5 Fill in the following fields:

Description: (Optional). A text box where you can specify a description of the protected resource. You can also use it to briefly describe the purpose for protecting this resource.

SSL Required: If this option is selected, the J2EE Agent sets up an SSL connection between the client and the application.

IMPORTANT: If the Web pages that you are now protecting with SSL have been publicly available over HTTP, they remain publicly available over HTTP until you either restart the Web server or reinstall the application. If this is a new application, reinstalling the application might be less disruptive to your network environment than restarting the Web server.

For the JBoss Agent, selecting the *SSL Required* option is only part of the process. On JBoss, you must also either disable the HTTP port and enable the SSL port or configure SSL in the `web.xml` file.

---

6 In the *URL Path List*, configure the paths that this resource protects. To add a path, click *New*, specify the path, then click *OK*.

For example, to allow access to all the pages in the `public` directory on the Web server, specify the following path:

```
/public/*
```

To allow access to everything on the Web server, specify the following path:

```
/*
```

To use this protected resource to protect a single page, specify the path and the filename. For example, to protect the login.html page in the `/login` directory, specify the following

```
/login/login.html
```

7 Click *Configuration Panel* > *OK*

8 On the Configuration page, click *OK*, then click *Update* > *OK*.

9 Continue with Section 5.2.2, “Assigning a Web Authorization Policy to the Resource,” on page 60.

Until you have assigned an Authorization policy to the resource, which restricts access to this resource, all authenticated users have access to the resource.

5.2.2 Assigning a Web Authorization Policy to the Resource

The following instructions assume that you have already created your Authorization policy for the Web resource. For general information about Authorization policies, see "Creating Authorization Policies" in the *Novell Access Manager 3.0 SP2 Administration Guide* and for information about creating a Web Authorization policy, see "Creating Web Authorization Policies for J2EE Agents " in the *Novell Access Manager 3.0 SP2 Administration Guide*.

To assign an Authorization policy:

1. In the Administration Console, click *Access Manager > J2EE Agents > Edit > Manage authorization policies > [Name of Web Module] > [Name of Protected Resource] > Authorization Policy*.
2. To enable a policy, select a policy in the list, then click *Enable*.

   If no policies appear in the list, you haven't created any. Click *Manage Policies*. For configuration information, see "Creating Web Authorization Policies for J2EE Agents " in the *Novell Access Manager 3.0 SP2 Administration Guide*.
3. Click *Configuration Panel > OK*
4. On the Configuration page, click *OK*, then click *Update > OK*.

5.3 Protecting Enterprise JavaBeans Resources

Because you can define multiple protected resources for each JavaBean, you can create one policy that protects the module and another policy that protects specific interfaces or methods. For example, you could create two protected resources and two policies for an EJB. The first resource and policy combination grants general access to the EJB to all the users that meet the criteria in the Authorization policy. If the EJB contains areas that only a few users should access, then you create a second protected resource and policy combination that restricts access to these resources to these users. The following sections explain this process:

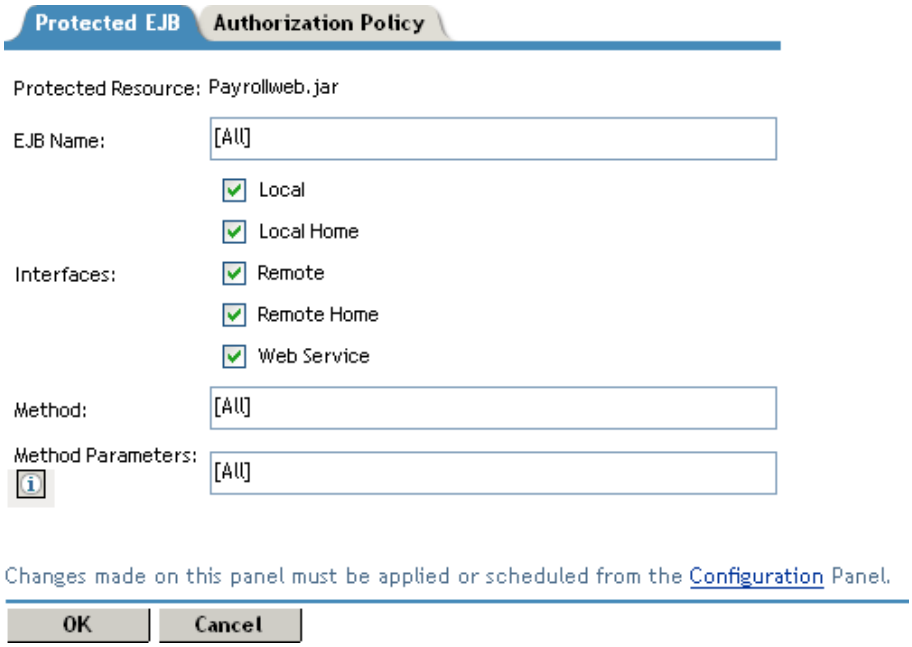
- Section 5.3.1, "Creating a Protected Enterprise JavaBean Resource," on page 60
- Section 5.3.2, "Assigning an Enterprise JavaBeans Authorization Policy to a Resource," on page 62

5.3.1 Creating a Protected Enterprise JavaBean Resource

1. In the Administration Console, click *Access Manager > J2EE Agents > Edit > Manage authorization policies*.
2. Click *New* and supply the following information:

   Module File Name: The filename of the EJB. Specify the name of the EJB module you are protecting, including the file extension (`.jar` for an EJB Module).

   Type: The type of application. Select *EJB Module* for an EJB module.
3. Click *OK*.
4. To add a protected resource to the list, click *New*, specify a display name for the EJB resource, then click *OK*.



5 Fill in the following fields:

EJB Name: The module name to protect. Select *[All]* to protect all modules.

Interfaces: The interfaces to protect. Select one or more of the following:

- Local
- Local Home
- Remote
- Remote Home
- Web Service

Method: The method to protect. Select *[All]* to protect all methods.

Method Parameters: The parameters of the method to protect.

- If *[All]* is specified, the policy is applied to all methods listed in the *Method* field.
- If the list is empty, the policy is applied only to the methods that have an empty set of parameters.
- If the field contains parameter names, the policy is applied only to the methods that have the specified parameters.

6 Click *Configuration Panel* > *OK*

7 On the Configuration page, click *OK*, then click *Update* > *OK*.

8 Continue with Section 5.3.2, “Assigning an Enterprise JavaBeans Authorization Policy to a Resource,” on page 62.

Until you have assigned an Authorization policy to the resource to restrict access to this resource, all authenticated users have access to the resource.

5.3.2 Assigning an Enterprise JavaBeans Authorization Policy to a Resource

The following instructions assume that you have already created your Authorization policy for the Web resource. For general information about Authorization policies, see "Creating Authorization Policies" in the *Novell Access Manager 3.0 SP2 Administration Guide* and for information about creating an EJB Authorization policy, see "Creating Enterprise JavaBean Authorization Policies for J2EE Agents" in the *Novell Access Manager 3.0 SP2 Administration Guide*.

1. In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit* > *Manage authorization policies* > *[Name of EJB Module]* > *[Name of EJB]* > *Authorization Policy*.
2. To enable a policy, select a policy in the list, then click *Enable*.

   If no policies appear in the list, you haven't created any. Click *Manage Policies*. For configuration information, see "Creating Enterprise JavaBean Authorization Policies for J2EE Agents" in the *Novell Access Manager 3.0 SP2 Administration Guide*.

   WARNING: EJBs that are configured to run-as a role can only use limited conditions in an EJB Authorization policy. The Current Roles of User and the time conditions can be used in the policy, but the conditions requiring user information cannot be used. This is because the run-as role subjects do not contain the Liberty profile, LDAP attribute, or LDAP credential information that these conditions require. When unsupported conditions are defined in a policy and that policy is assigned to a run-as role EJB, the user is denied access to the EJB resource.

   ---
3. Click *Configuration Panel* > *OK*
4. On the Configuration page, click *OK*, then click *Update* > *OK*.

Deploying the Sample Payroll Application

6

The sample payroll application has been configured to grant access based on whether the user has an Employee role or a Manager role. You can configure your J2EE Agent to use the authorization policies of the J2EE server or to use the policies of the Access Manager.

6.1 Using the J2EE Server to Enforce Authorization

The following sections explain how to configure Access Manager to use the authorization policies of the J2EE server.

1. Deploy the sample payroll application on your J2EE server.

   The location of the sample application is platform-specific:

   - On a Linux J2EE server, the application is copied to the `/opt/novell/nids_agents/example` directory.
   - On a Windows J2EE server, the application is copied to the `<Install_Directory>\sampleapp` directory.

2. On your J2EE server, prepare the application to use the agent for login and logout. (See Section 3.1, "Preparing the Application for the Agent," on page 45).

   These steps have already been performed for the sample application. See the `web.xml` file in the application's `WEB-INF` directory.

3. Complete any platform-specific configuration:

   - **JBoss:** These tasks have already been performed for JBoss. To understand what was modified, see Section 3.2, "Configuring Applications on the JBoss Server," on page 47.
   - **WebSphere:** You need to configure the RunAs Roles feature. See Section 3.3.2, "Configuring for RunAs Roles," on page 49.
   - **WebLogic:** You need to configure the RunAs Roles feature. See Section 3.4, "Configuring Applications on the WebLogic Server," on page 51.

4. In Access Manager, create two Role policies: an Employee role and a Manager role. See Section 6.2.1, "Creating an Employee Role and a Manager Role," on page 64 for one way to create these roles, and see "Employee Role" and "Manager Role" in the *Novell Access Manager 3.0 SP2 Administration Guide* for another way.

5. Configure the agent for authentication, if you haven't done so already. See Chapter 2, "Configuring the Agent for Authentication," on page 31.

6. Make sure that the *Enforce application server policy* option is selected. In the Administration Console, click *Access Manager* > *J2EE Agents* > *Edit*.

7. To test this configuration, send the following request from a browser:

`http://<Application_Server_DNS_Name>:<port>/payroll`

Replace `<Application_Server_DNS_Name>` with the DNS name or the IP address of your application server. Replace `<port>` with the port number you have configured the J2EE Agent to use.

8. Log in as a user who matches the condition to receive the Employee role and access the *My Page* and the *Manager Page*.
9. Log out and log in as a user who matches the condition to receive the Manager role. Access the *My Page* and the *Manager Page*.

   As a manager you can add Employee Records. Then when employees log in, their records are displayed on *My Page*.

6.2 Using Access Manager Policies to Enforce Authorization

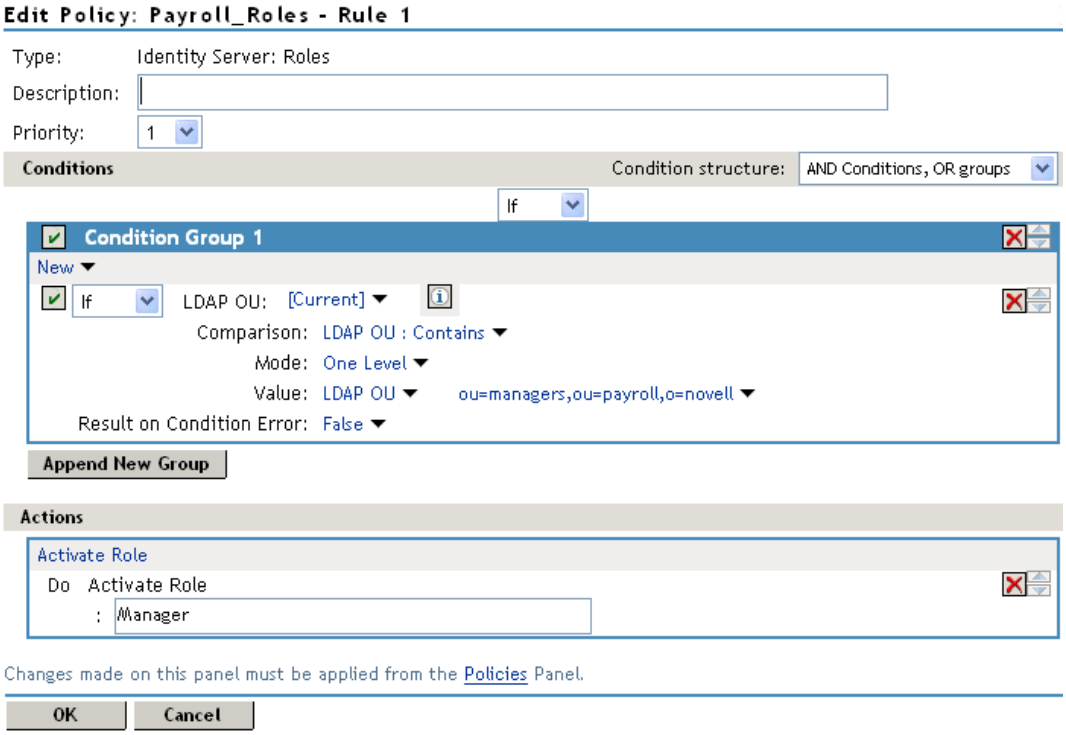
The following scenario explains how to set up Access Manager policies that permit Managers to access the manager pages in the sample payroll application, deny Employees access to the manager pages, but permit Employees and Managers access to their own information pages. These policies do not require any J2EE server configuration to correctly enforce the policies.

6.2.1 Creating an Employee Role and a Manager Role

If you have a particular application that requires more than one role, and it is the only application using these roles, you might want to create one role policy that assigns users to the required roles. The following steps explain how to create one role policy that assigns users to the Manager role and the Employee role.

1. In the Administration Console, click *Access Manager* > *Policies*.
2. Click *New*, specify a name for the role policy, select *Identity Server: Roles* as the type, then click *OK*.
3. For the first rule, click *New*, create a condition that matches your managers but not your employees, activate the Manager role, then click *OK*.

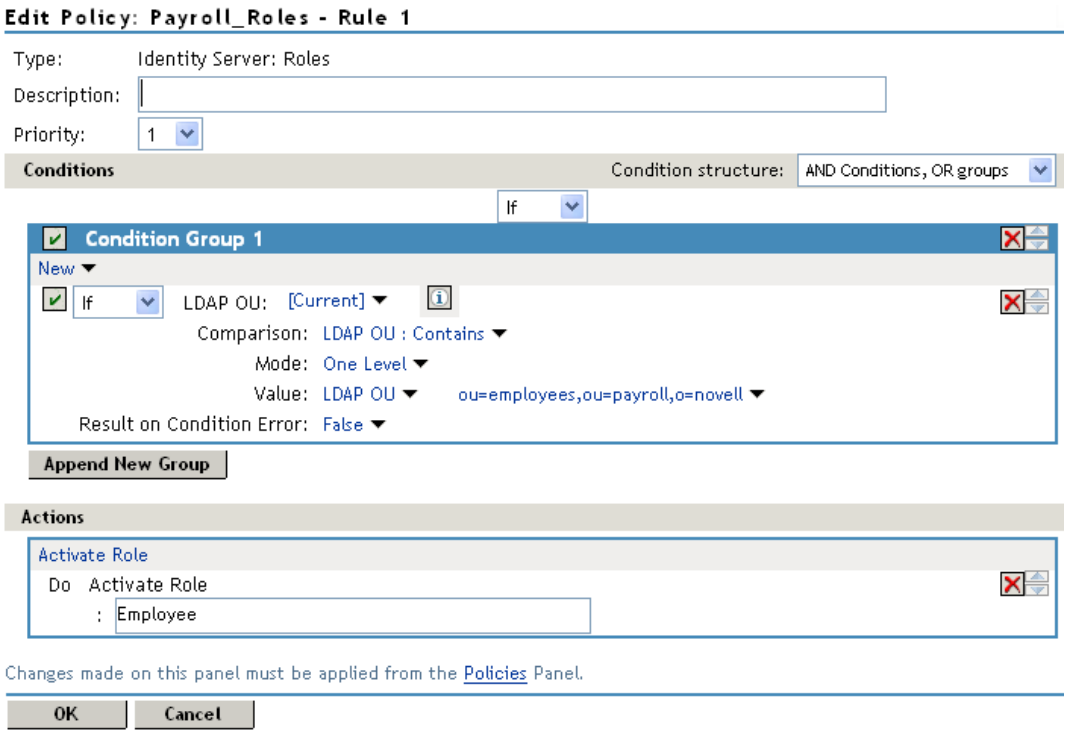
   The following rule uses the LDAP OU condition to determine whether the user is a manager. It assumes that all managers are in the ou=managers,ou=payroll,o=novell container.



4 To create the second rule of the policy, click *New*.

5 In Condition Group 1, click *New*, create a condition that matches your employees but not your managers, activate the Employee role, then click *OK*.

The following rule uses the LDAP OU condition to determine whether the user is an employee. It assumes that all employees are in the ou=employees,ou=payroll,o=novell container.



6 To save your Role policy, click *OK* > *Apply Changes*.

7 Activate the Role policy for your Identity Server cluster configuration. Click *Identity Servers* > *Edit* > *Roles*.

8 Select the name of your Role policy, click *Enable*, then click *OK*.

9 Update the Identity Server. Click *Identity Servers* > *Update*.

10 Continue with Section 6.2.2, “Creating Authorization Policies,” on page 66.

6.2.2 Creating Authorization Policies

The payroll application is a `.ear` file that contains both an EJB module and a Web (`.war`) module. Each module type requires its own type of Authorization policies, and to fully protect the application, you must create the following policies:

- “Creating EJB Authorization Policies” on page 66
- “Creating Web Authorization Policies” on page 68

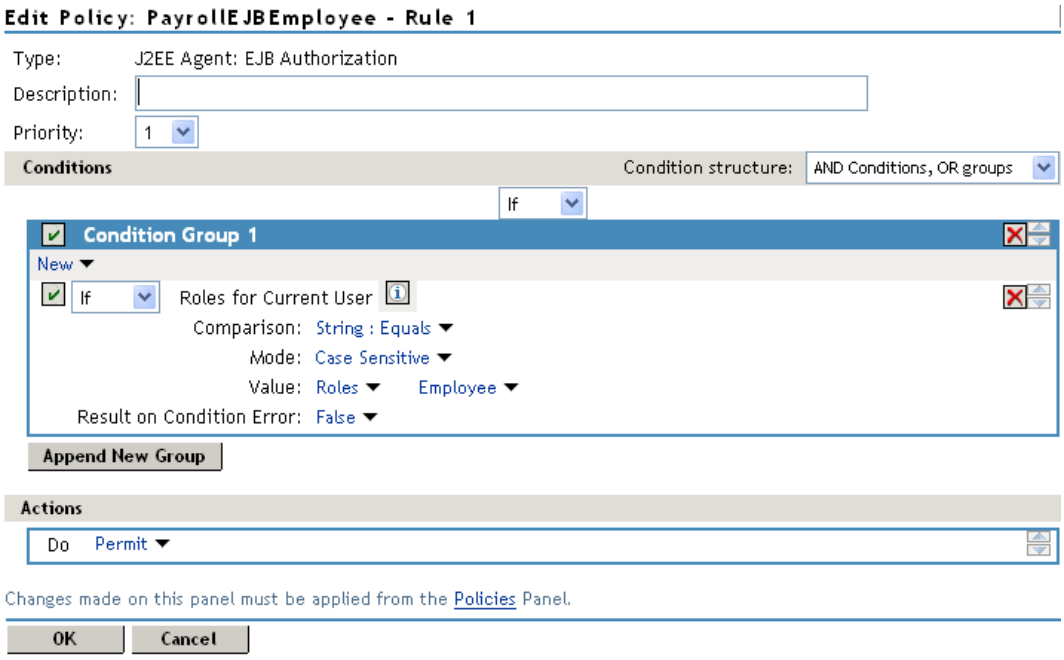
Creating EJB Authorization Policies

You need to create two policies: one that permits Managers to access EJB resources and one that permits Employees to access EJB resources.

1 In the Administration Console, click *Access Manager* > *Policies*.

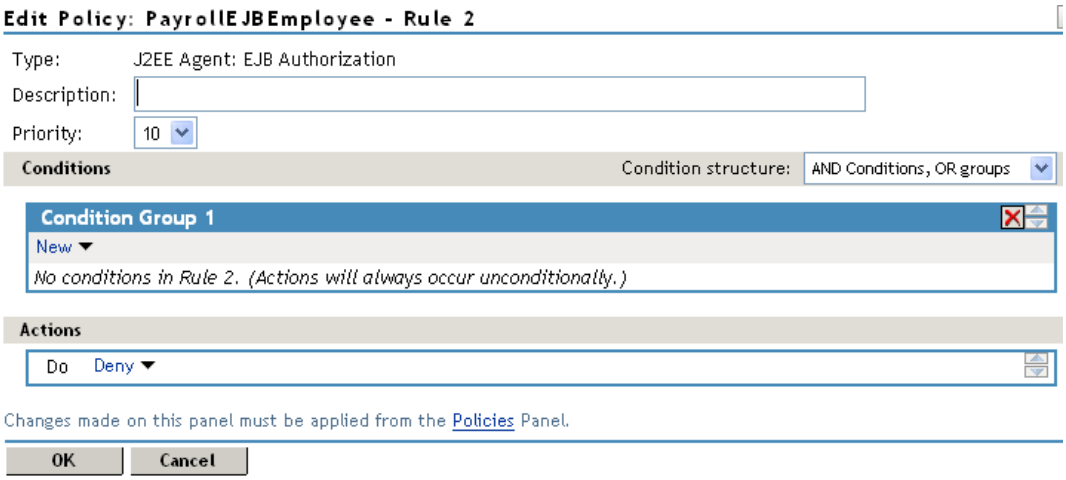
2 To create an Authorization policy for the employees, click *New*, specify a name for the policy, select *J2EE Agent: EJB Authorization* as the type, then click *OK*.

3 For the first rule, click *New*, set up a condition that permits access if the user has been assigned the Employee role, then click *OK*. Your rule should look similar to the following:



4 To create the second rule in the policy, click *New*.

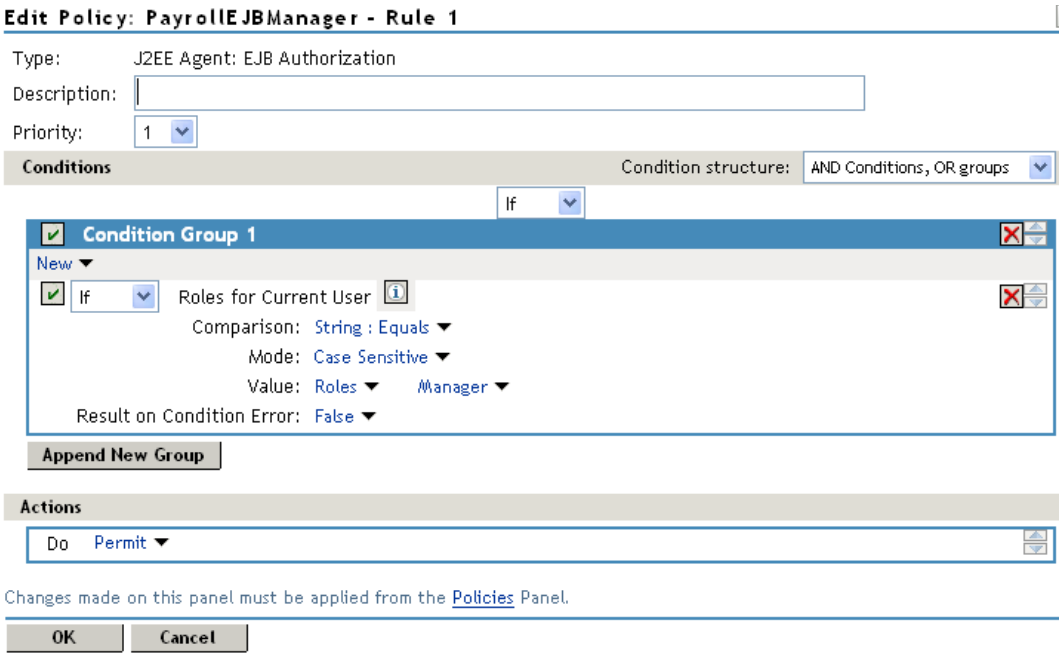
5 To create a generic deny rule, assign a deny action, then click *OK*. Your rule should look similar to the following:



6 To save your employee policy, click *OK* > *Apply Changes*.

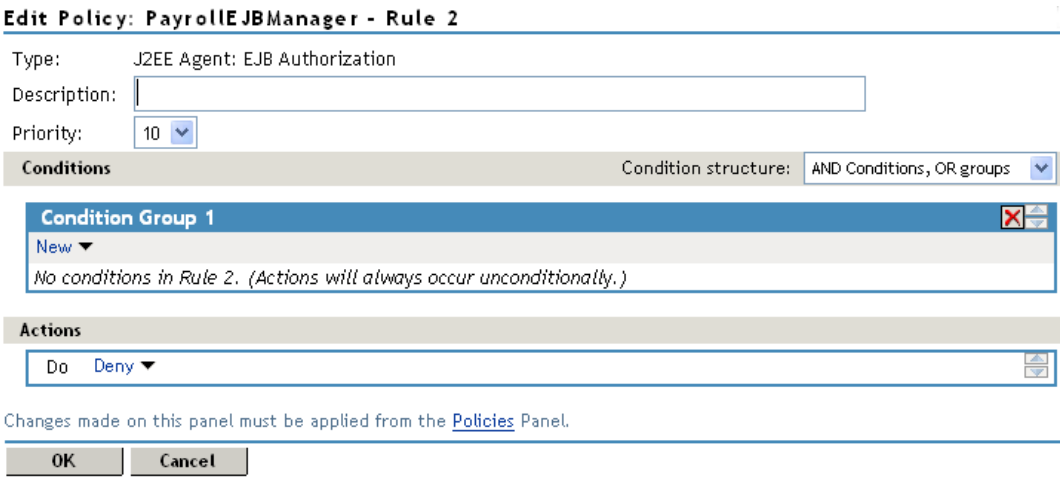
7 To create a policy for the managers, click *New*, specify a name for the policy, select *J2EE Agent: EJB Authorization* as the type, then click *OK*.

8 For the first rule, click *New*, set up a condition that permits access if the user has been assigned the Manager role, then click *OK*. Your rule should look similar to the following:



9 To create the second rule in the policy, click *New*.

10 To create a generic deny rule, assign a deny action, then click *OK*. Your rule should look similar to the following:



11 To save your manager policy, click *OK* > *Apply Changes*.

12 Continue with "Creating Web Authorization Policies" on page 68.

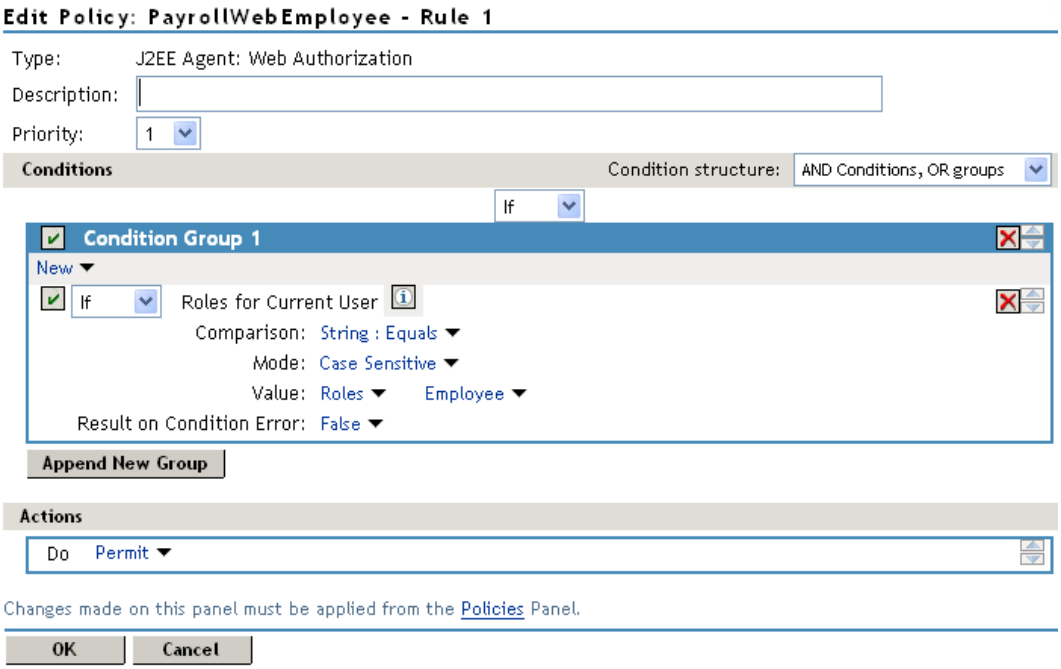
Creating Web Authorization Policies

You need to create two policies: one that permits Managers to access resources and one that permits Employees to access resources.

1 In the Administration Console, click *Access Manager* > *Policies*.

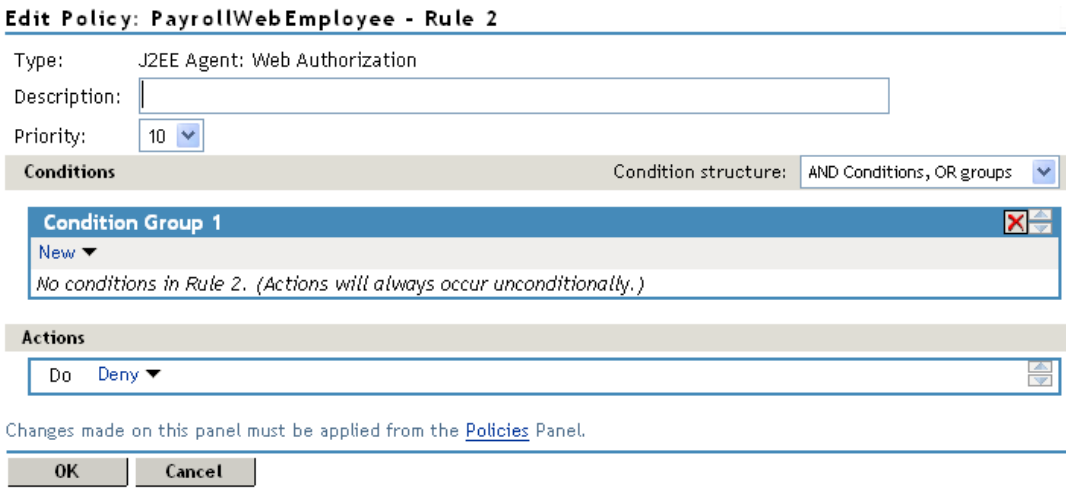
2 To create an Authorization policy for the employees, click *New*, specify a name for the policy, select *J2EE Agent: Web Authorization* as the type, then click *OK*.

3 For the first rule, click *New*, set up a condition that permits access if the user has been assigned the Employee role, then click *OK*. Your rule should look similar to the following:



4 To create the second rule in the policy, click *New*.

5 To create a generic deny rule, assign a deny action, then click OK. Your rule should look similar to the following:

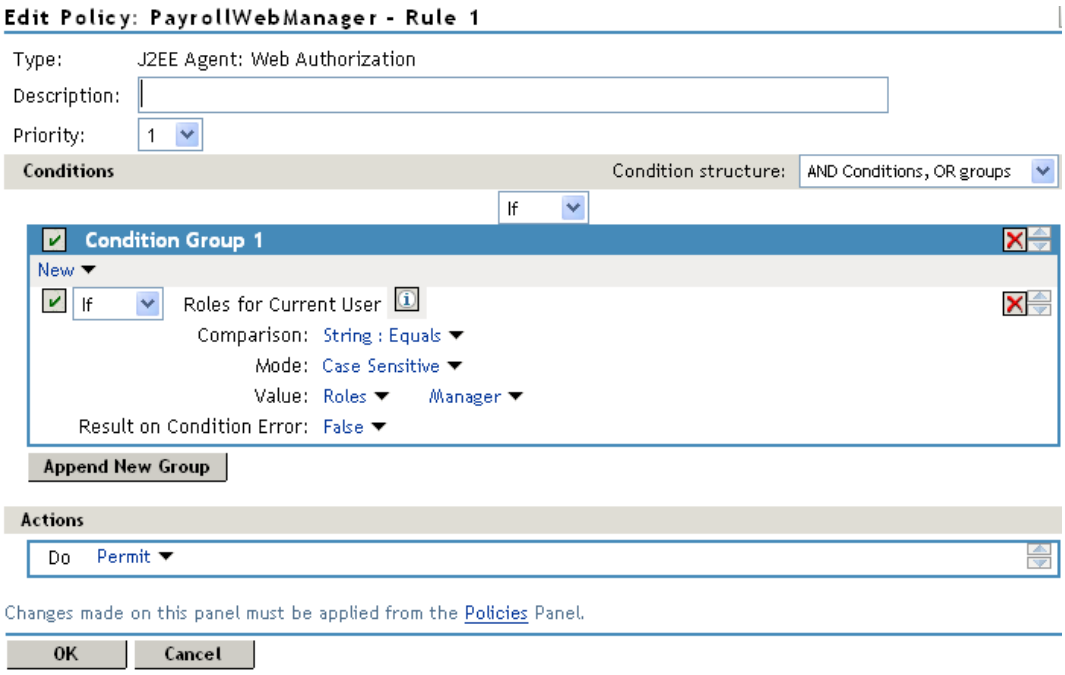


When you create a policy with one or more permit rules and you end it with a deny rule with a priority of 10, the logic of the policy is clear. Users who match a permit rule are allowed access; everyone else is denied access.

6 To save your employee policy, click *OK* > *Apply Changes*.

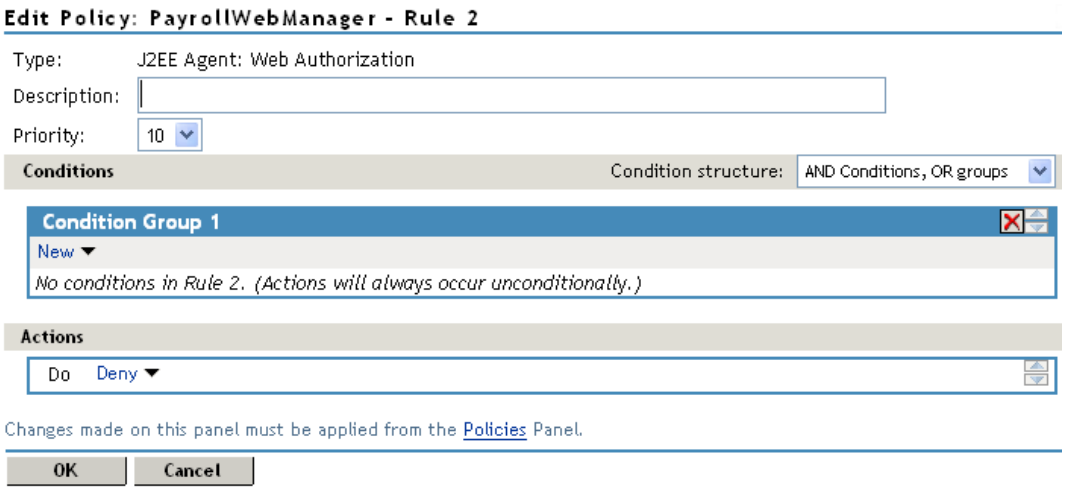
7 To create a policy for the managers, click *New*, specify a name for the policy, select *J2EE Agent: Web Authorization* as the type, then click *OK*.

8 For the first rule, click *New*, set up a condition that permits access if the user has been assigned the Manager role, then click *OK*. Your rule should look similar to the following:



9 To create the second rule in the policy, click *New*.

10 To create a generic deny rule, assign a deny action, then click *OK*. Your rule should look similar to the following:



11 To save your manager policy, click *OK* > *Apply Changes*.

12 Continue with Section 6.2.3, “Assigning Policies to Protected Resources,” on page 71

6.2.3 Assigning Policies to Protected Resources

After creating the Authorization policies, you need to create protected resources for the payroll application, then assign the policies to the protected resources.

- "Assigning the Authorization Policies to Protected Web Resources" on page 71
- "Assigning the Authorization Policies to Protected EJB Resources" on page 72

Assigning the Authorization Policies to Protected Web Resources

To allow the J2EE Agent to enforce authorization for the payroll Web module, you need to create three protected resources for the payroll application.

1. Click *Access Manager* > *J2EE Agents* > *Edit*.
2. In the Access Control Configuration section, deselect *Enforce application server policy*, select *Enforce additional authorization policy*, then click *Manage authorization policies*.
3. Click *New*, specify the name of the payroll `.war` file (`PayrollWeb.war`), select *Web Module* as the *Type*, then click *OK*.
4. Click *New* to create the required protected resources.

The *manager* protected resource has `/manager/*` as its URL path and enables the *PayrollWebManager* Authorization policy. This policy allows only managers to access the manager pages. Everyone else is denied access.

The *myinfo* protected resource has `/myInformation.jsp` and `/payserv` as its URL paths. Both the *PayrollWebEmployee* and *PayrollWebManager* Authorization policies are enabled for this resource. This allows both employees and managers to view their own information pages.

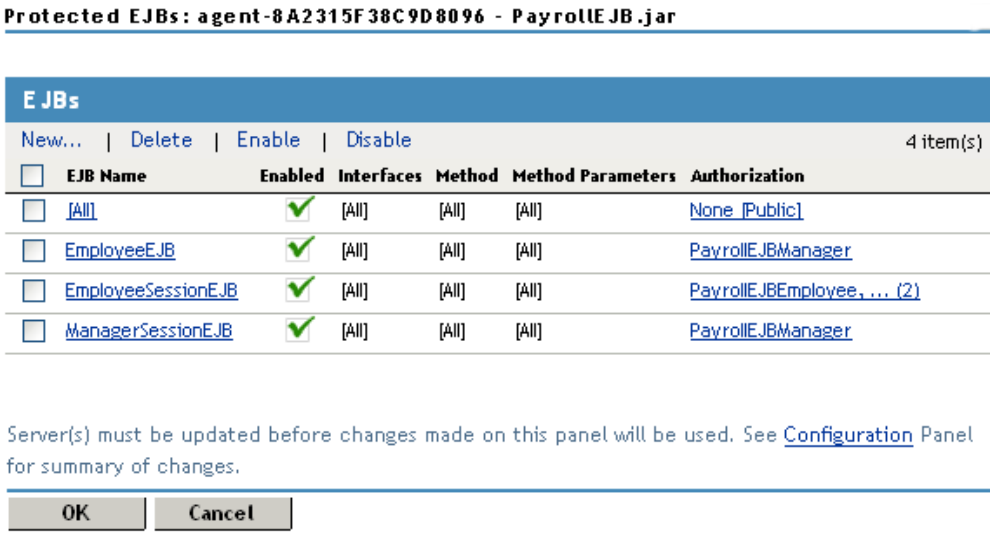
The *public* protected resource uses `/*` for its URL path and is not assigned an Authorization policy. This allows everyone who can log in to the Identity Server to have access to the public pages of the application.

5. To save your changes, click *Configuration Panel*, then click *OK*.
6. On the J2EE Agents page, click *Update*.

Assigning the Authorization Policies to Protected EJB Resources

To allow the J2EE Agent to enforce authorization for the payroll EJB module, you need to create policies for four EJBs.

1. Click *Access Manager > J2EE Agents > Edit*.
2. In the Access Control Configuration section, deselect *Enforce application server policy*, select *Enforce additional authorization policy*, then click *Manage authorization policies*.
3. Click *New*, specify the name of the payroll `.jar` file (`PayrollEJB.jar`), select *EJB Module* as the *Type*, then click *OK*.
4. Click *New* to create the required EJB modules for this application.



   The *[All]* EJB is not assigned an Authorization policy. This allows everyone who can log in to the Identity Server to have access to the public EJBs of the application.

   The *EmployeeEJB* enables the *PayrollEJBManager* Authorization policy. This policy allows only managers to change sensitive employee information, such as an employee's salary.

   The *EmployeeSessionEJB* enables both the *PayrollEJBEmployee* and *PayrollEJBManager* Authorization policies for this resource. This allows both employees and managers to view their own employee information.

   The *ManagerSessionEJB* enables the *PayrollEJBManager* Authorization policy. This policy allows only managers to manage employee information. Everyone else is denied access.
5. To save your changes, click *Configuration Panel*, then click *OK*.
6. On the J2EE Agents page, click *Update*.

6.2.4 Testing the Configuration

1. Deploy the sample payroll application on your J2EE server.

   The location of the sample application is platform-specific:

   - On a Linux J2EE server, the application is copied to the `/opt/novell/nids_agents/example` directory.

- On a Windows J2EE server, the application is copied to the `<Install_Directory>\sampleapp` directory.

2. On your J2EE server, prepare the application to use the agent for login and logout. (See Section 3.1, “Preparing the Application for the Agent,” on page 45).

   These steps have already been performed for the sample application. See the `web.xml` file in the application’s `WEB-INF` directory.

3. Enable the RunAs role feature on your J2EE server. See the following:

   - **JBoss:** This tasks have already been performed for JBoss. To understand what was modified, see Section 3.2, “Configuring Applications on the JBoss Server,” on page 47.
   - **WebSphere:** See Section 3.3.2, “Configuring for RunAs Roles,” on page 49.
   - **WebLogic:** See Section 3.4, “Configuring Applications on the WebLogic Server,” on page 51.

4. To test this configuration, send the following request from a browser:

   `http://<Application_Server_DNS_Name>:<port>/payroll`

   Replace `<Application_Server_DNS_Name>` with the DNS name or the IP address of your application server. Replace `<port>` with the port number you have configured the J2EE Agent to use.

5. Log in as a user who matches the condition to receive the Employee role. Access the *My Page* and the *Manager Page*.

6. Log out and log in as a user who matches the condition to receive the Manager role. Access the *My Page* and the *Manager Page*.

   As a manager, you can add Employee Records. Then when employees log in, their records are displayed on *My Page*.

Managing a J2EE Agent

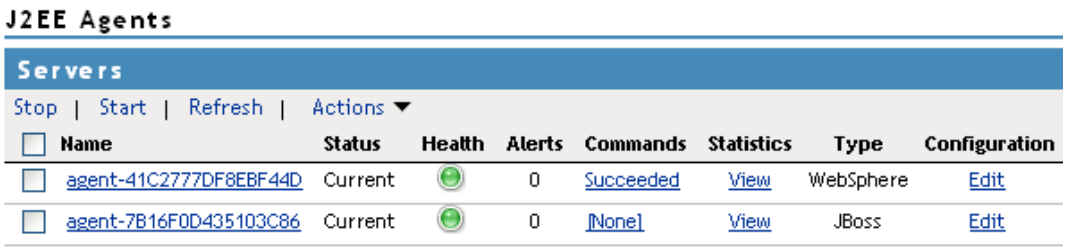
7

The following sections describe the options available for managing a J2EE Agent.

7.1 Viewing General Status Information

To view information about the current status of all J2EE Agents.

1 In the Administration Console, click *Access Manager* > *J2EE Agents*.



The table contains general information about each installed agent.

Column	Description
Name	Displays a list of all the J2EE Agents that can be managed from this console. Click the link of a particular agent to view or modify its general details. For more information, see Section 7.5, “Viewing Platform Information,” on page 77.

Column	Description
Status	Indicates the configuration status of the agent. Possible states are pending, update, and current. ◆ Current indicates that all configuration changes have been applied. ◆ Update indicates that a configuration change has been made, but not applied. Click this link to apply the changes. You can select to have the agent read its complete configuration file (all configuration). When the embedded service provider (ESP) logging settings have been modified on the Identity Server, the update logging settings option is available. ◆ Pending indicates that the agent is processing a configuration change, but has not completed the process.
Health	Indicates whether the J2EE Agent is functional. Click the icon to view additional information about the operational status of an agent. For more information, see Section 7.6, “Managing the Health of an Agent,” on page 78.
Alerts	Indicates whether any alerts have been sent. If the alert count is non-zero, click the link for additional information. For more information, see Section 7.7, “Managing Alerts,” on page 79.
Commands	Indicates whether any commands are pending. Click the link to view more information. For more information, see Section 7.8, “Viewing the Status of Recent Commands,” on page 81.
Statistics	Provides a link to the statistic pages. For more information, see Section 7.9, “Viewing Statistics,” on page 81.
Type	Indicates the type of agent: JBoss, WebLogic, or WebSphere.
Configuration	Provides a link to the configuration page. For more information, see Chapter 4, “Configuring the Basic Features of the J2EE Agent,” on page 53.

2 To view information about one of the displayed options, click the link or the icon.

3 To update the list of agents and their health status, click *Refresh*.

7.2 Stopping and Starting the Agent

When you stop a J2EE Agent, all the resources it is protecting are not available until the agent is started again.

To stop or start a selected J2EE Agent:

1 In the Administration Console, click *Access Manager > J2EE Agents*.

2 To stop the agent, select the agent, then click *Stop > OK*.

3 To start the agent, select the agent, then click *Start > OK*.

7.3 Stopping and Starting the Embedded Service Provider

When you stop the embedded service provider of a J2EE Agent, the provider closes the application session for logged-in users. The actual user session is on the Identity Server, so the user can access the resources without logging in again after the embedded service provider has started. For example, if a user was adding items to a shopping cart when the action to stop and start the embedded service provider occurred, the user loses the items in the shopping cart but can continue shopping and adding new items without logging in again.

To stop or start the embedded service provider of a J2EE Agent:

1. In the Administration Console, click *Access Manager > J2EE Agents*.
2. To stop the embedded service provider, select the agent, then click *Actions > Service Provider > Stop Service Provider > OK*.
3. To start the embedded service provider, select the agent, then click *Actions > Service Provider > Start Service Provider > OK*.
4. To restart the embedded service provider, select the agent, then click *Actions > Service Provider > Restart Service Provider > OK*.

7.4 Deleting an Agent from the Administration Console

When you delete an agent from the Administration Console, the configuration file for the selected agent is deleted and you can no longer manage it. Usually you delete an agent only if you are removing the agent from the J2EE server or if you want another console to manage the agent. After you have deleted an agent, the only way to trigger an import into a different Administration Console is to reinstall the agent.

To delete a J2EE Agent from the Administration Console:

1. In the Administration Console, click *Access Manager > J2EE Agents*.
2. Select the agent, then click *Actions > Delete*.
3. Click *OK*.

7.5 Viewing Platform Information

The General page displays version and platform information:

1. In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent]*.

   The fields that contain links transfer you to the page where you can edit the information. If the field is empty, click *Edit* to add a value.
2. To view platform and version information, look at the following fields:

   Server Version: Specifies the version of the software currently installed on this J2EE Agent.

   Server Type: Specifies the type of server on which the J2EE Agent is installed (JBoss, WebLogic, or WebSphere for this release). Other types are in development.

   Server Platform: Specifies the operating system of the J2EE server.

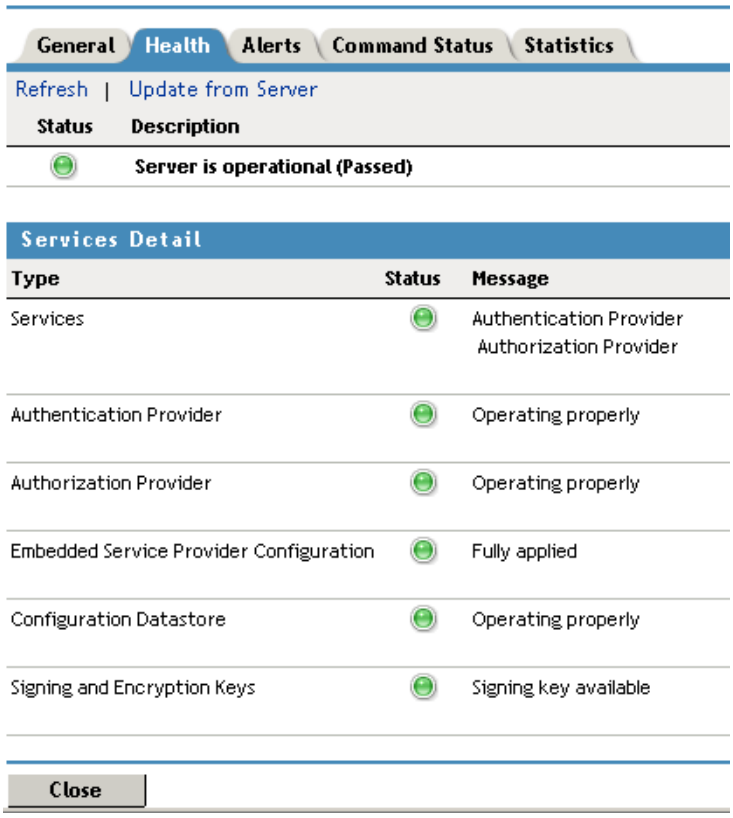
3 Click *Close*.

For information on how to modify the fields with links, see Section 4.4, "Modifying the Display Name and Other Details," on page 56 and Section 4.5, "Changing the IP Address of the J2EE Agent," on page 56.

7.6 Managing the Health of an Agent

If a J2EE Agent is functioning normally, its health icon is green. If the icon is any other color, you need to discover the cause.

1 In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent] > Health*.



2 If you think the information on the page might be stale, click *Refresh*.

3 If you want to have the page refreshed with information sent from the agent, click *Update from Server*.

4 If the status icon does not turn green, view the information in the Services Detail section.

For an agent, this includes information such as the following:

Status Category	If Not Healthy
Services: Lists the Access Manager services that this agent has been configured to use.	Check the status of the listed services.

Status Category	If Not Healthy
Authentication Provider: Indicates whether the agent has been configured to use an authentication contract and assigned a base URL.	See Section 2.3, "Configuring the Agent for Direct Access," on page 33.
Authorization Provider: Indicates whether the agent has been configured to use authorization policies before granting access.	To view your configuration, click *J2EE Agents* > *Edit* > *Manage authorization policies*. For configuration information, see Section 5.1, "Configuring Access Control," on page 57.
Enterprise Service Provider Configuration: Indicates whether the agent has a trusted relationship with an Identity Server. At least one Identity Server must be configured and set up as a trusted authentication source for the agent.	See Section 2.3, "Configuring the Agent for Direct Access," on page 33 and configure the *Trusted Identity Configuration* field.
Configuration Datastore: Indicates whether the configuration datastore is functioning correctly.	If it isn't functioning correctly, you might need to restore the data from a backup. See "Backing Up and Restoring Components" in the *Novell Access Manager 3.0 SP2 Administration Guide*.
Signing and Encryption Keys: Indicates whether the Signing keystore contains a key.	Click *J2EE Agents* > *Edit* > *Service Provider Certificates* > *Signing* and replace the signing key in this keystore.

5 Click *Close*.

If the status is not green, you should also check the following:

- Section 7.7, "Managing Alerts," on page 79
- Section 7.8, "Viewing the Status of Recent Commands," on page 81

7.7 Managing Alerts

The J2EE Agent sends alerts when it is not functioning correctly. After you have discovered the cause of an alert and have corrected the problem, you should clear the alert from the list.

1 In the Administration Console, click *Access Manager* > *J2EE Agents* > *[Name of Agent]* > *Alerts*.

2 To send an acknowledgement, select the check box by the alert, then click *Acknowledge Alert(s)*. When you acknowledge an alert, you clear the alert from the list.

3 The J2EE Agent sends the following alerts when it is not functioning correctly.

Alert Message	Solution
`The Embedded Service Provider base URL is not set. Configure the Embedded Service Provider base URL.`	Click *J2EE Agents* > *Edit* and configure the *J2EE Application Server URL* field. For configuration information, see Section 2.3, "Configuring the Agent for Direct Access," on page 33.

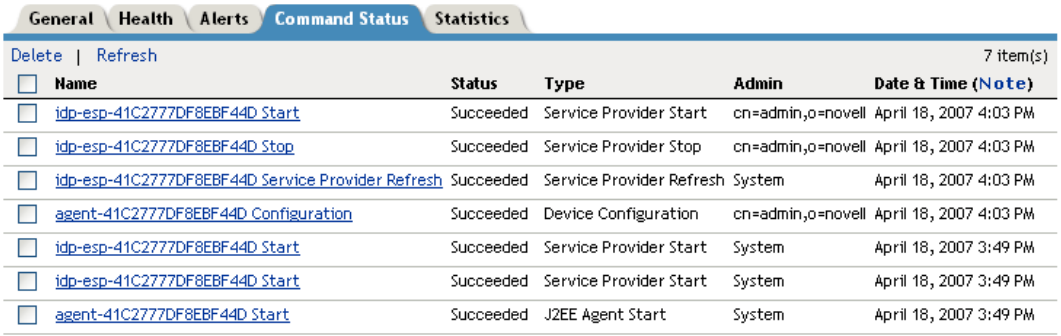
Alert Message	Solution
`The Embedded Service Provider returned not OK. Check that the Embedded Service Provider is running properly.`	Restart the agent. Click *J2EE Agents* > *[Server Name]* > *Stop* | *Start*.
`The Embedded Service Provider base URL is invalid. Configure the Embedded Service Provider base URL.`	Click *J2EE Agents* > *Edit* and configure the *J2EE Application Server URL* field. For configuration information, see Section 2.3, "Configuring the Agent for Direct Access," on page 33.
`The Embedded Service Provider could not be contacted due to an SSL exception. Check that certificates are set up properly.`	See Section 4.2, "Managing Embedded Service Provider Certificates," on page 54 and Section 4.3, "Configuring SSL Certificate Trust," on page 55.
`The Embedded Service Provider could not be contacted due to a socket exception. Check that the Embedded Service Provider is running properly.`	Indicates a network problem. Verify that the J2EE server is running. Restart the J2EE Agent by clicking *J2EE Agents*, select the agent, then click *Stop* | *Start*.
`The Embedded Service Provider could not be contacted due to a general IO exception. Check that the Embedded Service Provider is running properly.`	Restart the agent. Click *J2EE Agents*, select the agent, then click *Stop* | *Start.*
`Not running. Start the J2EE Agent`	Click *J2EE Agents*, select the agent, then click *Stop* | *Start*.
`Failed to construct the policy enforcement points. Check the J2EE Agent configuration and restart.`	Click *Policies* and check your J2EE Agent policies.
`WebSphere global security is not enabled. Enable WebSphere's global security.`	This is enabled during installation. See your WebSphere documentation.
`WebSphere server security is not enabled. Enable WebSphere's server security.`	This is enabled during installation. See your WebSphere documentation.
`The JACC PolicyConfigurationFactory was not initialized. Configure the J2EE Application Server to use the proper PolicyConfigurationFactory.`	Contact Novell® Support.

4 Click *Close*.

7.8 Viewing the Status of Recent Commands

Agent commands are issued when the configuration of the agent is modified and when the agent is stopped, started, or refreshed.

1 In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent] > Command Status*.



2 Select one of the following actions:

- **Delete:** To delete a command, select the check box for the command, then click *Delete*. The selected command is cleared.
- **Refresh:** To update the current cache of recently executed commands, click *Refresh*.
- **Name:** To select all the commands in the list, click *Name*, then click *Refresh* or *Delete*.

3 View the information. The following columns display information about each command:

Column	Description
Name	Contains the display name of the command. Select this link to view additional details about the command.
Status	Specifies the status of the command, and includes such states as Pending, Incomplete, Executing, Succeeded, Failed, Unsuccessful.
Type	Specifies the type of command.
Admin	Specifies whether the system or a user issued the command. If a user issued the command, the field contains the DN of the user.
Date & Time	Specifies when the command was issued. The date and time are displayed in local time.

4 To view additional information about a command, click the name of a command.

5 Click *Close*.

7.9 Viewing Statistics

The following statistics allow you to monitor the sessions and run time of the J2EE Agent.

1 In the Administration Console, click *Access Manager > J2EE Agents > [Name of Agent] > Statistics*.

2 Select whether to monitor live or static statistics:

- **Statistics:** Select this option to view the statistics as currently gathered. The page is static and the statistics are not updated until you click *Live Statistics Monitoring*.
- **Live Statistics Monitoring:** Select this option to view the statistics as currently gathered and to have them refreshed at the rate specified in the *Refresh Rate* field.

3 Check the following statistics:

Column	Description
Active Sessions	Displays the number of sessions currently established on the J2EE server through the Access Manager. To view the most popular times for establishing sessions, click *Graphs*.
Start Up Time	Displays when the J2EE Agent was last started.
Up Time	Displays how long the J2EE Agent has been running since it was last started.

4 Click *Close*.

Troubleshooting the J2EE Agent

8

8.1 Troubleshooting the J2EE Agent Import

If the J2EE Agent does not appear in the Administration Console after the installation has completed, try one or more of the following:

- If the import started and failed to complete, a *repair import* link appears at the bottom of the table on the J2EE Agents page. Click this link to repair the import.
- If your J2EE server is not running, the Administration Console cannot import the J2EE Agent. Start J2EE server and wait 30 seconds before trying to configure the agent in the Administration Console.
- If you installed the J2EE Agent on a WebSphere server, make sure you have restarted the WebSphere server. The J2EE Agent does not import into the Administration Console until WebSphere is restarted.
- If you have installed the J2EE Agent on WebSphere 6.1, the agent does not import. WebSphere 6.1 is not supported in this release.
- If you are running WebSphere with additional Java 2 security checks, the agent cannot import into the Administration Console. In the WebSphere console, turn off the additional Java 2 security checks or create a policy that grants full access to the nesp application.

8.2 JBoss and SSL

If you want to restrict access to SSL on JBoss, you need to either disable the HTTP port in JBoss and enable only the SSL port or configure SSL in the `web.xml` file. It is not enough to select the Require SSL on the *Protected Web Resource* page. In the Administration Console, click *Access Manager*, *J2EE Agents* > *Edit* > *Manage authorization policies* > *[Name of Web Module]* > *[Name of Protected Resource]*.

8.3 Installing, Uninstalling, and Reinstalling the JBoss Agent

If you install the JBoss Agent, uninstall it, and then reinstall it on the same machine, the following error occurs:

```
java.util.NoSuchElementException: Cannot find xPath
"/Server/Service/Engine/Realm
[@className='org.jboss.web.tomcat.security.JBossSecurityMgrRealm']"
```

It occurs just after you are prompted to make sure the JBoss server is stopped.

Ignore the error. The JBoss Agent installs and imports into the Administration Console.

8.4 Viewing Log Files

The J2EE agent logs messages to the J2EE server log files. For verbose messages, including policy evaluation messages, you need to enable tracing. In the Administration Console, click *Access Manager > J2EE Agents > Edit > Enable tracing*.

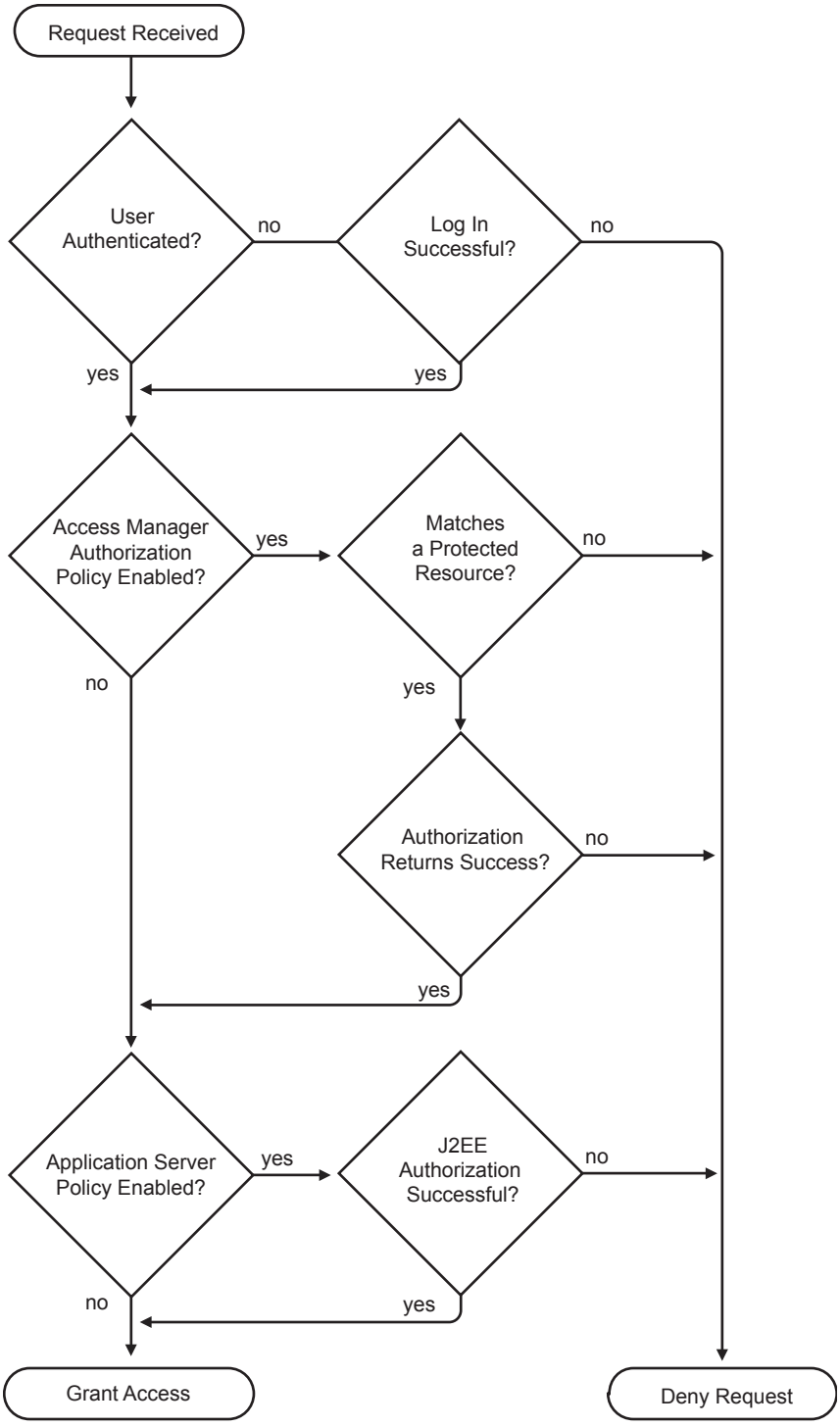
The location of the log files for each J2EE server is implementation-specific:

- **JBoss Server:** For a JBoss server, the log messages are logged to the `$JBOSS_HOME/log/jboss.log` file if you launched the JBoss server using the `run.sh` script found in the `bin` folder. Messages are also sent to the console, so you should check the console or the `$JBOSS_HOME/server/default/log/server.log` file.
- **WebSphere Server:** For a WebSphere server, the log messages are logged to files in the `$WAS_BaseDir/profiles/$ProfileName/logs` directory. Check the `SystemOut.log` and `SystemErr.log` files.
- **WebLogic Server:** For a WebLogic server, the log messages are sent to standard out. If you have launched the server in a console window, the messages appear in this window. If you want the messages logged to the server log file, you need to configure the server to send standard out to this file. This can be done from the WebLogic Administration Server console application in the *Logging* tab under *Servers*.

8.5 Troubleshooting Access Control

When a user requests access to a resource protected by the J2EE Agent, the request flows through the policy enforcement points illustrated in Figure 8-1.

Figure 8-1 *Access Control Flow*



If users are not getting access to a resource when they should, you need to enable tracing (see Section 8.4, "Viewing Log Files," on page 84) and view the log files to determine where the error is occurring.

- **Login:** The Identity Server supports a variety of contracts that can be used for logging in. You need to create a contract that is compatible with the J2EE server, if it has been configured to verify login credentials. You can select an *Any Contract* option, but if you configure the J2EE Agent to use this option, be sure that all defined contracts are compatible with the J2EE server. If a user logs into another Access Manager resource with a contract that is not compatible, the *Any Contract* option allows the J2EE Agent to accept those login credentials, but the J2EE server will deny access.
- **Access Manager Authorization Policy:** To enable an Access Manager authorization policy, you must select the *Enforce additional authorization policy* option, create a protected resource, create a policy for the resource, then enable the policy.
- **Protected Resource:** If you have enabled the *Enforce additional authorization policy* option but have not created a protected resource that matches the requested application URL or JavaBean, the user is denied access to the resource.
- **Web Authorization Policy or Enterprise JavaBean Authorization Policy:** If the only requirement you have for granting access is authentication, you should create a policy that grants access based on the authenticated role. All users are assigned this role when they successfully authenticate to the Identity Server.
- **Application Server Authorization Policy:** To enable the policies you have configured on the J2EE server, you must enable the *Enforce application server* policy option. You must also create Access Manager Role policies for the roles that you have configured the J2EE server to use for authorization. Depending upon the application, role names can be case sensitive, so when you create the role, make sure to use the same case as the application expects.