OpenAM Java EE Policy Agent 3.3.0 Installation Guide

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Abstract

Guide to installing OpenAM Java EE policy agents. OpenAM provides open source Authentication, Authorization, Entitlement and Federation software.

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Preface

This guide shows you how to install OpenAM Java EE policy agents, as well as how to integrate with other access management software. Read the *Release Notes* before you get started.

1. Who Should Use this Guide

This guide is written for anyone installing OpenAM policy agents to interface with supported Java EE application containers.

This guide covers procedures that you theoretically perform only once per version. This guide aims to provide you with at least some idea of what happens behind the scenes when you perform the steps.

You do not need to be an OpenAM wizard to learn something from this guide, though a background in access management and maintaining web application software can help. You do need some background in managing services on your operating systems and in your application servers. You can nevertheless get started with this guide, and then learn more as you go along.

2. Formatting Conventions

Some items are formatted differently from other text, like `filenames`, **commands**, and `literal values`.

```
$ echo Command line sessions are formatted with lines folded for easier reading.
 In HTML documents click the [-] image for a flat, copy-paste version. Click
 the [+] image for an expanded, line-wrapped version. > /dev/null
```

In many cases, sections pertaining to UNIX, GNU/Linux, Mac OS X, BSD, and so forth are marked (UNIX). Sections pertaining to Microsoft Windows might be marked (Windows). To avoid repetition, however, file system directory names are often given only in UNIX format as in `/path/to/server`, even if the text applies to `C:\path\to\server` as well.

Absolute path names usually begin with the placeholder `/path/to/`, which might translate to `/opt/`, `C:\Program Files\`, or somewhere else on your system. Unless you install from native packages, you create this location before you install.

```
class Test {
    public static void main(String [] args)  {
        System.out.println("This is a program listing.");
    }
}
```

3. Accessing Documentation Online

Core documentation, such as what you are now reading, aims to be technically accurate and complete with respect to the software documented. Core documentation therefore follows a three-phase review process designed to eliminate errors. The review process help to ensure that documentation you get with a stable release is technically accurate and complete.

Fully reviewed, published core documentation is available at docs.forgerock.org.

In-progress documentation can be found at each project site under the Developer Community projects page.

The ForgeRock Community Wikis provide additional documentation. We encourage you to join the community, so that you can update the Wikis, too.

4. Joining the ForgeRock Community

After you sign up to join the ForgeRock community, you can edit the Community Wikis, and also log bugs and feature requests in the issue tracker.

If you have a question regarding a project but cannot find an answer in the project documentation or Wiki, browse to the Developer Community page for the project, where you can find details on joining the project mailing lists, and find links to mailing list archives. You can also suggest updates to documentation through the ForgeRock docs mailing list.

The Community Wikis describe how to check out and build source code. Should you want to contribute a patch, test, or feature, or want to author part of the core documentation, first have a look on the ForgeRock site at how to get involved.

Chapter 1. About OpenAM Java EE Policy Agents

OpenAM Java EE policy agents provide medium touch integration for web applications running in supported web application containers. Java EE policy agents require some configuration and code changes to deployed web applications. This chapter covers what Java EE policy agents do and how they work.

A *policy agent* enforces policy for OpenAM. A *J2EE policy agent* installed in a web application container intercepts requests from users trying to access resources in protected web applications. The agent denies access until the user has authorization from OpenAM to access a particular resource.

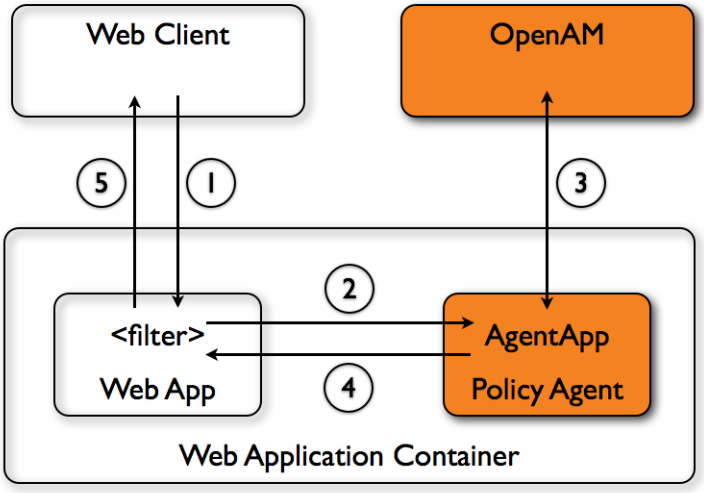
1.1. How the User, Application, Policy Agent, & OpenAM Interact

Imagine that a user attempts to access a protected resource before having authenticated by pointing her browser to a page in a protected application. Assume that you have configured OpenAM to protect the web application. You have therefore installed the J2EE agent in the web container, and also configured the protected web application to use the agent filter, thus sending requests through the agent. Then the J2EE policy agent intercepting her filtered browser's request finds no session token in the request, and so redirects the user's browser to the OpenAM login page for authentication. After the user has successfully authenticated, OpenAM sets a session token in a browser cookie, and redirects her browser back to the page she tried to access initially.

When the user's browser reiterates the request, the policy agent again checks that the request has a session token, finds a session token this time, and validates the session token with OpenAM. Given the valid session token, the policy agent gets a policy decision from OpenAM concerning whether the user can access the page. If OpenAM's Policy Service determines that the user is allowed to access the page, OpenAM responds to the policy agent that access should be granted. The J2EE policy agent then permits the page to be returned to the user's browser.

You can also configure J2EE agent filters to work in tandem with the J2EE security policies defined alongside the policies for OpenAM. In this case the filter ensures the J2EE security policy grants access to the resource before the agent gets a decision from OpenAM.

The following diagram shows how the pieces fit together when a Java EE client accesses a resource protected by a policy agent. This diagram is simplified to show only the essential principals rather than to describe every possible case.



A Java EE policy agent is a web application installed in the web application container. Other applications have filters configured to call the policy agent when a client requests access to a protected resource in the application.

1. The web client requests access to a protected resource.

2. The web application filter settings put the request through the policy agent that protects the resource according to OpenAM policy. The policy agent acts to enforce policy, whereas the policy configuration and decisions are handled by OpenAM.

3. The policy agent communicates with OpenAM to get the policy decision to enforce.

4. For a resource to which OpenAM approves access, the policy agent allows access.

5. The web application returns the requested access to the web client.

1.2. How J2EE Policy Agents are Configured

You install J2EE policy agents in the web application containers serving web applications that you want to protect. J2EE policy agents are themselves web applications running in the container whose applications you configure OpenAM to protect. By default, the J2EE policy agent has only enough configuration at installation time to connect to OpenAM in order to get the rest of its configuration from the OpenAM configuration store. With nearly all configuration stored centrally, you can manage policy agents centrally from the OpenAM console.[1]

For each web application that you protect, you also configure at least the deployment descriptor to filter requests through the policy agent. ForgeRock delivers the J2EE policy agents with a sample application under `j2ee_agents/`*`container`*`_agent/sampleapp/` demonstrating the configuration to use to protect your web application.

You configure J2EE policy agents per OpenAM realm. Thus to access centralized configuration, you select Access Control > *`Realm Name`* > Agents > J2EE > *`Agent Name`*. J2EE policy agent configuration is distinct from policy configuration. The only policy-like configuration that you apply to J2EE policy agents is indicating which URLs in the web server can be ignored (*not enforced URLs*) and which client IP address are exempt from policy enforcement (*not enforced IPs*).

For each aspect of J2EE policy agent configuration, you can configure the policy agent through the OpenAM console during testing, and then export the resulting configuration in order to script configuration in your production environment.

[1] You can opt to store the agent configuration locally if necessary.

Chapter 2. Installing the Apache Tomcat Policy Agent

This chapter covers installation of the policy agent for Apache Tomcat.

2.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install Apache Tomcat before you install the policy agent, and you must stop the server during installation.

All of the Tomcat scripts must be present in `$CATALINA_HOME/bin`. The Tomcat Windows executable installer does not include the scripts, for example. If the scripts are not present in your installation, copy the contents of the `bin` directory from a .zip download of Tomcat of the same version as the one you installed.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly. The policy agent installer requires Java.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/tomcat_v6_agent` directory.

Despite the directory name, `/path/to/j2ee_agents/tomcat_v6_agent`, the policy agent supports Apache Tomcat 6, 7.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
: Not used

`etc`
: Configuration templates used during installation

`installer-logs`
: Location for log files written during installation

`lib`
: Shared libraries used by the J2EE policy agent

`locale`
: Property files used by the installation program

`sampleapp`
: Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

The `web.xml` file is the basic Java configuration file for web applications. As such, you may find significantly different versions of this file in various directories. For the purpose of installing the Tomcat policy agent, you should be concerned with the Tomcat `web.xml` file, which you can find in the `/path/to/tomcat/conf` directory, along with the `web.xml` file associated with the actual web application. This section refers to a sample Web application `web.xml` file in the `/path/to/j2ee_agents/tomcat_v6_agent/sampleapp/etc` directory.

2.2. Installing the Tomcat Policy Agent

Complete the following procedures to install the policy agent.

- Procedure 2.1, “To Create the Tomcat Agent Profile”
- Procedure 2.2, “To Create the Password File”
- Procedure 2.3, “To Install the Policy Agent into Tomcat 6”
- Procedure 2.4, “To Install the Policy Agent into Tomcat 7”
- Procedure 2.5, “To Check the Policy Agent Installation”

Procedure 2.1. To Create the Tomcat Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *Realm Name* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   : The name for the agent profile used when you install the agent

   Password
   : Password the agent uses to authenticate to OpenAM

   Configuration
   : Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   : The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

     In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

   Agent URL
   : The URL to the J2EE application that the agent protects

     In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 2.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 2.3. To Install the Policy Agent into Tomcat 6

The steps required for policy agent installation into Tomcat 6 are subtly different from those required for Tomcat 7. For Tomcat 6, you should include the associated global `web.xml` file during the installation process, and do not need to include the agent application war archive, `agentapp.war`.

1. Shut down the Tomcat server where you plan to install the agent.

```
$ /path/to/tomcat/bin/shutdown.sh
```

2. Make sure OpenAM is running.

3. Run **agentadmin --install** to install the agent. For Tomcat 6, do accept the option to install the global `web.xml` filter.

```
$ /path/to/j2ee_agents/tomcat_v6_agent/bin/agentadmin --install
...
---------------------------------------------
SUMMARY OF YOUR RESPONSES
---------------------------------------------
Tomcat Server Config Directory : /path/to/tomcat/conf
OpenAM server URL : http://openam.example.com:8080/openam
$CATALINA_HOME environment variable : /path/to/tomcat
Tomcat global web.xml filter install : true
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : Tomcat Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/config/
OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/config/
OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/logs/debug

Install log file location:
/path/to/j2ee_agents/tomcat_v6_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has added the agent configuration to the Tomcat 6 configuration, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/tomcat_v6_agent/Agent_001/`.

`config/OpenSSOAgentBootstrap.properties`
: Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

`config/OpenSSOAgentConfiguration.properties`
: Only used if you configured the J2EE policy agent to use local configuration

`logs/audit/`
: Operational audit log directory, only used if remote logging to OpenAM is disabled

`logs/debug/`
: Debug directory where the `debug.out` debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. Start the Tomcat server where you installed the agent.

```
$ /path/to/tomcat/bin/startup.sh
```

Procedure 2.4. To Install the Policy Agent into Tomcat 7

The steps required for policy agent installation into Tomcat 7 are subtly different from those required for Tomcat 6. For Tomcat 7, you should not install the global `web.xml` file, but configure the application-specific `web.xml` file after basic installation is complete. You will also need to include the agent application war archive, `agentappp.war`.

1. Shut down the Tomcat server where you plan to install the agent.

```
$ /path/to/tomcat/bin/shutdown.sh
```

2. Make sure OpenAM is running.

3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/tomcat_v6_agent/bin/agentadmin --install
...
------------------------------------------------
SUMMARY OF YOUR RESPONSES
------------------------------------------------
Tomcat Server Config Directory : /path/to/tomcat/conf
OpenAM server URL : http://openam.example.com:8080/openam
$CATALINA_HOME environment variable : /path/to/tomcat
Tomcat global web.xml filter install : false
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : Tomcat Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/tomcat_v6_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/tomcat_v6_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has added the agent configuration to Tomcat's configuration, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/tomcat_v6_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

`config/OpenSSOAgentConfiguration.properties`
: Only used if you configured the J2EE policy agent to use local configuration

`logs/audit/`
: Operational audit log directory, only used if remote logging to OpenAM is disabled

`logs/debug/`
: Debug directory where the `debug.out` debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. Since you did not install a global filter in the Tomcat 7 `web.xml`, then you must add the filter manually for each protected application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/tomcat_v6_agent/sampleapp/etc/web.xml`.

```
<filter>
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
 <dispatcher>REQUEST</dispatcher>
 <dispatcher>INCLUDE</dispatcher>
 <dispatcher>FORWARD</dispatcher>
 <dispatcher>ERROR</dispatcher>
</filter-mapping>
```

7. Add the agent application web archive to Tomcat's webapps.

   $ cp /path/to/j2ee_agents/tomcat_v6_agent/etc/agentapp.war /path/to/tomcat/webapps/

8. Start the Tomcat server where you installed the agent.

```
$ /path/to/tomcat/bin/startup.sh
```

Procedure 2.5. To Check the Policy Agent Installation

1. Check the Tomcat server log after you start the server to make sure startup completed successfully.

```
$ tail -n 1 /path/to/tomcat/logs/catalina.out
INFO: Server startup in 810 ms
```

2. Check the `debug.out` debug log to verify that the agent did start up.

```
$ tail -n 7 /path/to/j2ee_agents/tomcat_v6_agent/Agent_001/logs/debug/debug.out
=====================================
Version: ...
Revision: 3111
Build Date: 20120915
Build Machine: builds.forgerock.org
=====================================
```

3. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

2.3. Silent Tomcat Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *`response-file`*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *`response-file`***.

2.4. Remove Tomcat Policy Agent Software

Shut down the Tomcat server before you uninstall the policy agent.

```
$ /path/to/tomcat/bin/shutdown.sh
```

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the Tomcat server configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from Tomcat.

Chapter 3. Installing the GlassFish Policy Agent

This chapter covers installation of the policy agent for GlassFish.

3.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install GlassFish before you install the policy agent, and you must stop the domain with applications to protect during installation. Policy agents support GlassFish v2, v3 (at least 3.1).

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/appserver_v10_agent` directory.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
: Not used

`etc`
: Agent web application used during installation

`installer-logs`
Location for log files written during installation

`lib`
Shared libraries used by the J2EE policy agent

`locale`
Property files used by the installation program

`sampleapp`
Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

3.2. Installing the GlassFish Policy Agent

Complete the following procedures to install the policy agent.

Procedure 3.1. To Create the GlassFish Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *`Realm Name`* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   The name for the agent profile used when you install the agent

   Password
   Password the agent uses to authenticate to OpenAM

   Configuration
   Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

   In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

Agent URL
: The URL to the J2EE agent application, such as `http://www.example.-com:8080/agentapp`

  In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 3.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 3.3. To Install the Policy Agent into GlassFish

1. Shut down the GlassFish domain where you plan to install the agent.

```
$ /path/to/glassfish/bin/asadmin stop-domain domain1
Waiting for the domain to stop ....
Command stop-domain executed successfully.
```

2. Make sure OpenAM is running.

3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/appserver_v10_agent/bin/agentadmin --install
...
-----------------------------------------------
SUMMARY OF YOUR RESPONSES
-----------------------------------------------
Application Server Config Directory :
/path/to/glassfish/glassfish/domains/domain1/config
Application Server Instance name : server
OpenAM server URL : http://openam.example.com:8080/openam
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : GlassFish Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/appserver_v10_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/appserver_v10_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
```

```
Agent Audit directory location:
/path/to/j2ee_agents/appserver_v10_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/appserver_v10_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/appserver_v10_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated the GlassFish configuration, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/appserver_v10_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

   `config/OpenSSOAgentConfiguration.properties`
   : Only used if you configured the J2EE policy agent to use local configuration

   `logs/audit/`
   : Operational audit log directory, only used if remote logging to OpenAM is disabled

   `logs/debug/`
   : Debug directory where the debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. To protect a web application, you must add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/appserver_v10_agent/sampleapp/etc/web.xml`.

```
<filter>
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
 <dispatcher>REQUEST</dispatcher>
 <dispatcher>INCLUDE</dispatcher>
 <dispatcher>FORWARD</dispatcher>
 <dispatcher>ERROR</dispatcher>
</filter-mapping>
```

   Applications without the filter configuration are not protected by the policy agent. For example, if you add the filter for a particular application but not for the root context, then the root context is not protected by the policy agent.

7. Start the GlassFish domain where you installed the agent.

```
$ /path/to/glassfish/bin/asadmin start-domain domain1
Waiting for domain1 to start .....
Successfully started the domain : domain1
domain  Location: /path/to/glassfish/glassfish/domains/domain1
Log File: /path/to/glassfish/glassfish/domains/domain1/logs/server.log
Admin Port: 4848
Command start-domain executed successfully.
```

8. Deploy the agent web application.

```
cd /path/to/glassfish/glassfish/bin/asadmin
    $ deploy --name agentapp --contextroot /agentapp
 /path/to/j2ee_agents/appserver_v10_agent/etc/agentapp.war
```

9. Check your work by quickly deploying the sample application, `/path/to/j2ee_agents/appserver_v10_agent/sampleapp/dist/agentsample.ear` through the GlassFish administration console, and verifying that the agent redirects to OpenAM for authentication and that access is denied after successful login to OpenAM. (Access is denied because when no policy exists for a protected resource the default decision for OpenAM is to deny all access.)

3.3. Silent GlassFish Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *response-file*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *response-file***.

3.4. Removing GlassFish Policy Agent Software

Shut down the GlassFish domain before you uninstall the policy agent.

```
$ /path/to/glassfish/bin/asadmin stop-domain domain1
    Waiting for the domain to stop ....
    Command stop-domain executed successfully.
```

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the GlassFish configuration directory location, and the instance name.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from GlassFish.

Chapter 4. Installing the JBoss 4 and 5 Application Server Policy Agent

This chapter covers installation of the policy agent for JBoss Application Server.

4.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install JBoss before installing the policy agent.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/jboss_v42_agent` directory.

Despite the directory name, the policy agent supports JBoss Enterprise Application Platform 5 and 6, JBoss Application Server 7.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
: Not used

`etc`
: Agent web application and configuration templates used during installation

`installer-logs`
: Location for log files written during installation

`lib`
: Shared libraries used by the J2EE policy agent

`locale`
: Property files used by the installation program

`sampleapp`
: Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

4.2. Installing the JBoss Policy Agent

Complete the following procedures to install the policy agent.

Procedure 4.1. To Create the JBoss Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *`Realm Name`* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   : The name for the agent profile used when you install the agent

   Password
   : Password the agent uses to authenticate to OpenAM

   Configuration
   : Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   : The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

Agent URL
The URL to the J2EE agent application, such as `http://www.example.com:8080/agentapp`

In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 4.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 4.3. To Install the Policy Agent into JBoss

1. Shut down the JBoss server where you plan to install the agent.
2. Make sure OpenAM is running.
3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/jboss_v42_agent/bin/agentadmin --install
...
---------------------------------------------
SUMMARY OF YOUR RESPONSES
---------------------------------------------
JBoss Server Config Directory : /path/to/jboss/server/default/conf
JBoss Server Home Directory : /path/to/jboss
OpenAM server URL : http://openam.example.com:8080/openam
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : JBoss Agent
Agent Profile Password file name : /tmp/pwd.txt
Agent permissions gets added to java permissions policy file : false

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/jboss_v42_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
```

```
/path/to/j2ee_agents/jboss_v42_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/jboss_v42_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/jboss_v42_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/jboss_v42_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated the JBoss configuration, created a `JBOSS_HOME/bin/setAgentClasspathdefault.sh` script, added the agent web application under `JBOSS_HOME/server/default/deploy/`, and also set up configuration and log directories for the agent. The name of the script may vary; for example, if you installed the agent using the `/path/to/jboss/server/web/conf` configuration directory, the script would be named `setAgentClasspathweb.sh`.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/jboss_v42_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

   `config/OpenSSOAgentConfiguration.properties`
   : Only used if you configured the J2EE policy agent to use local configuration

   `logs/audit/`
   : Operational audit log directory, only used if remote logging to OpenAM is disabled

   `logs/debug/`
   : Debug directory where the debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the realm to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. To protect a web application, you must add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/jboss_v42_agent/sampleapp/etc/web.xml`.

```
 <filter>
  <filter-name>Agent</filter-name>
  <display-name>Agent</display-name>
  <description>OpenAM Policy Agent Filter</description>
 <filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
 </filter>
 <filter-mapping>
  <filter-name>Agent</filter-name>
  <url-pattern>/*</url-pattern>
  <dispatcher>REQUEST</dispatcher>
  <dispatcher>INCLUDE</dispatcher>
  <dispatcher>FORWARD</dispatcher>
  <dispatcher>ERROR</dispatcher>
 </filter-mapping>
```

   If you are using the J2EE-POLICY or ALL mode, you must also add the following security domain specification to the application's `jboss.xml` and `jboss-web.xml` configuration files. You do not need to make this change if you are using the URL_POLICY, NONE, or SSO_ONLY mode.

```
<security-domain>java:/jaas/AMRealm</security-domain>
```

Procedure 4.4. To Run JBoss After Agent Installation

1. Adjust the script to set the agent classpath executable.

```
$ chmod +x $JBOSS_HOME/bin/setAgentClasspathdefault.sh
```

2. Open the `JBOSS_HOME/bin/run.sh` script for editing, and locate the following code block.

```
if [ "x$JBOSS_CLASSPATH" = "x" ]; then
    JBOSS_CLASSPATH="$JBOSS_BOOT_CLASSPATH"
else
    JBOSS_CLASSPATH="$JBOSS_CLASSPATH:$JBOSS_BOOT_CLASSPATH"
fi
if [ "x$JAVAC_JAR_FILE" != "x" ]; then
    JBOSS_CLASSPATH="$JBOSS_CLASSPATH:$JAVAC_JAR_FILE"
fi
```

3. Edit the `JBOSS_HOME/bin/run.sh` script to set the classpath needed for the agent, by adding these lines after the code block you located in the previous step.

```
if [ -r "$JBOSS_HOME/bin/setAgentClasspathdefault.sh" ]; then
    . $JBOSS_HOME/bin/setAgentClasspathdefault.sh
fi
```

4. Start the JBoss server where you installed the agent.

```
$ cd $JBOSS_HOME ; ./bin/run.sh -b 0.0.0.0
...
16:30:31,172 INFO  [ServerImpl] JBoss ... Started in 1m:44s:759ms
```

5. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

4.3. Silent JBoss Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *`response-file`*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *`response-file`***.

4.4. Removing JBoss Policy Agent Software

Shut down the JBoss server before you uninstall the policy agent.

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the JBoss configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from JBoss.

Chapter 5. Installing the JBoss 7 Application Server Policy Agent

This chapter covers installation of the policy agent for JBoss Application Server.

5.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install JBoss before installing the policy agent.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/jboss_v7_agent` directory.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`etc`
: Agent web application and configuration templates used during installation

`lib`
Shared libraries used by the J2EE policy agent

`locale`
Property files used by the installation program

`sampleapp`
Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

5.2. Installing the JBoss Policy Agent

Complete the following procedures to install the policy agent.

Procedure 5.1. To Create the JBoss Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *`Realm Name`* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   The name for the agent profile used when you install the agent

   Password
   Password the agent uses to authenticate to OpenAM

   Configuration
   Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

   In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

   Agent URL
   The URL to the J2EE agent application, such as `http://www.example.-com:8080/agentapp`

In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 5.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 5.3. To Install the Policy Agent into JBoss

1. Shut down the JBoss server where you plan to install the agent.
2. Make sure OpenAM is running.
3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/jboss_v7_agent/bin/agentadmin --install
...
---------------------------------------------
SUMMARY OF YOUR RESPONSES
---------------------------------------------
JBoss home directory : /path/to/jboss/
JBoss deployment mode: standalone
Install agent as global module: true
OpenAM server URL : http://openam.example.com:8080/openam
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : JBossAgent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/jboss_v7_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/jboss_v7_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/jboss_v7_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/jboss_v7_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/jboss_v7_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated the JBoss configuration, added the agent web application under `JBOSS_HOME/server/standalone/deployments`, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/jboss_v7_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

   `config/OpenSSOAgentConfiguration.properties`
   : Only used if you configured the J2EE policy agent to use local configuration

   `logs/audit/`
   : Operational audit log directory, only used if remote logging to OpenAM is disabled

   `logs/debug/`
   : Debug directory where the debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the realm to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. To protect a web application, you must add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/jboss_v7_agent/sampleapp/etc/web.xml`.

```
<filter>
```

```
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
 <dispatcher>REQUEST</dispatcher>
 <dispatcher>INCLUDE</dispatcher>
 <dispatcher>FORWARD</dispatcher>
 <dispatcher>ERROR</dispatcher>
</filter-mapping>
```

You must also add the following security domain specification to the application's `jboss.xml` and `jboss-web.xml` configuration files.

```
<security-domain>java:/jaas/AMRealm</security-domain>
```

Procedure 5.4. To Run JBoss After Agent Installation

1. Run JBoss.
2. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

5.3. Silent JBoss Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *`response-file`*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *`response-file`***.

5.4. Removing JBoss Policy Agent Software

Shut down the JBoss server before you uninstall the policy agent.

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the JBoss configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from JBoss.

Chapter 6. Installing the Jetty Server Policy Agent

This chapter covers installation of the policy agent for Jetty.

6.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install Jetty before you install the policy agent, and you must stop the server during installation.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Note

Command line examples in this chapter show Jetty accessed remotely. If you are following the examples and have issues accessing Jetty remotely, you might have to change the test filter settings in `/path/to/jetty/webapps/test/WEB-INF/web.xml`.

```
<filter>
 <filter-name>TestFilter</filter-name>
 <filter-class>com.acme.TestFilter</filter-class>
 <init-param>
  <param-name>remote</param-name>
  <param-value>true</param-value> <!-- default: false -->
 </init-param>
</filter>
```

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/jetty_v61_agent` directory.

Despite the directory name, the policy agent supports Jetty 7 (at least 7.6.13), 8 (at least 8.1.13).

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
: Not used

`etc`
: Agent web application used during installation

`installer-logs`
: Location for log files written during installation

`lib`
: Shared libraries used by the J2EE policy agent

`locale`
: Property files used by the installation program

`sampleapp`
: Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

6.2. Installing the Jetty Policy Agent

Complete the following procedures to install the policy agent.

Procedure 6.1. To Create the Jetty Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *`Realm Name`* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

Name
: The name for the agent profile used when you install the agent

Password
: Password the agent uses to authenticate to OpenAM

Configuration
: Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

Server URL
: The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

  In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

Agent URL
: The URL to the J2EE agent application, such as `http://www.example.com:8080/agentapp`

  In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 6.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 6.3. To Install the Policy Agent into Jetty

1. Shut down the Jetty server where you plan to install the agent.
2. Make sure OpenAM is running.
3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/jetty_v61_agent/bin/agentadmin --install
...
-----------------------------------------------
```

```
SUMMARY OF YOUR RESPONSES
-----------------------------------------------
Jetty Server Config Directory : /path/to/jetty/etc
OpenAM server URL : http://openam.example.com:8080/openam
Jetty installation directory. : /path/to/jetty
Agent URL : http://www.example.com:8080/agentapp
Agent Profile name : Jetty Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
---------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/jetty_v61_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/jetty_v61_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/jetty_v61_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/jetty_v61_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/jetty_v61_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated Jetty's `start.jar` to reference the agent, set up the agent web application, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/jetty_v61_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

   `config/OpenSSOAgentConfiguration.properties`
   : Only used if you configured the J2EE policy agent to use local configuration

`logs/audit/`
: Operational audit log directory, only used if remote logging to OpenAM is disabled

`logs/debug/`
: Debug directory where the `debug.out` debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. To protect a web application, you must add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/jetty_v61_agent/sampleapp/etc/web.xml`.

```
<filter>
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
 <dispatcher>REQUEST</dispatcher>
 <dispatcher>INCLUDE</dispatcher>
 <dispatcher>FORWARD</dispatcher>
 <dispatcher>ERROR</dispatcher>
</filter-mapping>
```

7. Start the Jetty server where you installed the agent.

```
$ cd /path/to/jetty ; java -jar start.jar
...
2011-09-15 12:49:55.469:INFO::Extract file:/path/to/jetty/webapps/agentapp.war
...
2011-09-15 12:50:14.163:INFO::Started SelectChannelConnector@0.0.0.0:8080
```

8. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

6.3. Silent Jetty Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *response-file*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *response-file***.

6.4. Removing Jetty Policy Agent Software

Shut down the Jetty server before you uninstall the policy agent.

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the Jetty configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from Jetty.

Chapter 7. Installing the Oracle WebLogic Policy Agent

This chapter covers installation of the policy agent for Oracle WebLogic.

7.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install WebLogic before you install the policy agent, and you must stop the server during installation.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/weblogic_v10_agent` directory.

Despite the directory name, the policy agent supports Oracle WebLogic Server 10g, 11g, 12c.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
: Not used

`etc`
: Agent web application and startup configuration

`installer-logs`
: Location for log files written during installation

`lib`
: Shared libraries used by the J2EE policy agent

`locale`
: Property files used by the installation program

`sampleapp`
: Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

7.2. Installing the WebLogic Policy Agent

Complete the following procedures to install the policy agent.

Procedure 7.1. To Create the WebLogic Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *`Realm Name`* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   : The name for the agent profile used when you install the agent

   Password
   : Password the agent uses to authenticate to OpenAM

   Configuration
   : Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   : The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

Agent URL
: The URL to the J2EE agent application, such as `http://www.example.com:8080/agentapp`

  In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 7.2. To Create the Password File

1. Create a text file containing only the password.

```
$ echo password > /tmp/pwd.txt
```

2. Protect the password file you create as appropriate for your operating system.

```
$ chmod 400 /tmp/pwd.txt
```

Procedure 7.3. To Install the Policy Agent into WebLogic

1. Shut down the WebLogic server where you plan to install the agent.
2. Make sure OpenAM is running.
3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/weblogic_v10_agent/bin/agentadmin --install
...
---------------------------------------------
SUMMARY OF YOUR RESPONSES
---------------------------------------------
Startup script location :
/path/to/domain/mydomain/bin/startWebLogic.sh
WebLogic Server instance name : AdminServer
WebLogic home directory : /path/to/wlserver
OpenAM server URL : http://openam.example.com:8080/openam
Agent URL : http://www.example.com:7001/agentapp
Agent Profile name : WebLogic Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/weblogic_v10_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
```

```
Agent Configuration file location
/path/to/j2ee_agents/weblogic_v10_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/weblogic_v10_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/weblogic_v10_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/weblogic_v10_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated the WebLogic configuration, copied the agent libraries to WebLogic's library directory, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

   Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/weblogic_v10_agent/Agent_001/`.

   `config/OpenSSOAgentBootstrap.properties`
   : Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

   `config/OpenSSOAgentConfiguration.properties`
   : Only used if you configured the J2EE policy agent to use local configuration

   `logs/audit/`
   : Operational audit log directory, only used if remote logging to OpenAM is disabled

   `logs/debug/`
   : Debug directory where the debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. The agent requires sourcing before it will work properly. There are two ways to source.

   - Manually source the file containing the policy agent environment settings for WebLogic before starting the application server.

     ```
     . /path/to/setAgentEnv_AdminServer.sh
     ```

   - Or edit the `startWebLogic.sh` script to set the sourcing needed for the agent, by adding these lines after the code block shown. Add the setAgentEnv_AdminServer.sh line to the following location in the file. The drawback to this approach is that it could be overwritten, as noted in the file.

     ```
     $ vi /path/to/startWebLogic.sh
      # Any changes to this script may be lost when adding extensions to this configuration.
      DOMAIN_HOME="/opt/Oracle/Middleware/user_projects/domains/base_domain"
       . /path/to/setAgentEnv_AdminServer.sh
      ${DOMAIN_HOME}/bin/startWebLogic.sh $*
     ```

     ## Note

     If the sourcing is not properly set, the following message appears.

     ```
     <Error> <HTTP> <cent.example.com>
      <AdminServer> <[STANDBY] ExecuteThread: '5' for queue: 'weblogic.kernel.Default
      (self-tuning)'> <<WLS Kernel>> <><> <> <1360800613441>
      <BEA-101165> <Could not load user defined filter in web.xml:
      ServletContext@1761850405[app:agentapp module:agentapp.war path:null
      spec-version:null] com.sun.identity.agents.filter.AmAgentFilter.
      java.lang.ClassNotFoundException: com.sun.identity.agents.filter.AmAgentFilter
     ```

7. Start the WebLogic server.

8. Configure shutdown classes for the environment.

   a. In WebLogic console, browse to Environment > Startup & Shutdown Classes.

   b. Click Lock & Edit.

   c. Click New.

d. Select the Shutdown Class option, and then click Next.

e. Provide the Name `Agent`, and the Class Name `org.forgerock.agents.-weblogic.v10.lifecycle.ShutdownListener`.

f. Select the appropriate targets to call the shutdown class once per Java Virtual Machine, and then click Finish.

g. Click Activate Changes.

Procedure 7.4. To Protect Applications After Agent Installation

1. Deploy the `/path/to/j2ee_agents/weblogic_v10_agent/etc/agentapp.war` agent application in WebLogic.

2. For each web application to protect, add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/weblogic_v10_agent/sampleapp/etc/web.xml`.

```
<filter>
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
 <dispatcher>REQUEST</dispatcher>
 <dispatcher>INCLUDE</dispatcher>
 <dispatcher>FORWARD</dispatcher>
 <dispatcher>ERROR</dispatcher>
</filter-mapping>
```

   You might also have to update additional configuration files. See the sample application located under `/path/to/j2ee_agents/weblogic_v10_agent/sampleapp` for examples.

3. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

7.3. Silent WebLogic Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *`response-file`*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *`response-file`***.

7.4. Post Installation of WebLogic Policy Agent

After installing WebLogic, some configuration is required before the policy agent will work.

Procedure 7.5. To Configure the WebLogic Policy Agent

WebLogic is unique in that it requires additional configuration after the installation is complete.

1. Go to the WebLogic Server Administratotion Console and login.
2. Click `Security realms`.
3. Click the name of the realm to use for OpenAM.
4. Click `Providers` > `Authentication`.
5. Click `Lock & Edit` > `New`.
6. Enter the desired type in `Type as AgentAuthenticator`, provide a name, and click `OK`.
7. Click on the name of the agent authenticator you just created.
8. Use `OPTIONAL` for the control flag and save.
9. Click on `Providers` to display the Authentication Providers Table.
10. Click on `Default Authenticator`, use `OPTIONAL` for the control flag, and save.
11. Activate the changes once the default authenticator is done saving.

    You will need to restart the WebLogic Server to implement the changes.

7.5. Removing WebLogic Policy Agent Software

Shut down the WebLogic server before you uninstall the policy agent.

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the WebLogic configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from WebLogic.

Chapter 8. Installing the IBM WebSphere Policy Agent

This chapter covers installation of the policy agent for IBM WebSphere.

8.1. Before You Install

Make sure OpenAM is installed and running, and that you can contact OpenAM from the system running the policy agent. Next, create a profile for your policy agent as described in the *Administration Guide* section on *Creating Agent Profiles*. To protect resources with the agent also create at least one policy as described in the section on *Configuring Policies*. Consider creating a simple policy, such as a policy that allows only authenticated users to access your resources, in order to test your policy agent after installation.

You must install WebSphere before you install the policy agent, and you must stop the server during installation.

You must install a supported version of the Java runtime environment. Please review the *OpenAM Release Notes* for the currently supported version of Java, and set the `JAVA_HOME` environment variable accordingly.

```
$ echo $JAVA_HOME
/path/to/java
$ which java
/usr/bin/java
```

If you are using IBM Java, see Procedure 8.1, “To Install With IBM Java”.

Go to *Obtaining OpenAM Software* to determine which version of the agent to download and download the agent. Also verify the checksum of the file you download against the checksum posted on the download page.

Unzip the file in the directory where you plan to install the J2EE policy agent. The agent you install stores its configuration and logs under this directory.

When you unzip the policy agent, you find the following directories under the `j2ee_agents/websphere_v61_agent` directory.

Despite the directory name, the policy agent supports IBM WebSphere Application Server 7, 8, 8.5.

`bin`
: The installation and configuration program, **agentadmin**.

`config`
: Configuration templates used by the **agentadmin** command during installation

`data`
Not used

`etc`
Agent web application that handles notifications and Cross Domain SSO

`installer-logs`
Location for log files written during installation

`lib`
Shared libraries used by the J2EE policy agent

`locale`
Property files used by the installation program

`sampleapp`
Sample application that demonstrates key features of the policy agent. Wait until you have installed the agent to deploy this.

Procedure 8.1. To Install With IBM Java

The WebSphere policy agent runs with IBM Java. In order to install the policy agent using IBM Java on platforms other than AIX, you must first change the **agentadmin** script to use IBMJCE.

1. Open the file, `bin/agentadmin` (`bin/agentadmin.bat` on Windows), for editing.

2. Edit the line specifying `AGENT_OPTS` on platforms other than AIX.

```
AGENT_OPTS="-DamKeyGenDescriptor.provider=IBMJCE \
 -DamCryptoDescriptor.provider=IBMJCE -DamRandomGenProvider=IBMJCE"
```

3. Edit the last line to include the IBMJCE settings before the classpath is set.

```
$JAVA_VM \
 -DamCryptoDescriptor.provider=IBMJCE -DamKeyGenDescriptor.provider=IBMJCE \
 -classpath "$AGENT_CLASSPATH" $AGENT_OPTS \
 com.sun.identity.install.tools.launch.AdminToolLauncher $*
```

4. Save your work.

   You can now install the WebSphere policy agent with IBM Java as described in Section 8.2, “Installing the WebSphere Policy Agent”.

8.2. Installing the WebSphere Policy Agent

Complete the following procedures to install the policy agent.

Procedure 8.2. To Create the WebSphere Agent Profile

Regardless of whether you store configurations centrally in OpenAM or locally with your agents, the agent requires a profile so that it can connect to and communicate with OpenAM.

1. In the OpenAM console, browse to Access Control > *Realm Name* > Agents > J2EE, and then click the New... button in the Agent table.

2. Complete the web form using the following hints.

   Name
   : The name for the agent profile used when you install the agent

   Password
   : Password the agent uses to authenticate to OpenAM

   Configuration
   : Centralized configurations are stored in the OpenAM configuration store. You can manage the centralized configuration through the OpenAM console. Local configurations are stored in a file alongside the agent.

   Server URL
   : The full URL to an OpenAM instance, or if OpenAM is deployed in a site configuration (behind a load balancer) then the site URL

     In centralized configuration mode, the Server URL is used to populate the agent profile for services such as Login, Logout, Naming, and Cross Domain SSO.

   Agent URL
   : The URL to the J2EE agent application, such as `http://www.example.-com:8080/agentapp`

     In centralized configuration mode, the Agent URL is used to populate the Agent Profile for services such as notifications.

Procedure 8.3. To Create the Password File

1. Create a text file containing only the password.

   ```
   $ echo password > /tmp/pwd.txt
   ```

2. Protect the password file you create as appropriate for your operating system.

   ```
   $ chmod 400 /tmp/pwd.txt
   ```

Procedure 8.4. To Install the Policy Agent into WebSphere

1. Shut down the WebSphere server where you plan to install the agent.
2. Make sure OpenAM is running.
3. Run **agentadmin --install** to install the agent.

```
$ /path/to/j2ee_agents/websphere_v61_agent/bin/agentadmin --install
...
---------------------------------------------
SUMMARY OF YOUR RESPONSES
---------------------------------------------
Instance Config Directory :
/path/to/WebSphere/AppServer/profiles/AppSrv01/config/cells/wwwNode01Cell/
 nodes/wwwNode01/servers/server1

Instance Server name : server1
WebSphere Install Root Directory : /path/to/WebSphere/AppServer
OpenAM server URL : http://openam.example.com:8080/openam
Agent URL : http://www.example.com:9080/agentapp
Agent Profile name : WebSphere Agent
Agent Profile Password file name : /tmp/pwd.txt

...
SUMMARY OF AGENT INSTALLATION
-----------------------------
Agent instance name: Agent_001
Agent Bootstrap file location:
/path/to/j2ee_agents/websphere_v61_agent/Agent_001/config/
 OpenSSOAgentBootstrap.properties
Agent Configuration file location
/path/to/j2ee_agents/websphere_v61_agent/Agent_001/config/
 OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/path/to/j2ee_agents/websphere_v61_agent/Agent_001/logs/audit
Agent Debug directory location:
/path/to/j2ee_agents/websphere_v61_agent/Agent_001/logs/debug


Install log file location:
/path/to/j2ee_agents/websphere_v61_agent/installer-logs/audit/install.log
...
```

Upon successful completion, the installer has updated the WebSphere configuration, copied the agent libraries to WebSphere's external library directory, and also set up configuration and log directories for the agent.

Note

If the agent is in a different domain than the server, refer to *Administration Guide* procedure, *Configuring Cross-Domain Single Sign On*.

4. Take note of the configuration files and log locations.

Each agent instance that you install on the system has its own numbered configuration and logs directory. The first agent's configuration and logs are thus located under the directory `j2ee_agents/websphere_v61_agent/Agent_001/`.

`config/OpenSSOAgentBootstrap.properties`
: Used to bootstrap the J2EE policy agent, allowing the agent to connect to OpenAM and download its configuration

`config/OpenSSOAgentConfiguration.properties`
: Only used if you configured the J2EE policy agent to use local configuration

`logs/audit/`
: Operational audit log directory, only used if remote logging to OpenAM is disabled

`logs/debug/`
: Debug directory where the debug file resides. Useful in troubleshooting policy agent issues.

5. If your policy agent configuration is not in the top-level realm (/), then you must edit config/OpenSSOAgentBootstrap.properties to identify the sub-realm that has your policy agent configuration. Find com.sun.identity.agents.config.organization.name and change the / to the path to your policy agent profile. This allows the policy agent to properly identify itself to the OpenAM server.

6. Restart the WebSphere server.

Procedure 8.5. To Protect Applications After Agent Installation

1. Deploy the `/path/to/j2ee_agents/websphere_v61_agent/etc/agentapp.war` agent application in WebSphere.

2. For each web application to protect, add the following filter to the application's `web.xml` configuration, following the opening <web-app> tag. The file for the sample application delivered with the agent is `/path/to/j2ee_agents/websphere_v61_agent/sampleapp/etc/web.xml`.

```
<filter>
 <filter-name>Agent</filter-name>
 <display-name>Agent</display-name>
 <description>OpenAM Policy Agent Filter</description>
<filter-class>com.sun.identity.agents.filter.AmAgentFilter</filter-class>
</filter>
<filter-mapping>
 <filter-name>Agent</filter-name>
 <url-pattern>/*</url-pattern>
```

```
  <dispatcher>REQUEST</dispatcher>
  <dispatcher>INCLUDE</dispatcher>
  <dispatcher>FORWARD</dispatcher>
  <dispatcher>ERROR</dispatcher>
 </filter-mapping>
```

You might also have to update additional configuration files. See the sample application located under `/path/to/j2ee_agents/websphere_v61_agent/sampleapp` for examples.

3. If you have a policy configured, you can test your policy agent. For example, try to browse to a resource that your policy agent protects. You should be redirected to OpenAM to authenticate, for example as user `demo`, password `changeit`. After you authenticate, OpenAM then redirects you back to the resource you tried to access.

8.3. Silent WebSphere Policy Agent Installation

When performing a scripted, silent installation, use **agentadmin --install --saveResponse *`response-file`*** to create a response file for scripted installation. Then install silently using **agentadmin --install --useResponse *`response-file`***.

8.4. Removing WebSphere Policy Agent Software

Shut down the WebSphere server before you uninstall the policy agent.

To remove the J2EE policy agent, use **agentadmin --uninstall**. You must provide the WebSphere configuration directory location.

Uninstall does not remove the agent instance directory, but you can do so manually after removing the agent configuration from WebSphere.

8.5. Notes About WebSphere Network Deployment

When using WebSphere Application Server Network Deployment, you must install policy agents on the Deployment Manager, on each Node Agent, and on each Application Server. Installation requires that you stop and then restart the Deployment Manager, each Node Agent, and each Application Server in the Network Deployment.

Before installation, synchronize each server configuration with the profile saved by the Deployment Manager using the **syncNode** command. After agent installation, copy the server configuration for each node, stored in `server.xml`, to the corresponding Deployment Manager profile. After you have synchronized the configurations, you must restart the Deployment Manager for the Network Deployment.

Chapter 9. Troubleshooting

This chapter offers solutions to issues during installation of OpenAM policy agents.

Solutions to Common Issues

This section offers solutions to common problems when installing OpenAM policy agents.

Q: I am trying to install a policy agent, connecting to OpenAM over HTTPS, and seeing the following error.

```
OpenAM server URL: https://openam.example.com:8443/openam

WARNING: Unable to connect to OpenAM server URL. Please specify the
correct OpenAM server URL by hitting the Back button (<) or if the OpenAM
server URL is not started and you want to start it later, please proceed with
the installation.
If OpenAM server is SSL enabled and the root CA certificate for the OpenAM
server certificate has been not imported into installer JVMs key store (see
installer-logs/debug/Agent.log for detailed exception), import the root
CA certificate and restart the installer; or continue installation without
verifying OpenAM server URL.
```

What should I do?

A: The Java platform includes certificates from many Certificate Authorities (CAs). If however you run your own CA, or you use self-signed certificates for HTTPS on the container where you run OpenAM, then the **agentadmin** command cannot trust the certificate presented during connection to OpenAM, and so cannot complete installation correctly.

After setting up the container where you run OpenAM to use HTTPS, get the certificate to trust in a certificate file. The certificate you want is the that of the CA who signed the container certificate, or the certificate itself if the container certificate is self-signed.

Copy the certificate file to the system where you plan to install the policy agent. Import the certificate into a trust store that you will use during policy agent installation. If you import the certificate into the default trust store for the Java platform, then the **agentadmin** command can recognize it without additional configuration.

Export and import of self-signed certificates is demonstrated in the *Administration Guide* chapter on *Managing Certificates*.

Q: I am trying to install the WebSphere policy agent on Linux. The system has IBM Java. When I run **agentadmin --install**, the script fails to encrypt the password from the password file, ending with this message:

```
ERROR: An unknown error has occurred (null). Please try again.
```

What should I do?

A: You must edit **agentadmin** to use IBMJCE, and then try again.

See *To Install With IBM Java*.

Q: After installing a Java EE policy agent on WebSphere AS 7 or 8, accessing a URL for a folder in a protected application such as `http://openam.example.com:9080/test/` results in `Error 404: SRVE0190E: File not found: {0}`, and redirection fails. What should I do to work around this problem?

A: Perform the following steps to work around the problem, by setting the WebSphere custom property `com.ibm.ws.webcontainer.invokeFiltersCompatibility=true`.

1. In the administration console, browse to Servers > Server Types, and then click WebSphere application servers.
2. Click the server for which to apply the custom property.
3. Browse to Configuration > Container settings > Web Container Settings > Web container.
4. Under Configuration > Additional Properties, click Custom Properties.
5. In the Custom Properties page, click New.
6. In the settings page, enter the Name `com.ibm.ws.webcontainer.invokeFiltersCompatibility` and Value `true` for the custom property.

   Some properties are case sensitive.
7. Click Apply or OK as applicable.
8. Click Save in the Message box that appears.
9. Restart the server for the custom property to take effect.

See the IBM documentation on *Setting webcontainer custom properties* for additional information.

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