



Sun OpenSSO Enterprise Policy Agent 3.0 Guide for Sun Java System Web Server 7.0



Sun Microsystems, Inc.
4150 Network Circle
Santa Clara, CA 95054
U.S.A.

Part No: 820-4579-11
July 31, 2009

Copyright 2009 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more U.S. patents or pending patent applications in the U.S. and in other countries.

U.S. Government Rights – Commercial software. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

This distribution may include materials developed by third parties.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, the Solaris logo, the Java Coffee Cup logo, docs.sun.com, Java, and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

Products covered by and information contained in this publication are controlled by U.S. Export Control laws and may be subject to the export or import laws in other countries. Nuclear, missile, chemical or biological weapons or nuclear maritime end uses or end users, whether direct or indirect, are strictly prohibited. Export or reexport to countries subject to U.S. embargo or to entities identified on U.S. export exclusion lists, including, but not limited to, the denied persons and specially designated nationals lists is strictly prohibited.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2009 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. Tous droits réservés.

Sun Microsystems, Inc. détient les droits de propriété intellectuelle relatifs à la technologie incorporée dans le produit qui est décrit dans ce document. En particulier, et ce sans limitation, ces droits de propriété intellectuelle peuvent inclure un ou plusieurs brevets américains ou des applications de brevet en attente aux États-Unis et dans d'autres pays.

Cette distribution peut comprendre des composants développés par des tierces personnes.

Certains composants de ce produit peuvent être dérivés du logiciel Berkeley BSD, licenciés par l'Université de Californie. UNIX est une marque déposée aux États-Unis et dans d'autres pays; elle est licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, le logo Solaris, le logo Java Coffee Cup, docs.sun.com, Java et Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux États-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux États-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui, en outre, se conforment aux licences écrites de Sun.

Les produits qui font l'objet de cette publication et les informations qu'il contient sont régis par la législation américaine en matière de contrôle des exportations et peuvent être soumis au droit d'autres pays dans le domaine des exportations et importations. Les utilisations finales, ou utilisateurs finaux, pour des armes nucléaires, des missiles, des armes chimiques ou biologiques ou pour le nucléaire maritime, directement ou indirectement, sont strictement interdites. Les exportations ou réexportations vers des pays sous embargo des États-Unis, ou vers des entités figurant sur les listes d'exclusion d'exportation américaines, y compris, mais de manière non exclusive, la liste de personnes qui font objet d'un ordre de ne pas participer, d'une façon directe ou indirecte, aux exportations des produits ou des services qui sont régis par la législation américaine en matière de contrôle des exportations et la liste de ressortissants spécifiquement désignés, sont rigoureusement interdites.

LA DOCUMENTATION EST FOURNIE "EN L'ETAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFACON.

Sun OpenSSO Enterprise Policy Agent 3.0 Guide for Sun Java System Web Server 7.0

Last updated July 31, 2009

The Web Server 7.0 policy agent is a version 3.0 web agent that functions with Sun™ OpenSSO Enterprise to protect resources on web servers and web proxy servers deployed on Sun Java™ System Web Server 7.0.

Contents

- “Supported Platforms, Compatibility, and Coexistence for the Web Server 7.0 Agent” on page 4
- “Pre-Installation Tasks for the Web Server 7.0 Agent” on page 6
- “Installing the Web Server 7.0 Agent” on page 11
- “Post-Installation Tasks for the Web Server 7.0 Agent” on page 18
- “Managing the Web Server 7.0 Agent” on page 22
- “Uninstalling the Web Server 7.0 Agent” on page 23
- “Migrating a Version 2.2 Web Server 7.0 Policy Agent” on page 25
- “Sun Microsystems Related Information” on page 27
- “Revision History” on page 29

For general information about web policy agents, including the new features for version 3.0 agents, see *Sun OpenSSO Enterprise Policy Agent 3.0 User's Guide for Web Agents*.

Note – A version 2.2 web agent also exists for Web Server 7.0. However, to use the new version 3.0 agent features, you must deploy the version 3.0 agent described in this guide.

Supported Platforms, Compatibility, and Coexistence for the Web Server 7.0 Agent

- “Supported Platforms for the Web Server 7.0 Agent” on page 4
- “Supported Deployment Containers for the Web Server 7.0 Agent” on page 4
- “Compatibility With Access Manager 7.1 and Access Manager 7 2005Q4” on page 5
- “Coexistence With Version 2.2 Policy Agents” on page 5
- “Reverse Proxy Support” on page 5

Supported Platforms for the Web Server 7.0 Agent

The Web Server 7.0 agent is supported on these platforms:

- Solaris OS on SPARC platforms, versions 9 and 10 (32-bit/64-bit)
- Solaris OS on x86 platforms, versions 9 and 10 (32-bit/64-bit)
- Red Hat Enterprise Linux Advanced Server 4.0 and 5.0 (32-bit/64-bit)
- Windows 2003, Enterprise Edition (32-bit/64-bit)
- Windows 2003, Standard Edition (32-bit/64-bit)

Notes about 32-bit and 64-bit systems:

- On 32-bit Solaris SPARC and x86 systems, run Web Server 7.0 web container only in 32-bit mode and install only the 32-bit Web Server 7.0 agent.
- On 64-bit Solaris SPARC and x86 systems, run Web Server 7.0 web container only in 64-bit mode and install only the 64-bit Web Server 7.0 agent.
- On Windows and Linux systems, run the Web Server 7.0 web container instance in 32-bit mode.

Supported Deployment Containers for the Web Server 7.0 Agent

You can deploy the Web Server 7.0 agent on the following deployment containers. The links are to the Web Server documentation collections.

- Web Server 7.0 Update 3: <http://docs.sun.com/coll/1653.3>
- Web Server 7.0 Update 2: <http://docs.sun.com/coll/1653.2>
- Web Server 7.0 Update 1: <http://docs.sun.com/coll/1653.1>
- Web Server 7.0: <http://docs.sun.com/coll/1308.3>

Compatibility With Access Manager 7.1 and Access Manager 7 2005Q4

Access Manager 7.1 and Access Manager 7 2005Q4 are compatible with version 3.0 policy agents. However, because Access Manager 7.1 and Access Manager 7 2005Q4 do not support centralized agent configuration, a version 3.0 agent deployed with Access Manager must store its configuration data locally in the `OpenSSOAgentBootstrap.properties` and `OpenSSOAgentConfiguration.properties` files. The `OpenSSOAgentBootstrap.properties` file on the server where the agent is deployed contains the information required for the agent to start and initialize itself.

A version 3.0 agent automatically detects the host server it is accessing. In the case of Access Manager 7.1 or Access Manager 7 2005Q4, a version 3.0 agent will switch to “local” mode and use the properties from the agent's `OpenSSOAgentConfiguration.properties` file.

Coexistence With Version 2.2 Policy Agents

OpenSSO Enterprise supports both version 3.0 and version 2.2 agents in the same deployment. The version 2.2 agents, however, must continue to store their configuration data locally in the `AMAgent.properties` file. And because the version 2.2 agent configuration data is local to the agent, OpenSSO Enterprise centralized agent configuration is not supported for version 2.2 agents. To configure a version 2.2 agent, you must continue to edit the agent's `AMAgent.properties` file.

For documentation about version 2.2 agents, see <http://docs.sun.com/coll/1322.1>.

Reverse Proxy Support

This agent works with the reverse proxy feature built into Sun Java System Web Server 7.0. No separate agent configuration is required. To use the reverse proxy feature, however, ensure that the Web Server 7.0 instance has been upgraded to the most recent release with the latest patches.

Pre-Installation Tasks for the Web Server 7.0 Agent

- “Meeting the Requirements for the Web Server 7.0 Agent” on page 6
- “Setting Your JAVA_HOME Environment Variable” on page 6
- “Downloading and Unzipping the Agent Distribution File” on page 6
- “Creating a Password File” on page 7
- “Creating an Agent Profile” on page 8
- “Creating an Agent Administrator (Optional)” on page 9

Meeting the Requirements for the Web Server 7.0 Agent

Before you install the Web Server 7.0 agent, your deployment must meet these requirements:

- A Web Server 7.0 instance must be installed and configured on the platform where you plan to install the agent. For a list of supported platforms, see “Supported Platforms for the Web Server 7.0 Agent” on page 4.
- An OpenSSO Enterprise or OpenSSO Express server instance must be installed and accessible to the Web Server 7.0 instance.

Setting Your JAVA_HOME Environment Variable

The agent installation program requires the Java Runtime Environment (JRE) 1.5 or later. Before you install the agent, set your JAVA_HOME environment variable to point to the JDK installation directory for the JDK version you are using. If you have not set this variable (or if you set it incorrectly), the program will prompt you for the correct path.

Downloading and Unzipping the Agent Distribution File

▼ To Download and Unzip the Agent Distribution File

- 1 Login into the server where you want to install the agent.
- 2 Create a directory to unzip the agent distribution file.
- 3 Download and unzip the agent distribution file, depending on your platform:
 - Solaris SPARC systems (32-bit): `sjsws_v70_SunOS_sparc_agent_3.zip`

- Solaris SPARC systems (64-bit): `sjsws_v70_Sun05_sparc_64_agent_3.zip`
- Solaris x86 systems (32-bit): `sjsws_v70_Sun05_x86_agent_3.zip`
- Solaris x86 systems (64-bit): `sjsws_v70_Sun05_x86_64_agent_3.zip`
- Linux systems: `sjsws_v70_Linux_agent_3.zip`
- Windows systems: `sjsws_v70_WINNT_agent_3.zip`

These distribution files are available from the following sites:

- Sun Downloads under Identity Management > Policy Agents: <http://www.sun.com/download/index.jsp>
- OpenSSO project: <https://opensso.dev.java.net/public/use/index.html>

This agent was developed as part of the OpenSSO project.

The following table shows the files and directories after you unzip the agent distribution file. These files are in the following directory:

AgentHome/web_agents/sjsws_agent, where *AgentHome* is where you unzipped the agent distribution file.

PolicyAgent-base is the *AgentHome*/web_agents/sjsws_agent.

For example: `/opt/web_agents/sjsws_agent`

File or Directory	Description
<code>README.txt</code> and <code>license.txt</code>	Readme and license files
<code>/bin</code>	<code>agentadmin</code> and <code>agentadmin.bat</code> programs
<code>/config</code>	Template, properties, and XML files
<code>/data</code>	<code>license.log</code> file. Do not edit this file.
<code>/etc</code>	Empty
<code>/lib</code>	Required library and JAR files
<code>/locale</code>	Required properties files
<code>/logs</code>	Log files

Creating a Password File

A password file is an ASCII text file with only one line specifying the password in clear text. By using a password file, you are not forced to expose a password at the command line during the agent installation. When you install the Web Server 7.0 agent using the `agentadmin` program, you are prompted to specify paths to following password files:

- An **agent profile password file** is required for both the `agentadmin` default and custom installation options.

- An **agent administrator password file** is required only if you use the custom installation option and have the `agentadmin` program automatically create the agent profile in OpenSSO Enterprise server during the installation.

▼ To Create a Password File

- 1 **Create an ASCII text file for the agent profile. For example:** `ws7agentpw`
- 2 **If you want the `agentadmin` program to automatically create the agent profile in OpenSSO Enterprise server during the installation, create another password file for the agent administrator. For example:** `/tmp/agentadminpw`
- 3 **Using a text editor, enter the appropriate password in clear text on the first line in each file.**
- 4 **Secure each password file appropriately, depending on the requirements for your deployment.**

Creating an Agent Profile

A web agent uses an agent profile to communicate with OpenSSO Enterprise server. A version 2.2 web agent can use the default agent profile (`UrlAccessAgent`). For a version 3.0 agent, however, you must create an agent profile using any of these three methods:

- Use the OpenSSO Enterprise Console, as described in [“Creating an Agent Profile” on page 8](#).
- Use the `ssoadm` command-line utility with the `create-agent` subcommand. For more information about the `ssoadm` command, see the [Sun OpenSSO Enterprise 8.0 Administration Reference](#).
- Choose the “Option to create the agent profile in the server during installation” when you run the `agentadmin` program.

▼ To Create an Agent Profile in the OpenSSO Enterprise Console

- 1 **Login into the OpenSSO Enterprise Administration Console as `amAdmin`.**
- 2 **Click `Access Control`, `realm-name`, `Agents`, and `Web`.**
- 3 **Under `Agent`, click `New`.**
- 4 **In the `Name` field, enter the name for the new agent profile.**
- 5 **Enter and confirm the `Password`.**

Important: This password must be the same password that you enter in the agent profile password file that you specify when you run the `agentadmin` program to install the agent.

- 6 **In the Configuration field, check the location where the agent configuration properties are stored:**
 - **Local:** In the `OpenSSOAgentConfiguration.properties` file on the server where the agent is installed.
 - **Centralized:** In the OpenSSO Enterprise server central configuration data repository.
- 7 **In the Server URL field, enter the OpenSSO Enterprise server URL.**
For example: `http://openssohost.example.com:8080/opensso`
- 8 **In the Agent URL field, enter the URL for the agent.**
For example: `http://agenthost.example.com:8090/`

9 **Click Create.**

The console creates the agent profile and displays the WebAgent page again with a link to the new agent profile.

To do additional configuration for the agent, click this link to display the Edit agent page. For information about the agent configuration fields, see the Console online Help.

If you prefer, you can also use the `ssoadm` command-line utility to edit the agent profile. For more information, see the [Sun OpenSSO Enterprise 8.0 Administration Reference](#).

Creating an Agent Administrator (Optional)

An agent administrator can manage agents in OpenSSO Enterprise, including:

- **Agent management:** Use the agent administrator to manage agents either in the OpenSSO Enterprise Console or by executing the `ssoadm` utility.
- **Agent installation:** If you install the agent using the custom installation option (`agentadmin --custom-install`) and want to have the installation program create the agent profile, specify the agent administrator (and password file) when you are prompted.

▼ To Create an Agent Administrator

- 1 **Login to OpenSSO Enterprise Console as `amadmin`.**
- 2 **Create a new agents administrator group:**
 - a. **Click Access Control, *realm-name*, Subjects, and then Group.**
 - b. **Click New.**
 - c. **In ID, enter the name of the group. For example: `agentadmingroup`**

- d. Click **OK**.
- 3 **Create a new agent administrator user and add the agent administrator user to the agents administrator group:**
 - a. Click **Access Control**, *realm-name*, **Subjects**, and then **User**.
 - b. Click **New** and provide the following values:
 - **ID**: Name of the agent administrator. For example: agentadminuser
This is the name you will use to login to the OpenSSO Enterprise Console .
 - **First Name** (optional), **Last Name**, and **Full Name**.
For simplicity, use the same name for each of these values that you specified in the previous step for ID.
 - **Password** (and confirmation)
 - **User Status**: Active
 - c. Click **OK**.
 - d. Click the new agent administrator name.
 - e. On the **Edit User** page, click **Group**.
 - f. Add the agents administrator group from **Available** to **Selected**.
 - g. Click **Save**.
 - 4 **Assign read and write access to the agents administrator group:**
 - a. Click **Access Control**, *realm-name*, **Privileges** and then on the new agents administrator group link.
 - b. Check **Read** and **write** access to all configured Agents.
 - c. Click **Save**.

Next Steps Login into the OpenSSO Enterprise Console as the new agent administrator. The only available top-level tab is **Access Control**. Under *realm-name*, you will see only the **Agents** tab and sub tabs.

Installing the Web Server 7.0 Agent

- [“Gathering Information to Install the Web Server 7.0 Agent” on page 11](#)
- [“Installing the Web Server 7.0 Agent Using the agentadmin Program” on page 12](#)
- [“Considering Specific Deployment Scenarios for the Web Server 7.0 Agent” on page 17](#)

Gathering Information to Install the Web Server 7.0 Agent

The following table describes the information you will need to provide when you run the `agentadmin` program to install Web Server 7.0 agent. For some `agentadmin` prompts, you can accept the default value displayed by the program, if you prefer.

TABLE 1 Information Required to Install the Web Server 7.0 Agent

Prompt Request	Description
Sun Java System Web Server Config Directory Path	Complete path to the directory used by Web Server to store its configuration files. For example: <code>/opt/sun/webserver7/https-agenthost/config</code>
OpenSSO Enterprise URL	For example: <code>http://openssohost.example.com:8080/opensso</code>
Agent URL	For example: <code>http://agent.example.com:8090</code>
Agent Profile Name	A policy agent communicates with OpenSSO Enterprise server using the name and password in the agent profile. For information, see “Creating an Agent Profile” on page 8 . For example: <code>WS7Agent</code>
Agent Profile Password File	ASCII text file with only one line specifying the agent profile password. You create the agent profile password file as a pre-installation step. For information, see “Creating a Password File” on page 7 .

TABLE 1 Information Required to Install the Web Server 7.0 Agent (Continued)

Prompt Request	Description
<p>Option to create the agent profile</p> <p>The <code>agentadmin</code> program displays the following prompt if the agent profile previously specified for the Agent Profile Name prompt does not already exist in OpenSSO Enterprise:</p> <p>Enter true if the Agent Profile is being created into OpenSSO Enterprise by the installer. Enter false if it will be not be created by installer.</p>	<p>To have the installation program create the agent profile, enter <code>true</code>. The program then prompts you for:</p> <ul style="list-style-type: none"> ■ Agent administrator who can create, update, or delete the agent profile. For example: <code>agentadmin</code> Important: To use this option, the agent administrator must already exist in OpenSSO Enterprise and must have agent administrative privileges. For information see, “Creating an Agent Administrator (Optional)” on page 9. If you prefer, you can also specify <code>amadmin</code> as this user. ■ Path to the agent administrator password file. For information, see “Creating a Password File” on page 7.

Installing the Web Server 7.0 Agent Using the `agentadmin` Program

▼ To Install the Web Server 7.0 Agent Using the `agentadmin` Program

1 Login into the server where you want to install the agent.

Important: To install the agent, you must have write permission to the files and directories for the Web Server 7.0 instance.

2 Stop the Web Server 7.0 instance.

3 Change to the following directory:

`PolicyAgent-base/bin`

4 Start the agent installation. For example:

```
# ./agentadmin --custom-install
```

On Windows systems, run the `agentadmin.bat` program.

5 Enter information as requested by the agentadmin program, or accept the default values displayed by the program.

After you have made your choices, the agentadmin program displays a summary of your responses. For example:

```
-----
SUMMARY OF YOUR RESPONSES
-----
Sun Java System Web Server Config Directory :
/opt/SUNWwbsvr7/https-agenthost/config
OpenSSO server URL : http://openssohost.example.com:8080/opensso
Agent URL : http://agenthost.example.com:8090
Agent Profile name : WS7Agent
Agent Profile Password file name : /tmp/ws7agentpw
Agent Profile will be created right now by agent installer : true
Agent Administrator : amadmin
Agent Administrator's password file name : /tmp/amadminpw
```

Verify your settings above and decide from the choices below.

1. Continue with Installation
2. Back to the last interaction
3. Start Over
4. Exit

Please make your selection [1]:

6 Verify your choices and either continue with the installation (selection 1, the default), or make any necessary changes.

If you continue, the program installs the agent and displays a summary of the installation. For example:

```
SUMMARY OF AGENT INSTALLATION
-----
Agent instance name: Agent_001
Agent Bootstrap file location:
/opt/web_agents/sjsws_agent/Agent_001/config/OpenSSOAgentBootstrap.properties
Agent Configuration Tag file location
/opt/web_agents/sjsws_agent/Agent_001/config/OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/opt/web_agents/sjsws_agent/Agent_001/logs/audit
Agent Debug directory location:
/opt/web_agents/sjsws_agent/Agent_001/logs/debug
```

```
Install log file location:
/opt/web_agents/sjsws_agent/installer-logs/audit/custom.log
```

Thank you for using Sun OpenSSO Enterprise Policy Agent. **INSTALL NOTE:**
 Installer modifies obj.conf file in the config directory you specified. To
 make agent changes effective do Pull and deploy configuration using Web

Server Admin Console or CLI. If there are multiple `obj.conf` files already present, then manually add agent settings to the required `obj.conf` files. UNINSTALL NOTE: Uninstall removes agent settings from `obj.conf` file in the config directory you specified. If there are multiple `obj.conf` files configured manually in the same config directory, then please remove them manually. For more information, please refer agent documentation.

All files are under the *PolicyAgent-base* directory.

- 7 **After the installation finishes successfully, if you wish, check the installation log file in the following directory:**

PolicyAgent-base/logs/audit

- 8 **Restart the Web Server 7.0 instance that is being protected by the policy agent.**

Example 1 Sample agentadmin --custom-install for the Web Server 7.0 Agent

```
*****
Welcome to the Sun OpenSSO Enterprise Policy Agent for Sun Java System
Web Server.
*****

Enter the complete path to the directory which is used by Sun Java System Web
Server to store its configuration Files. This directory uniquely
identifies the Sun Java System Web Server instance that is secured by this
Agent.
[ ? : Help, ! : Exit ]
Enter the Sun Java System Web Server Config Directory Path
[/var/opt/SUNWwbsvr7/https-agenthost.example.com/config]:
/opt/SUNWwbsvr7/https-agenthost/config

Enter the URL where the OpenSSO server is running. Please include the
deployment URI also as shown below:
(http://opensso.sample.com:58080/opensso)
[ ? : Help, < : Back, ! : Exit ]
OpenSSO server URL: http://openssohost.example.com:8080/opensso

Enter the Agent URL as shown below: (http://agent1.sample.com:1234)
[ ? : Help, < : Back, ! : Exit ]
Agent URL: http://agenthost.example.com:8090
Enter the Agent profile name
[ ? : Help, < : Back, ! : Exit ]
Enter the Agent Profile name: WS7Agent

Enter the path to a file that contains the password to be used for identifying
the Agent.
[ ? : Help, < : Back, ! : Exit ]
```

```
Enter the path to the password file: /tmp/ws7agentpw
Enter true if the Agent Profile is being created into OpenSSO
by the installer. Enter false if it will be not be created by
installer.
[ ? : Help, < : Back, ! : Exit ]
This Agent Profile does not exist in OpenSSO server, will it be
created by the installer? (Agent Administrator's name and password are
required) [true]:

Agent Administrator is the Administrator user that can create, delete or
update agent profile.
[ ? : Help, < : Back, ! : Exit ]
Enter the Agent Administrator's name: amadmin

Enter the path to a file that contains the password of Agent Administrator
[ ? : Help, < : Back, ! : Exit ]
Enter the path to the password file that contains the password of Agent
Administrator: /tmp/amadminpw
```

```
-----
SUMMARY OF YOUR RESPONSES
-----
```

```
Sun Java System Web Server Config Directory :
/opt/SUNWwbsvr7/https-agenthost/config
OpenSSO server URL : http://openssohost.example.com:8080/opensso
Agent URL : http://agenthost.example.com:8090
Agent Profile name : WS7Agent
Agent Profile Password file name : /tmp/ws7agentpw
Agent Profile will be created right now by agent installer : true
Agent Administrator : amadmin
Agent Administrator's password file name : /tmp/amadminpw
```

Verify your settings above and decide from the choices below.

1. Continue with Installation
2. Back to the last interaction
3. Start Over
4. Exit

Please make your selection [1]:

```
Creating directory layout and configuring Agent file for Agent_001
instance ...DONE.
```

```
Reading data from file /tmp/ws7agentpw and encrypting it ...DONE.
```

```
Generating audit log file name ...DONE.
```

```
Creating tag swapped OpenSSOAgentBootstrap.properties file for instance
Agent_001 ...DONE.
```

Creating the Agent Profile WS7Agent ...DONE.

Creating a backup for file
/opt/SUNWwbsvr7/https-agenthost/config/obj.conf ...DONE.

Creating a backup for file
/opt/SUNWwbsvr7/https-agenthost/config/magnus.conf ...DONE.

Adding Agent parameters to
/opt/SUNWwbsvr7/https-agenthost/config/magnus.conf file ...DONE.

Adding Agent parameters to
/opt/SUNWwbsvr7/https-agenthost/config/obj.conf file ...DONE.

SUMMARY OF AGENT INSTALLATION

Agent instance name: Agent_001
Agent Bootstrap file location:
/opt/web_agents/sjsws_agent/Agent_001/config/OpenSSOAgentBootstrap.properties
Agent Configuration Tag file location
/opt/web_agents/sjsws_agent/Agent_001/config/OpenSSOAgentConfiguration.properties
Agent Audit directory location:
/opt/web_agents/sjsws_agent/Agent_001/logs/audit
Agent Debug directory location:
/opt/web_agents/sjsws_agent/Agent_001/logs/debug

Install log file location:
/opt/web_agents/sjsws_agent/installer-logs/audit/custom.log

Thank you for using Sun OpenSSO Enterprise Policy Agent. **INSTALL NOTE:**
Installer modifies obj.conf file in the config directory you specified. To
make agent changes effective do Pull and deploy configuration using Web
Server Admin Console or CLI. If there are multiple obj.conf files already
present, then manually add agent settings to the required obj.conf files.
UNINSTALL NOTE: Uninstall removes agent settings from obj.conf file in the
config directory you specified. If there are multiple obj.conf files
configured manually in the same config directory, then please remove them
manually. For more information, please refer agent documentation.

After You Finish the Install

Agent Instance Directory: The installation program creates the following directory for each
Web Server 7.0 agent instance:

PolicyAgent-base/Agent_nnn

where *nnn* identifies the agent instance as Agent_001, Agent_002, and so on for each additional
agent instance.

Each agent instance directory contains the following subdirectories:

- `/config` contains the configuration files for the agent instance, including `OpenSSOAgentBootstrap.properties` and `OpenSSOAgentConfiguration.properties`.
- `/logs` contains the following subdirectories
 - `/audit` contains local audit trail for the agent instance.
 - `/debug` contains the debug files for the agent instance when the agent runs in debug mode.

Considering Specific Deployment Scenarios for the Web Server 7.0 Agent

- [“Installing the Web Server 7.0 Agent on Multiple Web Server 7.0 Instances” on page 17](#)
- [“Installing Web Server 7.0 Agent on the OpenSSO Enterprise Host Server” on page 17](#)

Installing the Web Server 7.0 Agent on Multiple Web Server 7.0 Instances

After you install the Web Server 7.0 agent for a specific Web Server 7.0 instance, you can install the agent on another Web Server 7.0 instance by executing the `agentadmin` program again for that instance.

Installing Web Server 7.0 Agent on the OpenSSO Enterprise Host Server

Installing the Web Server 7.0 agent on the OpenSSO Enterprise host server is not recommended in a production deployment because performance can be degraded.

However, if you do install the agent on the OpenSSO Enterprise host server on the same Web Server 7.0 instance, add the URLs related to OpenSSO Enterprise to the not enforced URL list. If you are installing the agent on a different Web Server 7.0 instance, configuration of the not enforced URL list is not required.

▼ To Configure the Not Enforced URL List

- 1 **Login into the Administration Console as `amAdmin`.**
- 2 **Click `Access Control`, `realm-name`, `Agents`, `Web`, then the name of the agent you want to configure.**

The Console displays the `Edit` page for the agent.

- 3 **Click `Application`.**

- 4 **Under Not Enforced URL Processing, add the URLs related to OpenSSO Enterprise to the Not Enforced URLs list.**
- 5 **Click Save.**

Post-Installation Tasks for the Web Server 7.0 Agent

- “Replicating Configuration Changes to the Administration Server Repository” on page 18
- “Changing the Password for an Agent Profile (Optional)” on page 19
- “Using SSL With the Web Server 7.0 Agent (Optional)” on page 20
- “Preserving POST Data For Web Server 7.0 (Optional)” on page 21

Replicating Configuration Changes to the Administration Server Repository

When you install the Web Server 7.0 agent, the agent installer modifies the Web Server `obj.conf` configuration file. Whenever changes are made to the Web Server configuration, you should replicate the changes into the Web Server 7.0 Administration server repository.

▼ To Replicate the Web Server Configuration Changes

- 1 **Log in to the Web Server 7.0 Console as an administrator.**
By default, the Common Tasks tab is selected.
- 2 **Under Configuration Tasks, if the Web Server configuration you are protecting with the agent is not selected, select it from the drop-down list.**
- 3 **Click Edit Configuration.**
- 4 **Click the name of the Web Server configuration you are protecting with the agent.**
- 5 **In the upper right corner of the window, click the Instance Configuration Modified link.**
- 6 **In the Configuration Deployment window, select Pull and deploy configuration from**
- 7 **Ensure that the correct Web Server configuration is selected.**
- 8 **Click OK.**

Changing the Password for an Agent Profile (Optional)

After you install the agent, you can change the agent profile password, if required for your deployment.

▼ To Change the Password for an Agent Profile

- 1 **On the OpenSSO Enterprise server:**
 - a. **Login into the Administration Console as amAdmin.**
 - b. **Click Access Control, *realm-name*, Agents, Web, and then the name of the agent you want to configure.**
The Console displays the Edit page for the agent profile.
 - c. **Enter and confirm the new unencrypted password.**
 - d. **Click Save.**
- 2 **On the server where the Web Server 7.0 agent is installed:**
 - a. **In the agent profile password file, replace the old password with the new unencrypted password.**
 - b. **Change to the *PolicyAgent-base/bin* directory.**
 - c. **Encrypt the new password using the `agentadmin` program. For example:**

```
#./agentadmin --encrypt Agent_002 /tmp/ws7agentpw
```

Agent_002 is the agent instance whose password you want to encrypt.
passwd is the password file in the /tmp directory.
The agentadmin program returns the new encrypted password. For example:
The encrypted value is: /54GwN432q+MEnfh/AHLMA==
 - d. **In the *agent-instance/config/OpenSSOAgentBootstrap.properties* file, set the following property to the new encrypted password from the previous step. For example:**

```
com.sun.am.policy.am.password=/54GwN432q+MEnfh/AHLMA==
```
 - e. **Restart the Web Server 7.0 instance that is being protected by the policy agent.**

Using SSL With the Web Server 7.0 Agent (Optional)

If you specify the https protocol for the OpenSSO Enterprise server during the Web Server 7.0 agent installation, the agent is automatically configured and ready to communicate to the OpenSSO Enterprise server over Secure Sockets Layer (SSL). However, to ensure that the Web Server 7.0 agent is configured for SSL communication to the server, follow these tasks:

- “To Install the OpenSSO Enterprise Root CA Certificate on a Remote Web Server 7.0 Instance” on page 20
- “To Configure Notifications For the Web Server 7.0 Agent” on page 20
- “To Disable the Trust Behavior of the Web Server 7.0 Agent” on page 20

▼ To Install the OpenSSO Enterprise Root CA Certificate on a Remote Web Server 7.0 Instance

- The root CA certificate that you install on the remote Web Server 7.0 instance must be the same certificate that is installed on the OpenSSO Enterprise server.

To install the OpenSSO Enterprise root CA certificate on Web Server 7.0, see the Web Server 7.0 Update 3 documentation: <http://docs.sun.com/coll/1653.3>

▼ To Configure Notifications For the Web Server 7.0 Agent

- 1 Add the Web Server 7.0 root CA certificate to the OpenSSO Enterprise certificate database.
- 2 Mark the root CA certificate as trusted to enable OpenSSO Enterprise to successfully send notifications to the Web Server 7.0 agent.

▼ To Disable the Trust Behavior of the Web Server 7.0 Agent

By default, an agent installed on a remote Web Server 7.0 instance trusts any server certificate presented over SSL by the OpenSSO Enterprise host. The web agent does not check the root CA certificate. If the OpenSSO Enterprise host is SSL-enabled and you want the Web Server 7.0 agent to perform certificate checking, you can disable this behavior.

- In the Web Server 7.0 agent's `OpenSSOAgentBootstrap.properties` file, set the following properties, depending on the requirements for your deployment.

Note: These properties have new names for version 3.0 web agents.

- Disable the option to trust server certificate sent over SSL by the OpenSSO Enterprise host:
`com.sun.identity.agents.config.trust.server.certs = false`
- Set the certificate database directory. For example:
`com.sun.identity.agents.config.sslcert.dir =
/var/opt/SUNWwbsvr7/https-agent-host.example.com/config`

- If the certificate database directory has multiple certificate databases, set the following property to the prefix of the database you want to use. For example:
`com.sun.identity.agents.config.certdb.prefix = https-agent-host.example.com.host-`
- Set the certificate database password:
`com.sun.identity.agents.config.certdb.password = password`
- Set the certificate database alias:
`com.sun.identity.agents.config.certificate.alias = alias-name`

Preserving POST Data For Web Server 7.0 (Optional)

Only the Web Server 7.0 agent supports POST data preservation. Other web agents do not support this feature. POST data is submitted to Web Server 7.0 through HTML forms before users log into OpenSSO Enterprise. An HTML page containing the HTML form should be in the not enforced list. By default, POST data preservation is disabled.

▼ To Enable POST Data Preservation for the Web Server 7.0 Agent

- 1 **Login to the OpenSSO Enterprise Console as `amadmin`.**
- 2 **Click `Access Control`, `realm-name`, `Agents`, `Web`, and then the name of the agent you want to configure.**
- 3 **Click `Advanced`, and then `Sun Java System Web Server`.**
- 4 **For `POST Data Preservation`, check `Enabled`.**
- 5 **For `POST Data Entries Cache Period`, specify a value in minutes, if you want a value other than the default value of 10.**

This value determines the time in minutes that POST data is valid in the Web Server 7.0 cache.

- 6 **Click `Save`.**

These values are hot-swappable, which means you don't have to restart Web Server 7.0 after you set them. Any changes done in the Console are not reflected in the agent's local configuration file (and vice versa).

Managing the Web Server 7.0 Agent

- “Managing a Version 3.0 Agent With a Local Configuration” on page 22
- “Managing a Version 3.0 Agent With a Local Configuration” on page 22

Managing a Version 3.0 Agent With a Local Configuration

By default, OpenSSO Enterprise stores version 3.0 policy agent configuration data (as well as server configuration data) in a centralized data repository. You manage this configuration data using these options:

- OpenSSO Enterprise Administration Console

You can manage both version 3.0 J2EE and web agents from the OpenSSO Enterprise Console. Tasks that you can perform include creating, deleting, updating, listing, and displaying agent configurations. Using the Console, you can set properties for an agent that you previously set by editing the agent's `AMAgent.properties` file.

For more information, refer to the Administration Console online Help.

- `ssoadm` command-line utility

The `ssoadm` utility is the command-line interface to OpenSSO Enterprise server and is available after you install the tools and utilities in the `openssoAdminTools.zip` file. The `ssoadm` utility includes subcommands to manage policy agents, including:

- Creating, deleting, updating, listing, and displaying agent configurations
- Creating deleting, listing, and displaying agent groups
- Adding and removing an agent to and from a group

For information about the `ssoadm` utility, including the syntax for each subcommand, see the *Sun OpenSSO Enterprise 8.0 Administration Reference*.

Managing a Version 3.0 Agent With a Local Configuration

In some scenarios, you might need to deploy a version 3.0 agent using a local configuration. For example, if you deploy the agent with Access Manager 7.1 or Access Manager 7 2005Q4, which do not support centralized agent configuration, local configuration is used by default.

With a local configuration, you manage the version 3.0 agent by editing properties in the agent's local `OpenSSOAgentConfiguration.properties` file (in the same manner that you edit the `AMAgent.properties` file for version 2.2 agents).

If you are creating a new agent profile in the OpenSSO Console, set Configuration to Local.

To specify a local configuration for an existing agent profile using a centralized configuration, edit the agent profile in the OpenSSO Console:

1. Log in to the Console as `amadmin`.
2. Click Access Control, *realm-name*, Agents, Web, and then the name of the agent profile you want to edit.

The Console displays the Edit page for the agent profile.

3. On the Edit page, check Local for Location of Agent Configuration Repository.
4. Click Save.

A version 3.0 agent also stores configuration information in the local `OpenSSOAgentBootstrap.properties` file. The agent uses information in the bootstrap file to start and initialize itself and to communicate with OpenSSO Enterprise server. In most cases, you won't need to edit the bootstrap file; however, if you do edit the file, be careful, or the agent might not function properly.

Uninstalling the Web Server 7.0 Agent

- [“Preparing to Uninstall the Web Server 7.0 Agent” on page 23](#)
- [“Uninstalling the Web Server 7.0 Agent Using the agentadmin Program” on page 23](#)

Preparing to Uninstall the Web Server 7.0 Agent

▼ To Prepare to Uninstall Web Server 7.0 Agent

- 1 Undeploy any applications protected by the Web Server 7.0 agent.
- 2 Stop the Web Server 7.0 instance, if it is running.

Uninstalling the Web Server 7.0 Agent Using the agentadmin Program

▼ To Uninstall the Web Server 7.0 Agent

- 1 Change to the following directory:
PolicyAgent-base/bin
- 2 Issue one of the following commands:
`# ./agentadmin --uninstall`

or

```
# ./agentadmin --uninstallAll
```

The `--uninstall` removes only one instance of the agent, while the `--uninstallAll` option prompts you to remove all configured instances of the agent.

3 The `uninstall` program prompts you for the Web Server configuration directory path.

Default: `/var/opt/SUNWwbsvr7/https-agenthostname/config`

4 The `uninstall` program displays the path and then asks if you want to continue:

To continue with the uninstallation, select 1 (the default).

Example 2 Uninstallation Sample for the Web Server 7.0 Agent

```
*****
Welcome to the OpenSSO Enterprise Policy Agent for Sun Java System Web Server If
the Policy Agent is used with Federation Manager services, User needs to
enter information relevant to Federation Manager.
*****
Enter the complete path to the directory which is used by Sun Java
System Web Server to store its configuration Files. This directory
uniquely identifies the Sun Java System Web Server instance that is
secured by this Agent.
[ ? : Help, ! : Exit ]
Enter the Sun Java System Web Server Config Directory Path
[/var/opt/SUNWwbsvr7/https-agenthost/config]:

-----
SUMMARY OF YOUR RESPONSES
-----

Sun Java System Web Server Config Directory :
/var/opt/SUNWwbsvr7/https-agenthost/config

Verify your settings above and decide from the choices below.
1. Continue with Uninstallation
2. Back to the last interaction
3. Start Over
4. Exit
Please make your selection [1]:
```

After You Finish the Uninstall

- The `/config` directory is removed from the agent instance directory, but the `/logs` directory still exists.
- The `uninstall` program creates an uninstall log file in the `PolicyAgent-base/logs/audit` directory.

- The agent instance directory is not automatically removed. For example, if you uninstall the agent for Agent_001, a subsequent agent installation creates the Agent_002 instance directory. To remove an agent instance directory, you must manually remove the directory.

Migrating a Version 2.2 Web Server 7.0 Policy Agent

The version 3.0 `agentadmin` program includes the new `--migrate` option to migrate a version 2.2 agent to version 3.0. After you migrate a version 2.2 agent, the agent can use the new version 3.0 agent features.

The migration process migrates the agent's binary files, updates the agent's deployment container configuration, and converts the agent's `AMAgent.properties` file to the new version 3.0 `OpenSSOAgentBootstrap.properties` and `OpenSSOAgentConfiguration.properties` files.

Migrating a version 2.2 agent involves these general steps:

1. On the server where the version 2.2 agent is installed, run the version 3.0 `agentadmin` program with the `--migrate` option.

To get the version 3.0 `agentadmin` program, you must download the version 3.0 agent that corresponds to the version 2.2 agent you are migrating. For example, if you are migrating the version 2.2 Web Server 7.0 agent, download the version 3.0 Web Server 7.0 agent.

2. On the OpenSSO Enterprise server, run the `ssoadm` utility to create the new version 3.0 agent configuration in the centralized agent configuration repository.

Therefore, the `ssoadm` utility must be installed from the `openssoAdminTools.zip` file on the OpenSSO Enterprise server. For information, see “Installing the OpenSSO Enterprise Utilities and Scripts” in the *Sun OpenSSO Enterprise 8.0 Installation and Configuration Guide*.

The `agentadmin` program creates a new deployment directory for the migrated agent, starting with Agent_001. The program does not modify the version 2.2 agent deployment directory files, in case you need these files after you migrate.

The following procedure, the migrated version 3.0 agent instance uses a new agent profile name, which is `WS7v3Agent` in the examples. The old version 2.2 and new version 3.0 agent profile passwords are the same. If you need to change the password for the new version 3.0 agent profile, see [“Changing the Password for an Agent Profile \(Optional\)”](#) on page 19.

▼ To Migrate a Version 2.2 Agent:

- 1 **Login to the server where the version 2.2 agent is installed.**

To migrate the agent, you must have write permission to the version 2.2 agent's deployment container files and directories.

- 2 **Stop the Web Server 7.0 instance for the version 2.2 agent.**
- 3 **Create a directory to download and unzip the version 3.0 agent. For example: `v30agent`**
- 4 **Download and unzip the version 3.0 agent that corresponds to the version 2.2 agent you are migrating.**

The version 3.0 agents are available from the OpenSSO project site: <https://opensso.dev.java.net/public/use/index.html>

- 5 **Change to the version 3.0 agent's `/bin` directory.**

For example, if you downloaded and unzipped the version 3.0 Web Server 7.0 agent in the `v30agent` directory:

```
cd /v30agent/web_agents/sjsws_agent/bin
```

- 6 **Run the version 3.0 `agentadmin` program with the `--migrate` option. For example:**

```
./agentadmin --migrate
```

- 7 **When the `agentadmin` program prompts you, enter the path to the version 2.2 agent's deployment directory. For example:**

```
...
Enter the migrated agent's deployment directory:
/opt/web_agents/sjsws_agent
...
```

In this example, `/opt` is the directory where you downloaded and unzipped the version 2.2 agent.

The `agentadmin` program migrates the version 2.2 agent.

- 8 **Copy the `Agent_nnn/config/OpenSSOAgentConfiguration.properties` file to the `/bin` directory where `ssoadm` is installed on the OpenSSO Enterprise server.**
- 9 **In `OpenSSOAgentConfiguration.properties`, add the un-encrypted version 2.2 agent profile password at the end of the file, as follows:**

```
userpassword=v2.2-agent-profile-password
```

- 10 **On OpenSSO Enterprise server, create a password file for the OpenSSO Enterprise administrator (`amadmin`).**

This password file is an ASCII text file with only one line specifying the `amadmin` password in plain text. For example: `/tmp/amadminpw`

11 On OpenSSO Enterprise server, run `ssoadm` to create a new agent configuration in the OpenSSO Enterprise centralized agent configuration repository. For example:

```
cd tools_zip_root/opensso/bin
./ssoadm create-agent -b WS7v3Agent -t WebAgent -u amadmin
-f /tmp/amadminpw -D ./OpenSSOAgentConfiguration.properties
```

In this example:

- `tools_zip_root` is the directory where you unzipped `openssoAdminTools.zip`.
- `WS7v3Agent` is the version 3.0 agent configuration name.
- `WebAgent` is the agent type for J2EE agents.
- `/tmp/amadminpw` is the path to the `amadmin` password file.

Caution: After you run `ssoadm`, you might want to delete `OpenSSOAgentConfiguration.properties` from the `/bin` directory. This file contains sensitive information, including as the agent profile password, and the original file is maintained on the server where the agent is installed.

12 Restart the Web Server 7.0 instance for the migrated agent.

Next Steps After you migrate the agent, you can manage the new 3.0 agent configuration using the OpenSSO Enterprise Administration Console or the `ssoadm` utility, as described in [“Managing the Web Server 7.0 Agent”](#) on page 22.

Sun Microsystems Related Information

- [“Additional Sun Resources”](#) on page 27
- [“Accessibility Features for People With Disabilities”](#) on page 28
- [“Related Third-Party Web Sites”](#) on page 28
- [“How to Report Problems and Provide Feedback”](#) on page 28
- [“Sun Welcomes Your Comments”](#) on page 29

Additional Sun Resources

You can find additional useful information and resources at the following locations:

- Sun Services: <http://www.sun.com/service/consulting/>
- Sun Software Products: <http://www.sun.com/software/>
- Sun Support Resources <http://sunsolve.sun.com/>
- Sun Developer Network (SDN): <http://developers.sun.com/>
- Sun Developer Services: <http://www.sun.com/developers/support/>

Accessibility Features for People With Disabilities

To obtain accessibility features that have been released since the publishing of this media, consult Section 508 product assessments available from Sun upon request to determine which versions are best suited for deploying accessible solutions.

For information about Sun's commitment to accessibility, visit <http://sun.com/access>.

Related Third-Party Web Sites

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

Note – Sun is not responsible for the availability of third-party Web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

How to Report Problems and Provide Feedback

If you have questions or issues with OpenSSO Enterprise, contact Sun as follows:

- Sun Support Resources (SunSolve) services at <http://sunsolve.sun.com/>.
This site has links to the Knowledge Base, Online Support Center, and ProductTracker, as well as to maintenance programs and support contact numbers.
- The telephone dispatch number associated with your maintenance contract

So that we can best assist you in resolving problems, please have the following information available when you contact support:

If you are requesting help for a problem, please include the following information:

- Description of the problem, including when the problem occurs and its impact on your operation
- Machine type, operating system version, web container and version, JDK version, and OpenSSO Enterprise version, including any patches or other software that might be affecting the problem
- Steps to reproduce the problem
- Any error logs or core dumps

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to <http://docs.sun.com/> and click Feedback. In the online form, provide the full document title and part number. The part number is a 7-digit or 9-digit number that can be found on the title page or in the document's URL. For example, the title of this guide is *Sun OpenSSO Enterprise Policy Agent 3.0 Guide for Sun Java System Web Server 7.0*, and the part number is 820-4579.

Revision History

Part Number	Date	Description
820-4579-11	July 31, 2009	Clarified the information in “Managing a Version 3.0 Agent With a Local Configuration” on page 22.
820-4579-10	November 11, 2008	Initial release.
820-4579-05	July 15, 2008	Early Access (EA) release draft.

