BEA WebLogic Operations Control

Stepping Through a WLOC Use Case

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CHAPTER 1

Introduction

The Big Picture

Tutorial Overview

The example represents a typical use case scenario for WLOC. You will learn how to configure and use WLOC to resolve the business scenario presented in the specified use case. The tutorial will:

- Provide you an understanding of the concepts underlying WLOC.
- Show you how to navigate through the WLOC Administration Console and demonstrate the capabilities of the console.
- Provide the basic tasks that will help you to configure a specific scenario.
-

In this tutorial we will install and configure a WLOC Agent and Controller, and create a WLOC service that specifies a process type for a collection of externally-facing Web services, all of which run on a single WebLogic Server cluster. We will configure the process type as follows:

- For the resource minimum, we will reserve 400 CPU cycles and 600 MB of RAM. For the maximum, we will allow the service to use up to 800 CPU cycles and 800 MB of RAM.

- For the resource priority, we will specify the highest priority over all other services.
- For the initial deployment state, we will configure WLOC to start the cluster's Administration Server and 2 Managed Servers.
- We will create a policy that starts an additional cluster member during business hours.
-

Steps in This Example

Document Conventions

The following conventions are used throughout this document:

- The instructions in this example are for Windows command shells. If you are using a UNIX-based shell, substitute / for \ in path names.
- BEA_HOME represents the directory in which you installed your BEA product; for example, C:\bea.

Related Documents

CHAPTER 2

Configure the WLOC Resource Environment

In a WLOC environment, resource pools provide a virtual environment in which you can deploy LOC services. Each resource pool provides access to physical computing resources (such as CPU cycles, memory, and disk space) and pre-installed software that a service needs to run. A resource pool also contains a description of the failover capabilities of the machines that host the computing and software resources.

To establish a WLOC resource environment, you need to configure a controller and one or more agents. You can do so using the WLOC Configuration Wizard. When you configure an Agent, you configure its resource pool. When you configure the Controller, you bind it to the Agents so that it can track information about the resources and deploy services accordingly. The Controller also hosts the WLOC Administration Console which provides a graphical interface into the WLOC environment.

The tasks in this topic include:

- Prerequisites
- Step 1: Install and Create the Plain Agent
- Step 2: Install and Create the Controller

After completing this section, you will know how to .

Prerequisites

You must complete "Getting Started with the WLOC Tutorial" on page 2-1.

Step 1: Install and Create the Plain Agent

A Plain Agent manages the computing resources for the physical machine on which the Agent is installed. You can configure a Plain Agent to allocate all or a subset of the available machine resources to WLOC services.

After you install the agent, you create it using the WLOC Configuration Wizard.

Use the following steps to install and create the Plain Agent.

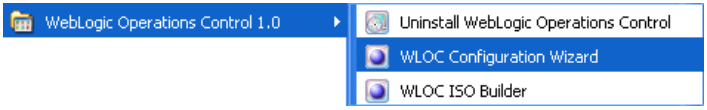
Install the Plain Agent

The Plain Agent is installed as part of a complete WLOC installation, or can be selected individually using the Custom installation option. For details about installing WLOC, see the *WLOC Installation Guide*.

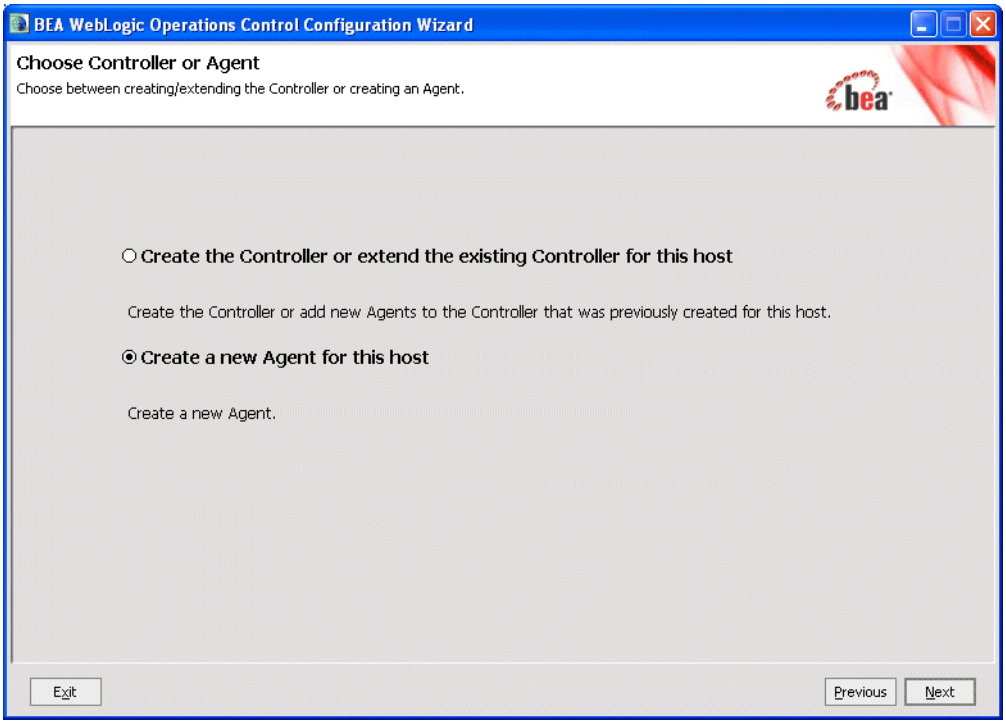
Create the Plain Agent

To create the plain agent, use the WLOC Configuration Wizard and complete the following steps:

1. From the Start Menu, select Start > WebLogic Operations Control 1.0 > WLOC Configuration Wizard.

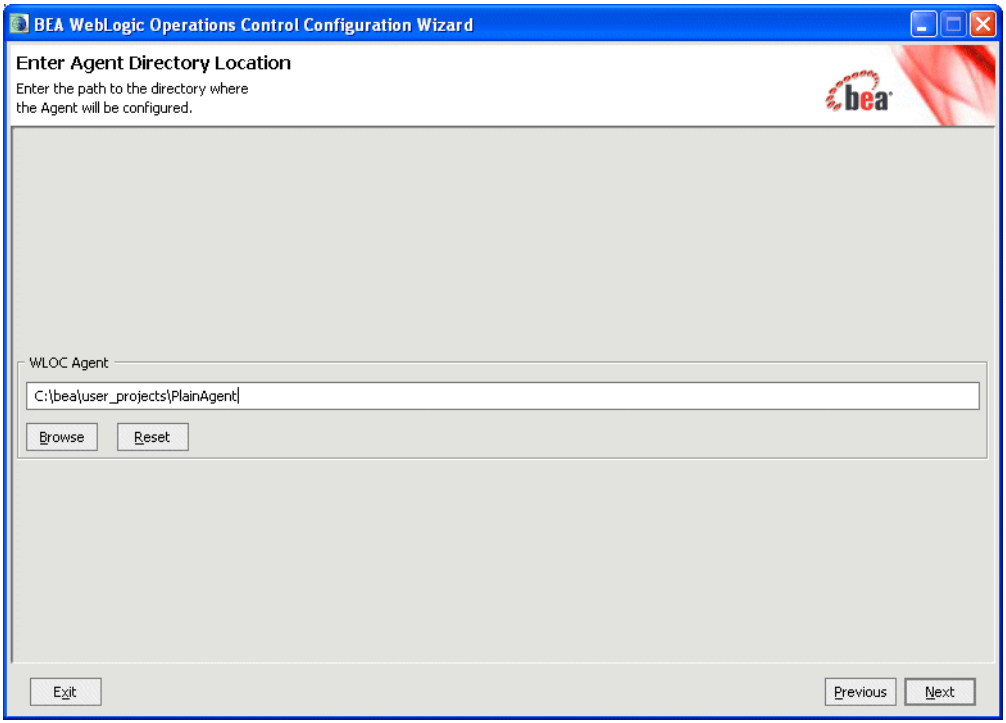


2. In the **Welcome** window, click **Next**.
3. In the **Choose Controller or Agent** window, select **Create a new Agent for this host** and click **Next**.



4. In the **Enter Agent Directory Location** window, specify the path and file name for the Agent and click **Next**.

   For this example, name the directory PlainAgent.



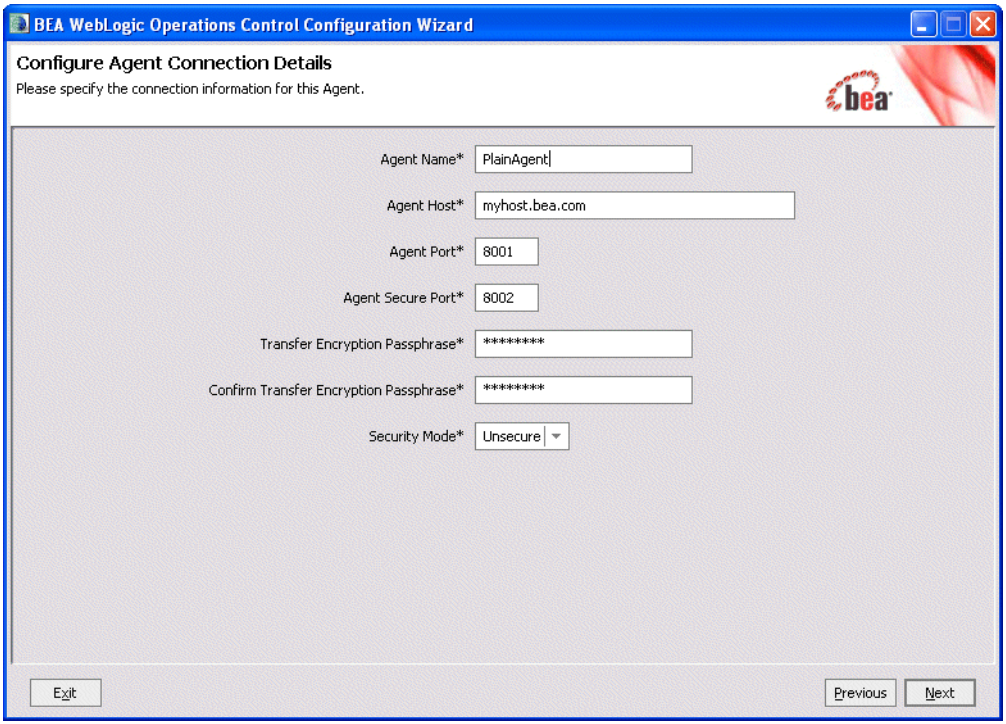
5. In the Configure Agent Connection Details window, specify the following connection information for the Agent:

Table 2-1 Agent Connection Information

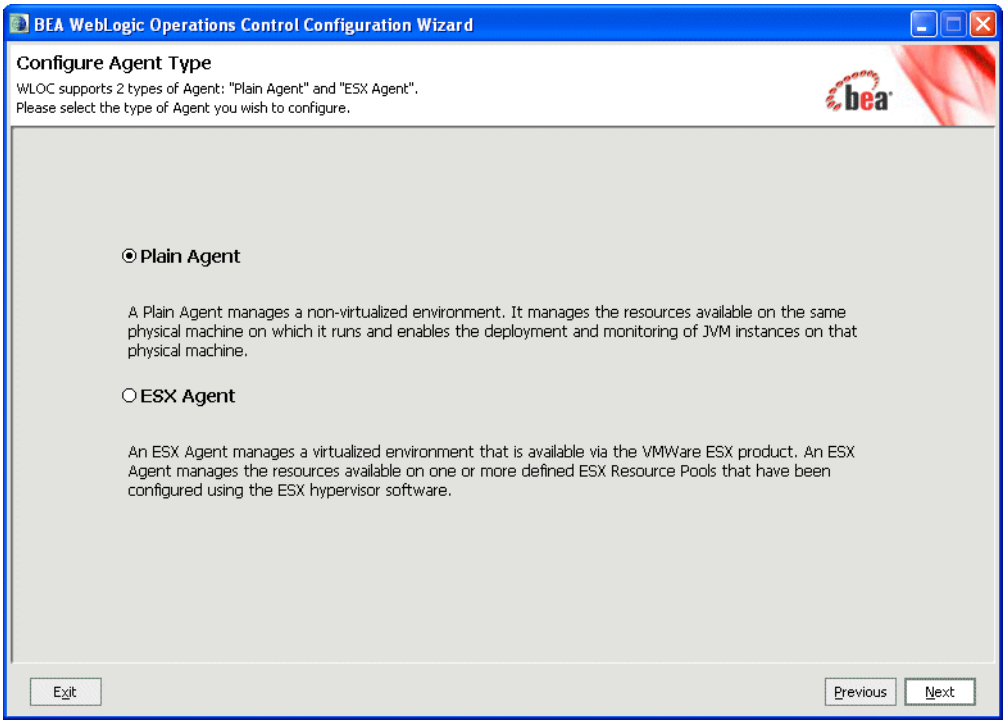
In this field . . .	Enter the following value . . .
Agent Name	PlainAgent
Agent Host	The URL for the host machine
Agent Port	8001 (the default)
Agent Secure Port	8002 (the default)
Transfer Encryption Passphrase	Default

Table 2-1 Agent Connection Information

In this field . . .	Enter the following value . . .
Confirm Transfer Encryption Passphrase	Default
Security Mode	Unsecure (default)



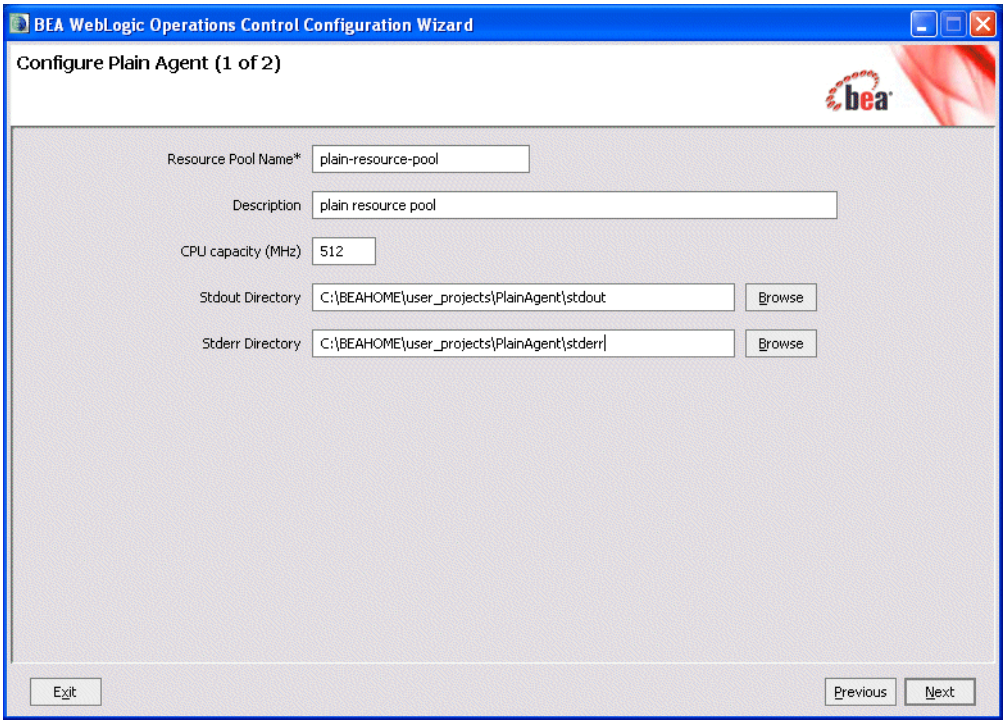
6. Click **Next** in the following two windows to accept the defaults:
   - Configure Agent Logging
   - Configure Agent Keystore Passwords
7. In the **Configure Agent Type** window, select **Plain Agent** and click **Next**.



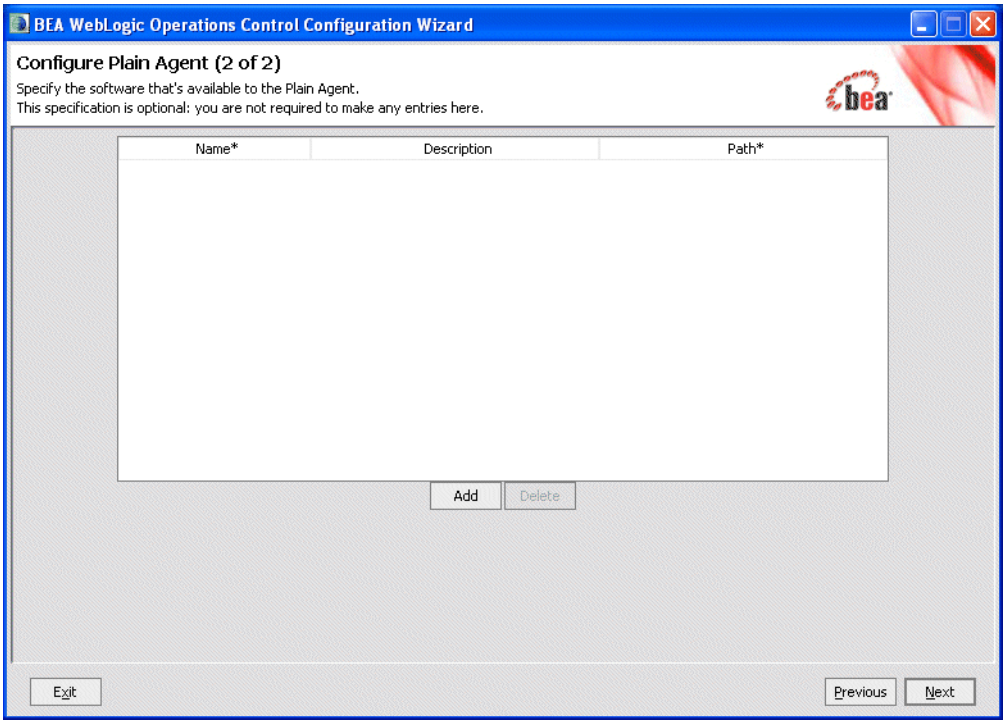
8. In the **Configure Plain Agent (1 of 2)** window, enter the name of the resource pool associated with this Agent and the CPU capacity available to the resource pool, as shown in the following table:

Table 2-2 Plain Agent Resource Pool Configuration

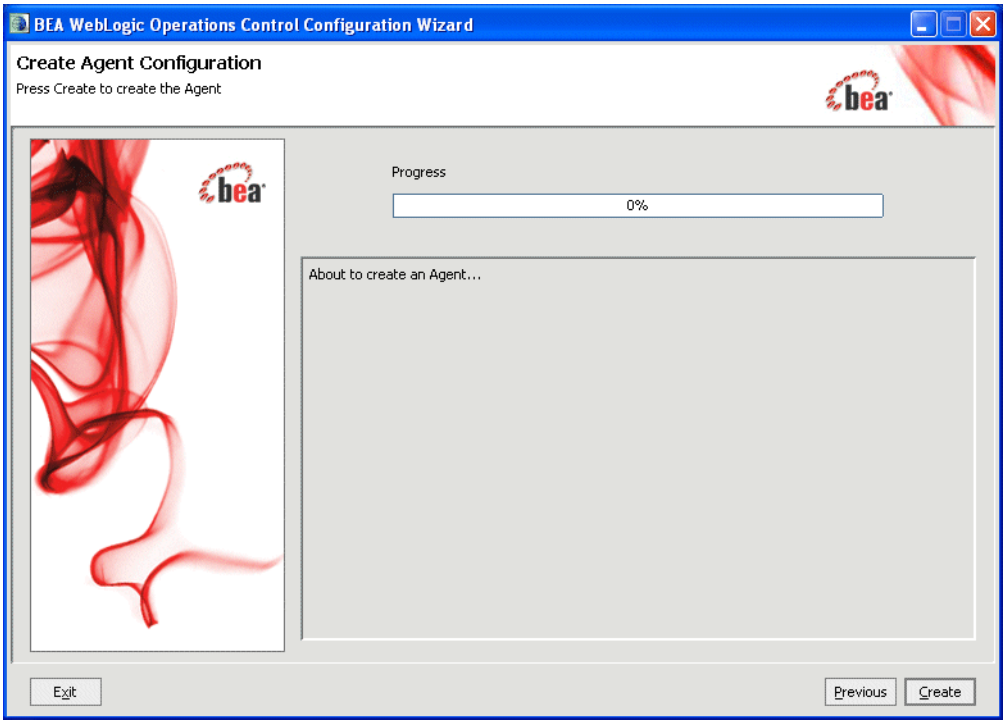
In this field . . .	Enter the following value . . .
Resource Pool Name	plain-resource-pool
Description	plain resource pool
CPU capacity (MHz)	512
Stdout Directory	Accept the default
Stderr Directory	Accept the default



9. In the **Configure Plain Agent (2 of 2)** window, you specify the available software you want to include in the resouce pool. For this example, do not specify any additional software and click **Next**.



10. In the **Create Agent Configuration** window, click **Create**.



11. After the Agent has been created, click **Done** to exit the WLOC Configuration Wizard.

Agent Configuration File

When you create an Agent using the WLOC Configuration Wizard, the configuration is persisted in an XML file named `loc-agent-config.xml`. In this example, the file is created in the following directory:

`BEAHOME/user_projects/PlainAgent/config/loc-agent-config.xml`

where:

`BEAHOME` is the BEA Home directory containing the WLOC installation, and `PlainAgent` is the name that we specified for the Agent Directory location in the Configuration Wizard.

After you have created the Agent using the Configuration Wizard, it can be modified using the Administration Console or by directly editing its configuration file.

The `loc-agent-config.xml` file created in this example is shown in Listing 2-1

Listing 2-1 Sample loc-agent-config.xml File

```
<?xml version="1.0" encoding="UTF-8"?><loc-agent xmlns="bea.com/loc/agent"
xmlns:loc="http://bea.com/loc">
  <name>PlainAgent</name>
  <description>PlainAgent</description>
  <network>
    <loc:host>myhost.bea.com</loc:host>
    <loc:components>
      <loc:component>
        <loc:name>ListenPorts</loc:name>
        <loc:description>ListenPorts</loc:description>
        <loc:port>8001</loc:port>
        <loc:secure-port>8002</loc:secure-port>
      </loc:component>
    </loc:components>
  </network>
  <use-secure-connections>false</use-secure-connections>
  <logging>
    <loc:file-severity>Info</loc:file-severity>

<loc:base-file-name>C:/BEAHOME/user_projects/PlainAgent/logs/Agent.log</lo
c:base-file-name>
    <loc:rotation-type>BySize</loc:rotation-type>
    <loc:rotation-size>5000</loc:rotation-size>
    <loc:rotation-time>00:00</loc:rotation-time>
    <loc:file-rotation-dir>./logs/logrotdir</loc:file-rotation-dir>
    <loc:number-of-files-limited>true</loc:number-of-files-limited>
    <loc:rotated-file-count>5</loc:rotated-file-count>
    <loc:rotation-time-span>24</loc:rotation-time-span>
    <loc:rotation-time-span-factor>3500000</loc:rotation-time-span-factor>
   <loc:rotation-on-startup-enabled>true</loc:rotation-on-startup-enabled>
    <loc:stdout-severity>Info</loc:stdout-severity>
  </logging>
  <audit>
    <loc:base-file-name>./logs/audit.log</loc:base-file-name>
    <loc:rotation-type>BySize</loc:rotation-type>
    <loc:rotation-size>300</loc:rotation-size>
```

```
  <loc:rotation-time>00:00</loc:rotation-time>
  <loc:file-rotation-dir>./logs/logrotdir</loc:file-rotation-dir>
  <loc:number-of-files-limited>true</loc:number-of-files-limited>
  <loc:rotated-file-count>50</loc:rotated-file-count>
  <loc:rotation-time-span>24</loc:rotation-time-span>
  <loc:rotation-time-span-factor>50</loc:rotation-time-span-factor>
 <loc:rotation-on-startup-enabled>true</loc:rotation-on-startup-enabled>
  <loc:enabled>true</loc:enabled>
  <loc:scope>
    <loc:type>All</loc:type>
  </loc:scope>
</audit>
<work-managers>
  <loc:work-manager>
    <loc:name>WM</loc:name>
    <loc:description>WM</loc:description>
    <loc:max-threads-constraint>64</loc:max-threads-constraint>
    <loc:min-threads-constraint>3</loc:min-threads-constraint>
  </loc:work-manager>
  <loc:work-manager>
    <loc:name>ResourceBrokerAgent-WM</loc:name>
    <loc:description>ResourceBrokerAgent-WM</loc:description>
    <loc:max-threads-constraint>15</loc:max-threads-constraint>
    <loc:min-threads-constraint>3</loc:min-threads-constraint>
  </loc:work-manager>
  <loc:work-manager>
    <loc:name>AgentRuntime-WM</loc:name>
    <loc:description>AgentRuntime-WM</loc:description>
    <loc:max-threads-constraint>15</loc:max-threads-constraint>
    <loc:min-threads-constraint>3</loc:min-threads-constraint>
  </loc:work-manager>
</work-managers>
<encryption>
  <password>{Salted-3DES}zwrq/caNuFEi4S5AeAAl1A==</password>
</encryption>
<resource-pools>
  <plain-resource-pool>
    <name>plain-resource-pool</name>
```

```
      <description>plain resource pool</description>
      <cpu-capacity>512</cpu-capacity>
      <stdout-dir>C:\BEAHOME\user_projects\PlainAgent\stdout</stdout-dir>
      <stderr-dir>C:\BEAHOME\user_projects\PlainAgent\stderr</stderr-dir>
    </plain-resource-pool>
  </resource-pools>
</loc-agent>
```

For information about the elements of the `loc-agent-config.xml` Agent configuration file, see the *Agent Configuration Schema Reference*.

Step 2: Install and Create the Controller

Every WLOC environment includes a single Controller. The Controller is the central component that gathers data about the operating environment from Agents. The Controller uses the data that it gathers to intelligently deploy new services and to evaluate and enforce policies for all services in the environment. The Controller also hosts the WLOC Administration Console.

After you install the Controller, you configure it using the WLOC Configuration Wizard.

Although you can install the Agent and the Controller on different physical machines, in this example, the Controller is installed on the same machine as the Plain Agent.

Use the following steps to install and configure the controller.

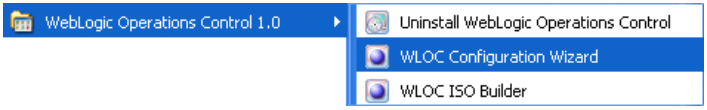
Install the Controller

The Controller is installed as part of a complete WLOC installation, or can be selected individually using the Custom installation option. For details about installing WLOC, see the *WLOC Installation Guide*.

Create the Controller

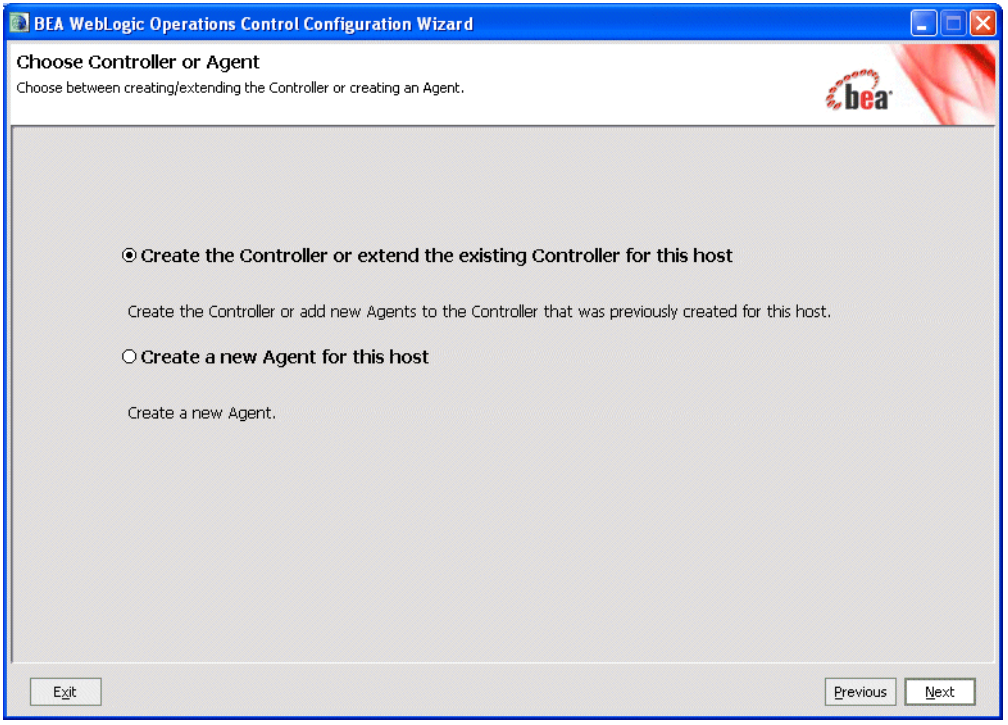
To create the Controller, use the WLOC Configuration Wizard and complete the following steps:

1. From the Start Menu, select Start > WebLogic Operations Control 1.0 > WLOC Configuration Wizard.

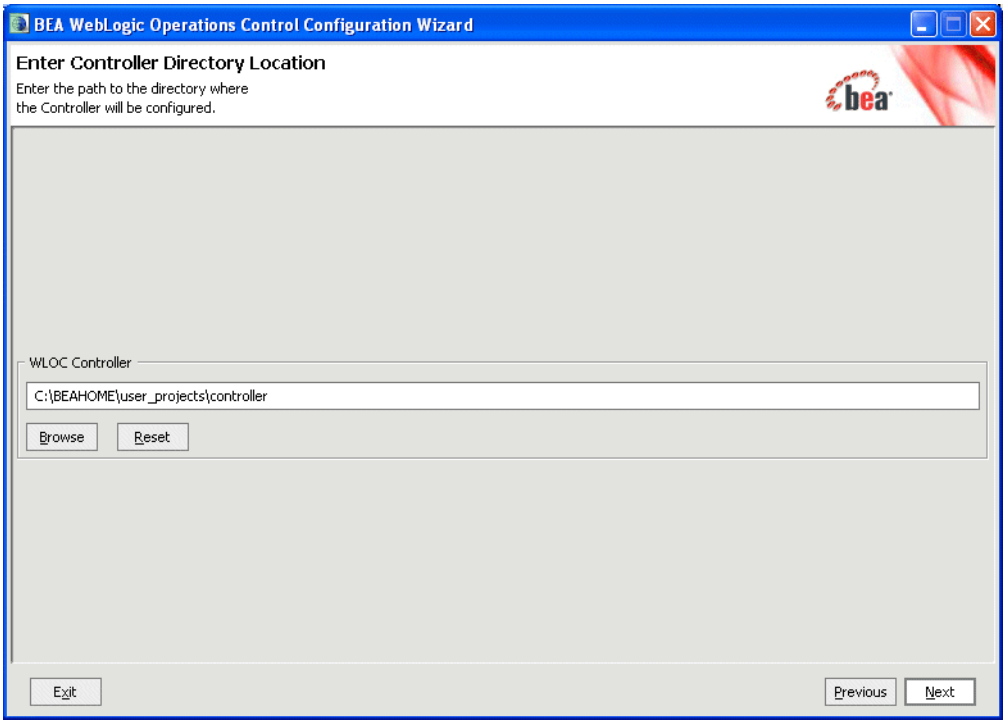


2. In the **Welcome** window, click **Next**.

3. In the **Choose Controller or Agent** window, select **Create the Controller or extend the existing Controller for this host** and click **Next**.



4. In the **Enter Controller Directory Location** window, accept the default path and filename for the Controller and click **Next**.



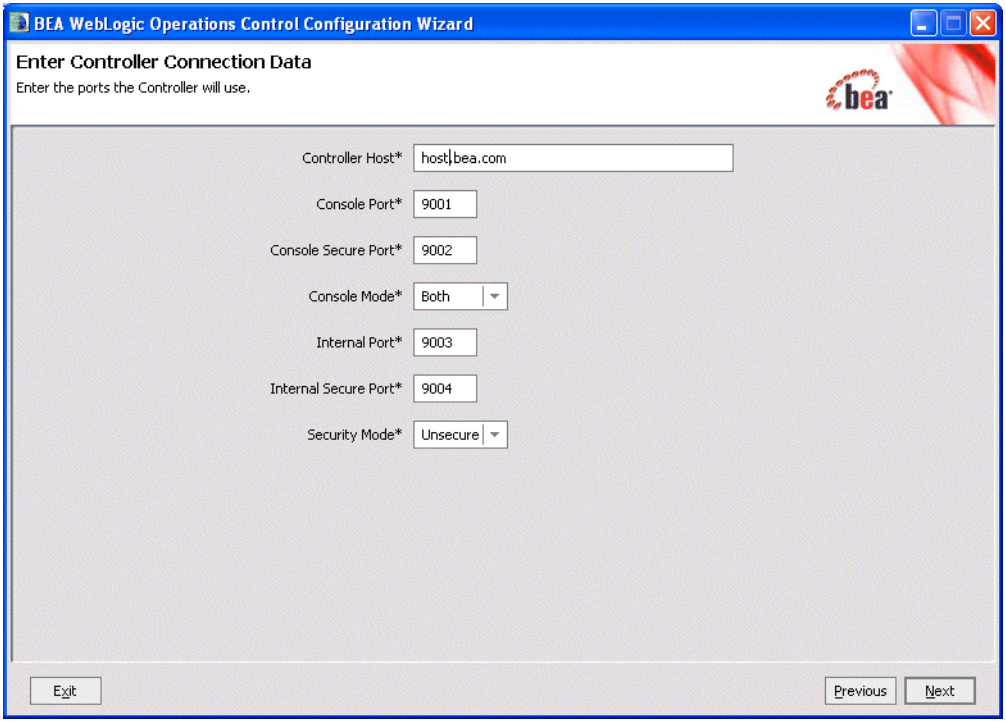
5. In the Enter Controller Connection Data window, specify the following connection information for the Controller.

Table 2-3 Controller Connection Information

In this field . . .	Enter the following value . . .
Controller Host	The URL for the host machine
Console Port	9001 (the default)
Console Secure Port	9002 (the default)
Console Mode	Both
Internal Port	9003 (the default)

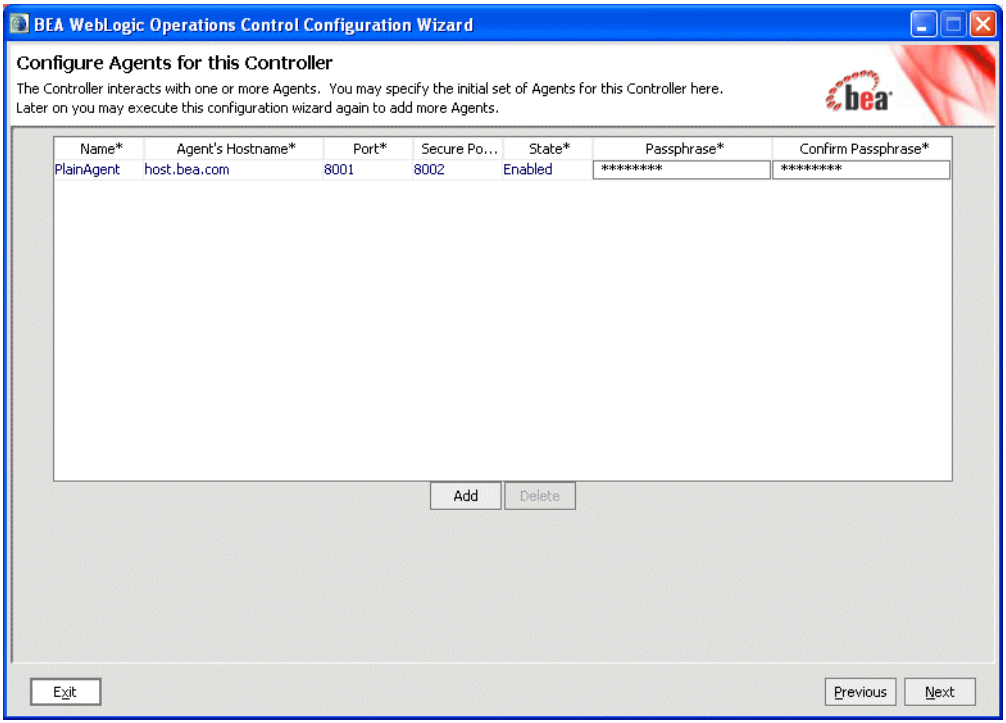
Table 2-3 Controller Connection Information

In this field . . .	Enter the following value . . .
Internal Secure Port	9004 (the default)
Security Mode	Unsecure (default)



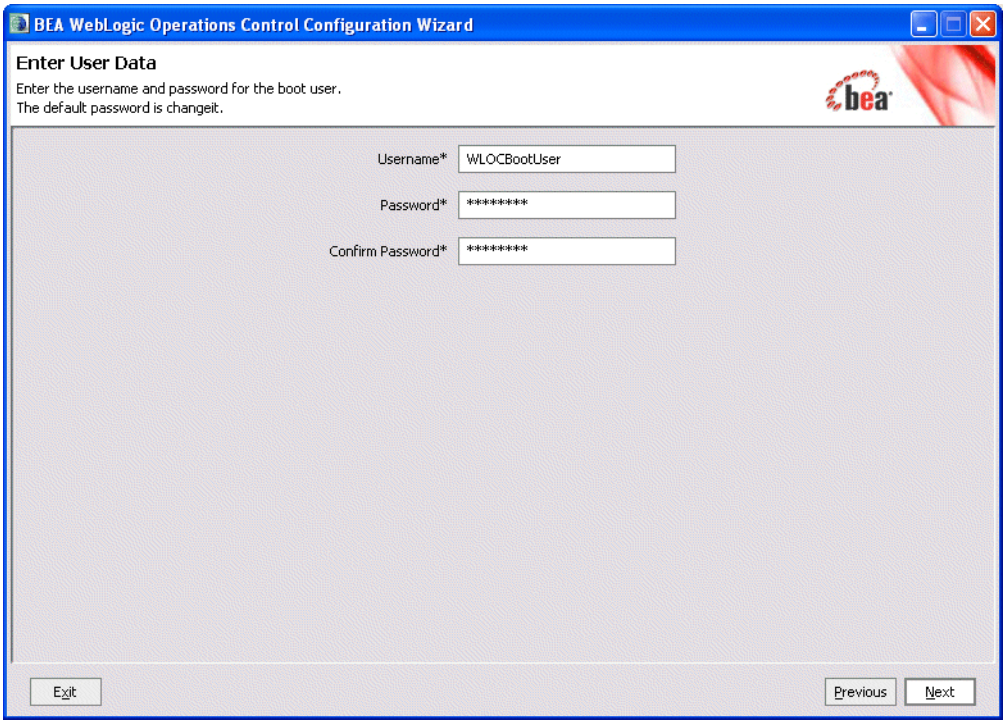
6. Accept the default options in the following windows and click **Next**:
   - **Configure Controller Logging**
   - **Configure Controller Notifications (1 of 3)**
   - **Configure Controller Notifications (2 of 3)**
   - **Configure Controller Notifications (3 of 3)**
7. In the **Configure Agents for this Controller** window, click **Add** to bind the Plain Agent created previously with this Controller.

The fields are populated with the default data for your machine. Enter a name for the Plain Agent in the Name field, accept the defaults for the remaining fields and click **Next**.

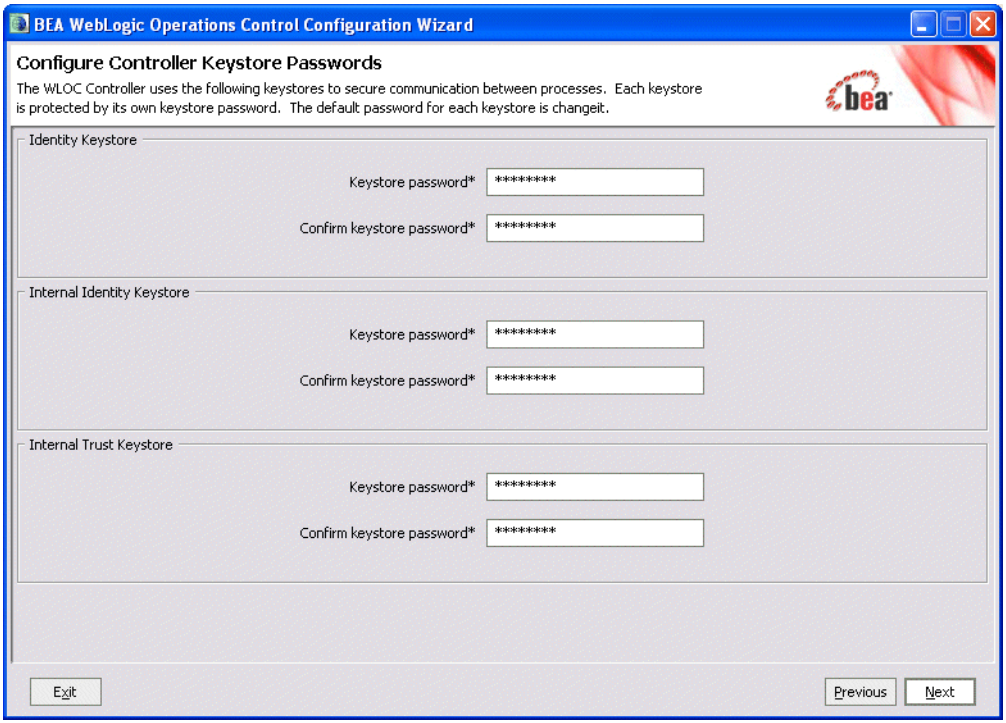


8. Click **Next** in the **Use SSH for WLOC ESX Agents** window. In this example, only a Plain Agent is configured.

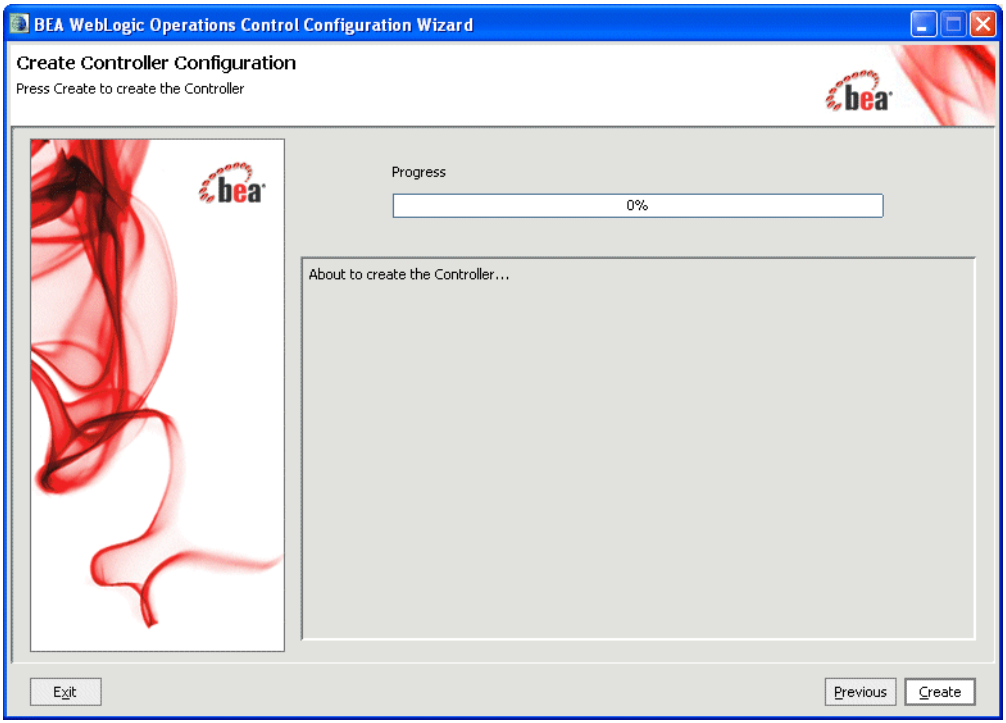
9. In the Enter User Data window, specify a username and password for the boot user. For this example, accept the defaults. Note that the default password is changeit:



10. In the **Configure Controller KeyStore Passwords**, accept the default passwords and click **Next**.



11. In the **Create Controller Configuration** window, click **Create**.



12. After the Controller has been created, click **Done** to exit the WLOC Configuration Wizard.

Controller Configuration File

When you create a Controller using the WLOC Configuration Wizard, the configuration is persisted in an XML file named `loc-controller-config.xml`. In this example, the file is created in the following directory:

`BEAHOME/user_projects/controller/config/loc-controller-config.xml`

where:

`BEAHOME` is the BEA Home directory containing the WLOC installation, and `controller` is the name that we specified for the Controller Directory location in the Configuration Wizard.

After you have created the Controller using the Configuration Wizard, it can be modified using the Administration Console or by directly editing its configuration file.

The `loc-controller-config.xml` file created in this example is shown in Listing 2-2

Listing 2-2 Sample loc-controller-config.xml File

```
<?xml version="1.0" encoding="UTF-8"?><loc-controller
xmlns="bea.com/loc/controller" xmlns:loc="http://bea.com/loc">
  <network>
    <loc:host>host.bea.com</loc:host>
    <loc:components>
      <loc:component>
        <loc:name>Console</loc:name>
        <loc:description>Console</loc:description>
        <loc:port>9001</loc:port>
        <loc:secure-port>9002</loc:secure-port>
      </loc:component>
      <loc:component>
        <loc:name>InternalCommunication</loc:name>
        <loc:description>InternalCommunication</loc:description>
        <loc:port>9003</loc:port>
        <loc:secure-port>9004</loc:secure-port>
      </loc:component>
    </loc:components>
  </network>
  <use-secure-connections>false</use-secure-connections>
  <console-mode>BOTH</console-mode>
  <logging>
    <loc:file-severity>Info</loc:file-severity>

<loc:base-file-name>C:/BEAHOME/user_projects/controller/logs/Controller.lo
g</loc:base-file-name>
    <loc:rotation-type>BySize</loc:rotation-type>
    <loc:rotation-size>500</loc:rotation-size>
    <loc:rotation-time>00:00</loc:rotation-time>
    <loc:file-rotation-dir>./logs/logrotdir</loc:file-rotation-dir>
    <loc:number-of-files-limited>true</loc:number-of-files-limited>
    <loc:rotated-file-count>5</loc:rotated-file-count>
    <loc:rotation-time-span>24</loc:rotation-time-span>
    <loc:rotation-time-span-factor>3500000</loc:rotation-time-span-factor>
   <loc:rotation-on-startup-enabled>true</loc:rotation-on-startup-enabled>
    <loc:stdout-severity>Info</loc:stdout-severity>
```

```
</logging>
<audit>
  <loc:base-file-name>./logs/audit.log</loc:base-file-name>
  <loc:rotation-type>BySize</loc:rotation-type>
  <loc:rotation-size>300</loc:rotation-size>
  <loc:rotation-time>00:00</loc:rotation-time>
  <loc:file-rotation-dir>./logs/logrotdir</loc:file-rotation-dir>
  <loc:number-of-files-limited>true</loc:number-of-files-limited>
  <loc:rotated-file-count>50</loc:rotated-file-count>
  <loc:rotation-time-span>24</loc:rotation-time-span>
  <loc:rotation-time-span-factor>50</loc:rotation-time-span-factor>
 <loc:rotation-on-startup-enabled>true</loc:rotation-on-startup-enabled>
  <loc:enabled>true</loc:enabled>
  <loc:scope>
    <loc:type>ControllerConfiguration</loc:type>
    <loc:type>ServiceConfiguration</loc:type>
    <loc:type>Rules</loc:type>
    <loc:type>ControllerAction</loc:type>
    <loc:type>Adjudication</loc:type>
    <loc:type>AgentConfiguration</loc:type>
  </loc:scope>
</audit>
<work-managers>
  <loc:work-manager>
    <loc:name>WM</loc:name>
    <loc:description>WM</loc:description>
    <loc:max-threads-constraint>64</loc:max-threads-constraint>
    <loc:min-threads-constraint>3</loc:min-threads-constraint>
  </loc:work-manager>
  <loc:work-manager>
    <loc:name>ResourceBroker-WM</loc:name>
    <loc:description>ResourceBroker-WM</loc:description>
    <loc:max-threads-constraint>15</loc:max-threads-constraint>
    <loc:min-threads-constraint>3</loc:min-threads-constraint>
  </loc:work-manager>
  <loc:work-manager>
    <loc:name>Action-Purge-WM</loc:name>
    <loc:description>Action-Purge-WM</loc:description>
```

```
      <loc:max-threads-constraint>15</loc:max-threads-constraint>
      <loc:min-threads-constraint>3</loc:min-threads-constraint>
    </loc:work-manager>
    <loc:work-manager>
      <loc:name>ExecuteEngine-WM</loc:name>
      <loc:description>ExecuteEngine-WM</loc:description>
      <loc:max-threads-constraint>15</loc:max-threads-constraint>
      <loc:min-threads-constraint>3</loc:min-threads-constraint>
    </loc:work-manager>
    <loc:work-manager>
      <loc:name>ProcessRuntime-WM</loc:name>
      <loc:description>ProcessRuntime-WM</loc:description>
      <loc:max-threads-constraint>15</loc:max-threads-constraint>
      <loc:min-threads-constraint>3</loc:min-threads-constraint>
    </loc:work-manager>
    <loc:work-manager>
      <loc:name>Actions-WM</loc:name>
      <loc:description>Actions-WM</loc:description>
      <loc:max-threads-constraint>15</loc:max-threads-constraint>
      <loc:min-threads-constraint>3</loc:min-threads-constraint>
    </loc:work-manager>
  </work-managers>
  <heartbeat-interval>20</heartbeat-interval>
  <reconnect-attempts>3</reconnect-attempts>
  <agents>
    <agent>
      <name>PlainAgent</name>
      <host>host.bea.com</host>
      <port>8001</port>
      <secure-port>8002</secure-port>
      <state>Enabled</state>
      <password>{Salted-3DES}8kenEcTMhnFzQI/LXLZeMQ==</password>
    </agent>
  </agents>
  <lvm-ssh-config>
    <public-key-file/>
  </lvm-ssh-config>
  <notification>
```

```
    <smtp>
      <name>LOC EMail Notification Service</name>
      <description>LOC EMail Notification Service</description>
      <to-address>somebody@somecompany.com</to-address>
      <from-address>LOCController@somecompany.com</from-address>
      <smtp-server>smtpserver.somecompany.com</smtp-server>
      <enabled>false</enabled>
    </smtp>
    <jms>
      <name>LOC JMS Notification Service</name>
      <description>LOC JMS Notification Service</description>

<destination-jndi-name>com.bea.adaptive.loc.notification.JMSNotifier</dest
ination-jndi-name>

<connection-factory-jndi-name>QueueConnectionFactory</connection-factory-j
ndi-name>
      <jndi-properties>
       <initial-factory>org.mom4j.jndi.InitialCtxFactory</initial-factory>
        <provider-url>xcp://somehost:9911</provider-url>
        <security-principal>system</security-principal>
        <password>{Salted-3DES}+fzbeHi7Ydhh+A1csPgYPA==</password>
      </jndi-properties>
      <enabled>false</enabled>
    </jms>
    <jmx>
      <name>JMX Notification Service</name>
      <description>JMX Notification Service</description>
      <enabled>false</enabled>
    </jmx>
    <snmp>
      <name>LOC SNMP Notification Service</name>
      <description>LOC SNMP Notification Service</description>
      <agent>
        <name>MySNMPAgent</name>
        <description>MySNMPAgent</description>
        <host>somehost</host>
        <port>2002</port>
```

```
        <trap-version>SNMPv2</trap-version>
        <enable-inform>false</enable-inform>
      </agent>
      <trap-destinations>
        <destination>
          <name>testTrapDest</name>
          <description>testTrapDest</description>
          <host>somehost</host>
          <port>1642</port>
          <community>public</community>
          <security-level>noAuthNoPriv</security-level>
        </destination>
      </trap-destinations>
      <enabled>false</enabled>
    </snmp>
  </notification>
</loc-controller>
```

For information about the elements of the `loc-controller-config.xml` Controller configuration file, see the *Controller Configuration Schema Reference*.

Where to Go from Here

After you create the Agents and Controllers, go to , which describes how to start the Agent, the Controller, and the WLOC Administration Console.