Estimated time 0:50

WebSphere Virtual Enterprise:
Application edition management
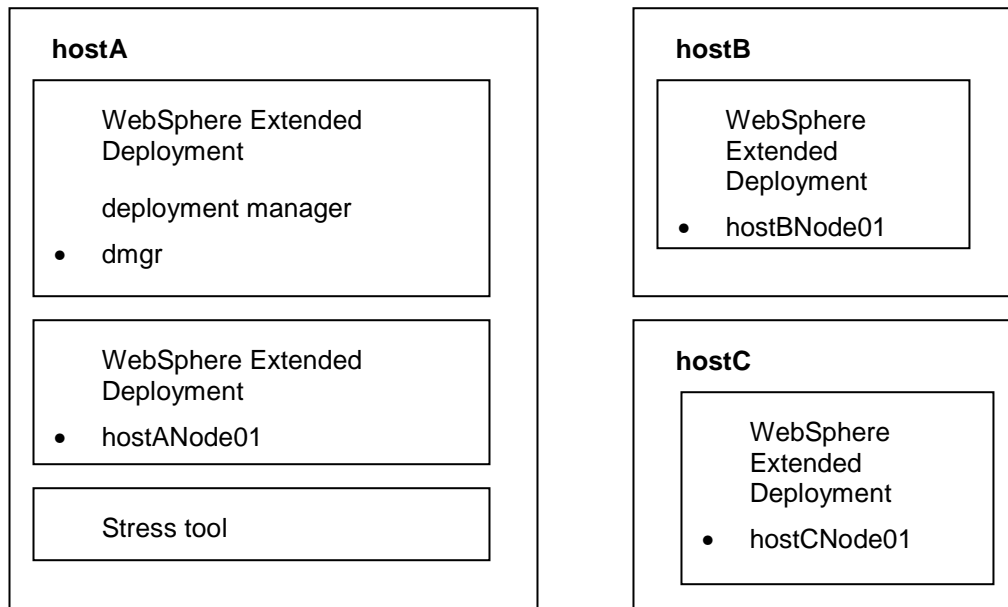
Edition Management

What this exercise is about

The objective of this lab is to provide you with an understanding of how to manage multiple editions and how to deploy multiple editions across and Extended Deployment cell.

Lab requirements

This lab assumes that the following setup is complete before starting the lab. If you do not have this environment set up, first complete the installation lab exercise, and then run the scripts specified in Part 1 of the dynamic application placement lab exercise.

```
+---------------------------------------+     +---------------------------------------+
| hostA                                 |     | hostB                                 |
| +-----------------------------------+ |     | +---------------------------------+   |
| | WebSphere Extended                | |     | | WebSphere                       |   |
| | Deployment                        | |     | | Extended                        |   |
| |                                   | |     | | Deployment                      |   |
| | deployment manager                | |     | |                                 |   |
| | • dmgr                            | |     | | • hostBNode01                   |   |
| +-----------------------------------+ |     | +---------------------------------+   |
| +-----------------------------------+ |     +---------------------------------------+
| | WebSphere Extended                | |     +---------------------------------------+
| | Deployment                        | |     | hostC                                 |
| | • hostANode01                     | |     | +---------------------------------+   |
| +-----------------------------------+ |     | | WebSphere                       |   |
| +-----------------------------------+ |     | | Extended                        |   |
| | Stress tool                       | |     | | Deployment                      |   |
| +-----------------------------------+ |     | |                                 |   |
+---------------------------------------+     | | • hostCNode01                   |   |
                                              | +---------------------------------+   |
                                              +---------------------------------------+
```

- The lab requires three machines: hostA, hostB, and hostC

- Deployment Manager, On-Demand Router Node, ODR and the stress tool are installed on hostA

- HostB and HostC each contain a managed node that has been federated into HostA's cell.

What you should be able to do

At the end of this lab you should be able to:

- Configure WebSphere Extended Deployment to install and manage multiple application editions using the edition control center in the administrative console.

- Test deployed editions using a stress tool and verify that the application was continuously available.

Introduction

Application edition management is a feature of WebSphere Extended Deployment that allows you to update an application with a newer version, or edition, without interruption of service. You can have different editions deployed to different servers in a cluster in order to accomplish staged deployments of application updates.

In this lab, you will configure your systems in a fashion similar to that of the dynamic application placement lab. You will use the topology graphs to observe how the server load changes when different editions are deployed.

Exercise instructions

Part 1: Lab setup

Part 2: Create node group and configure dynamic clusters

Part 3: Install applications and create operational policies

Part 4: Test the application and verify operation of edition management

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Part 1: Lab setup

____ 1.   If they are not already started, start the Deployment Manager, the hostANode01 node agent and the On-Demand Router.

   __ a. On **hostA**, open a command prompt (cmd.exe).

   __ b. Change directories to **C:\WebSphere\AppServer\profiles\dmgr\bin.**

   __ c. Enter the following command to start the deployment manager: **startManager**

```
C:\WebSphere\DeploymentManager\bin>startmanager
ADMU0116I: Tool information is being logged in file
           C:\WebSphere\DeploymentManager\logs\dmgr\startServer.log
ADMU3100I: Reading configuration for server: dmgr
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server dmgr open for e-business; process id is 2836
```

   __ d. Once the Deployment Manager has started, change directories to
          C:\WebSphere\AppServer\profiles\hostANode01\bin.

   __ e. Enter the following command to start the node agent on hostANode: **startNode**

```
C:\WebSphere\AppServer\profiles\hostANode01\bin>startnode
ADMU0116I: Tool information is being logged in file
           c:\WebSphere\AppServer\profiles\hostANode01\logs\nodeagent\startServe
r.log
ADMU0128I: Starting tool with the hostANode01 profile
ADMU3100I: Reading configuration for server: nodeagent
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server nodeagent open for e-business; process id is 2108
```

   __ f. Once the node agent has started, enter the following command to start the On Demand Router
          (proxy server) on hostANode01: startServer odr

____ 2.   If it is not already running, start the Node Agent on hostB.

   __ a. On **hostB**, open a command prompt.

   __ b. Change directories to C**:\WebSphere\AppServer\profiles\hostbnode1.**

   __ c. Enter the following command to start the node agent: **startNode.**

____ 3.   If it is not already running, start the Node Agent on hostC.

   __ a. On **hostC**, open a command prompt.

   __ b. Change directories to C**:\WebSphere\AppServer\profiles\hostcnode1.**

   __ c. Enter the following command to start the node agent: **startNode.**

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Part 2: Create a node group and configure dynamic clusters

____ 1.   Open the administrative console.

   __ a. On **hostA**, open a Web browser.

   __ b. Enter the URL: **http://localhost:9060/ibm/console.**

   __ c. Enter a userID of your choice, for example, **wsdemo** and click **Log In.**

____ 2.   Create a node group.

   __ a. In the administrative console, expand **System Administration.**

   __ b. Click **Node Groups.**

   __ c. Click **New.**

   __ d. Enter a name of **StockNodeGroup.**

General Properties

* Name

StockNodeGroup

Description

Apply   OK   Reset   Cancel

   __ e. Click **OK.**

   __ f. The new node group should now appear in your list of node groups.

New Delete			
Select	Name ⬍	Members ⬍	Description ⬍
☐	DefaultNodeGroup	4	WebSphere Default Node Group.
☐	StockNodeGroup	0	
Total 2			

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____ g. Click **StockNodeGroup** to edit the properties of your new node group.

____ h. Under **Additional Properties**, click **Node Group Members**.

____ i. Click the **Add** button.

____ j. Check the boxes next to **hostBnode1** and **hostCnode1** from the available node list and click **Add** to make them members of StockNodeGroup.

____ 3. Save the changes.

____ a. Click **Review** in the messages area (or under the System Administration menu)

____ b. On the Save panel, select the check box **Synchronize changes with Nodes.**

____ c. Click **Save.**

Node groups > StockNodeGroup > Node group members > Save

Save your workspace changes to the master configuration

Click Save to update the master repository with your changes. Click Discard to discard your changes and begin work again using the master repository configuration. Click Cancel to continue working with your changes.

⊞ Total changed documents: 1

☑ Synchronize changes with Nodes

Save   Discard   Cancel

_____ 4. Create a Dynamic Cluster named StockTrade_DC, bounded by the node group that was created in the previous step.

__ a. Expand **Servers**. Click **Dynamic Clusters.**

__ b. Click **New.**

__ c. In Step 1, Select **Application_Server** from the list (it is the default selection).
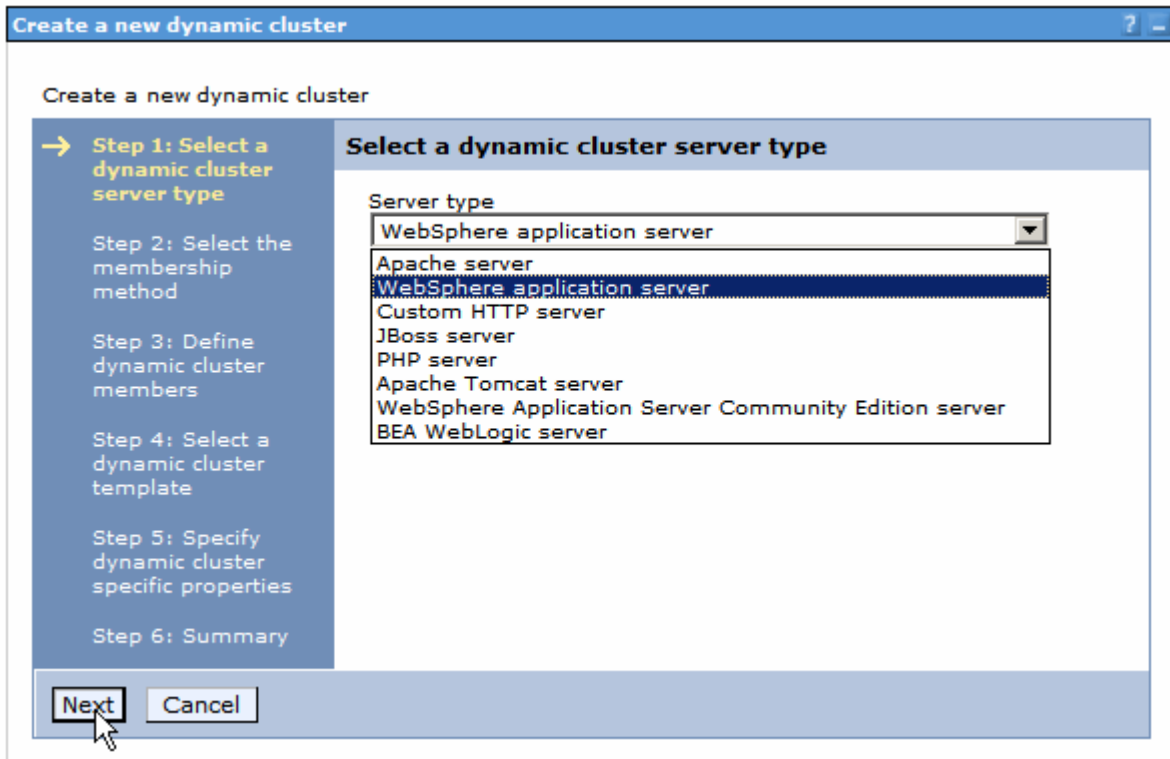
__ d. Click **Next**.

__ e. In Step 2, ensure "Automatically define cluster members with rules" is selected (it should be selected by default) and "Prefer local enabled" is checked (it should be checked by default). Type the dynamic cluster name as **StockTrade_DC.**
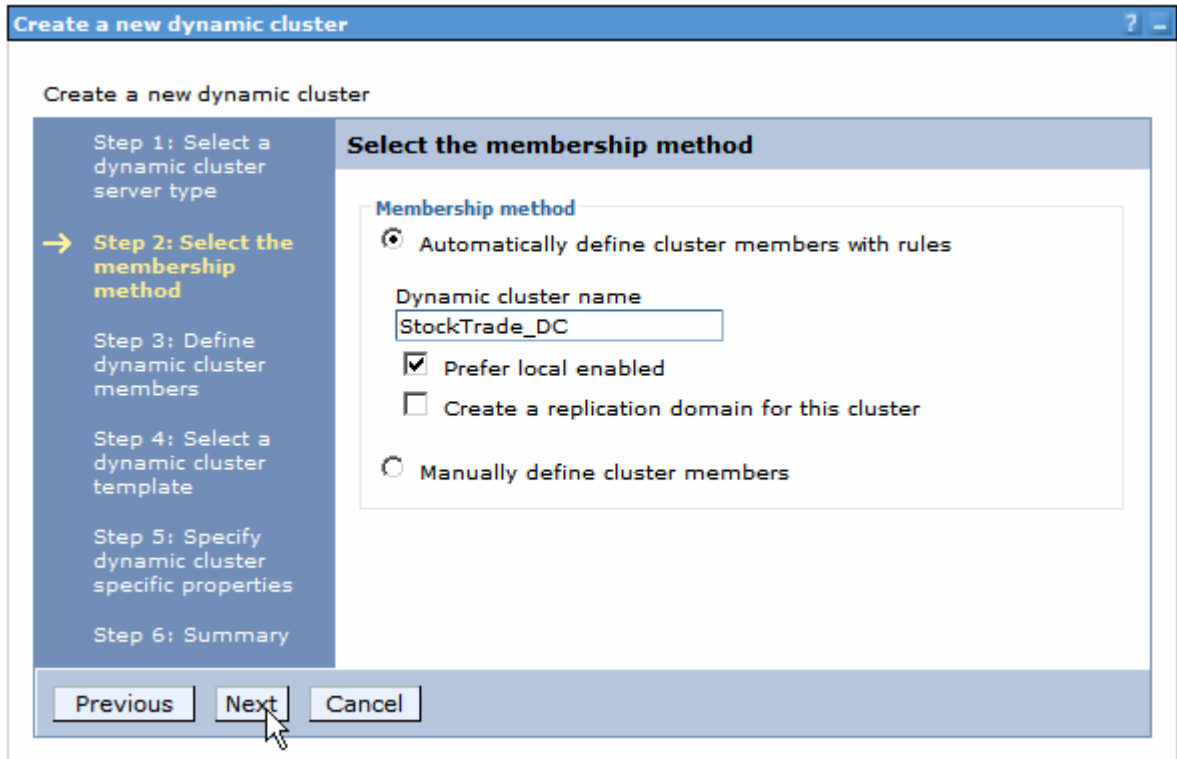
__ f. Click **Next**.

__ g. In Step 3, overtype "DefaultNodeGroup"…
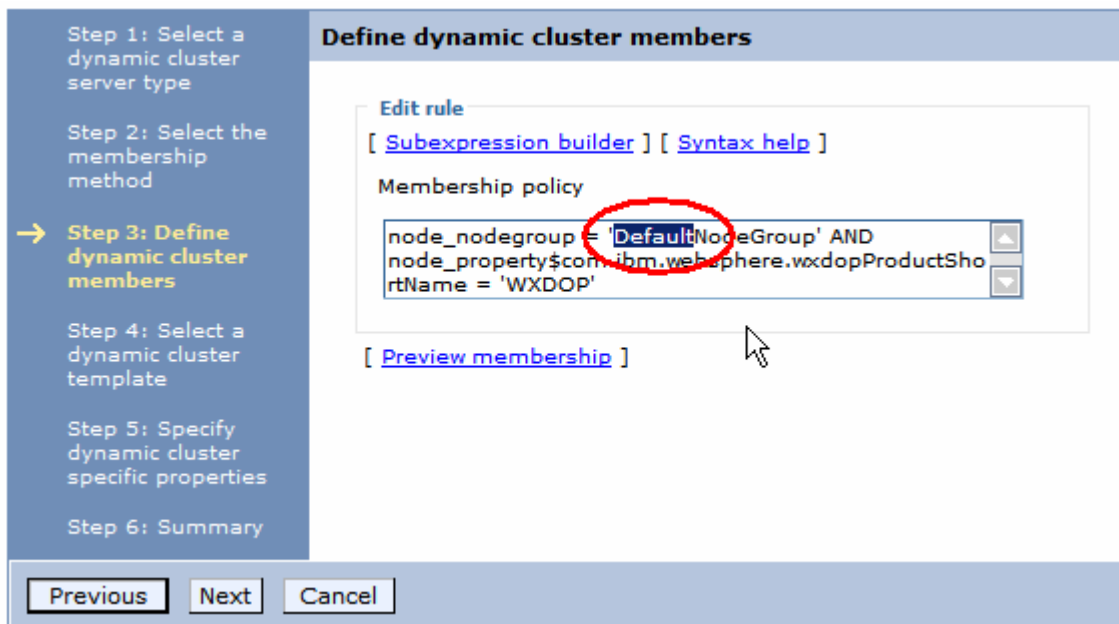
…with your node group name "StockNodeGroup".

Edit rule
[Subexpression builder] [Syntax help]

Membership policy

node_nodegroup = 'StockNodeGroup' AND
node_property$com.ibm.websphere.wxdopProductSho
rtName = 'WXDOP'

[Preview membership]
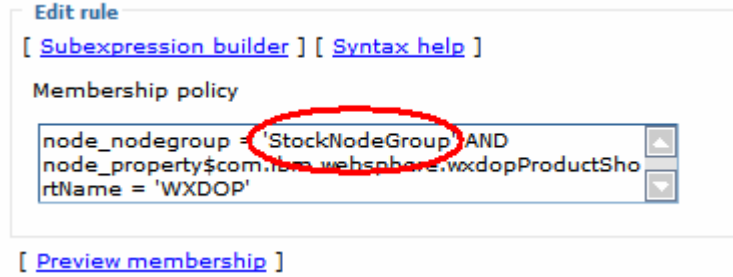
__ h. Click [Preview membership] to see the selection of nodes.

Membership policy preview
Dynamic cluster members are created on
the following nodes.

Total 2
    hostBNode01
    hostCNode01
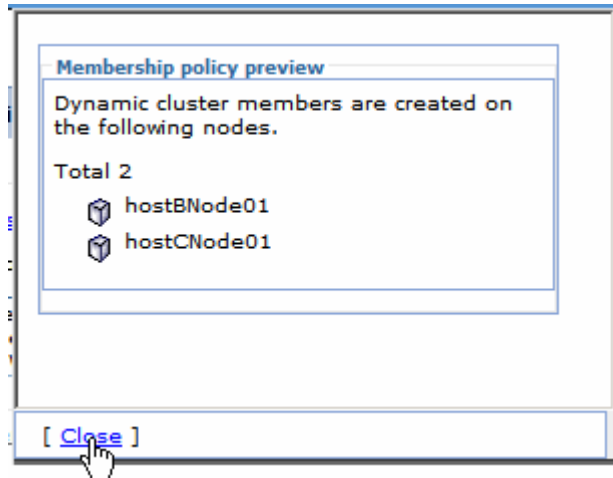
[Close]

__ i. Click [Close] and then click **Next**.

__ j. In Step 4, verify that the default server template is selected and set to **defaultXD**.

Create a new dynamic cluster

Create a new dynamic cluster

Step 1: Select a
dynamic cluster
server type

Step 2: Select the
membership
method

Step 3: Define
dynamic cluster
members

→ Step 4: Select a
dynamic cluster
template

Step 5: Specify
dynamic cluster
specific properties

Step 6: Summary

Select a dynamic cluster template

Select template
○ Create the cluster member using a server template.
    Choose a server template from this list:
    defaultXD

Previous   Next   Cancel

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__ k. Click **Next**.

__ l. In Step 5, the default settings are suitable.

__ m. Click **Next.**

__ n. In **Step 6**, click **Finish** on the summary panel.

_____ 5. Save the changes.

__ a. Click **Review** in the Messages area.

__ b. On the Save panel, make sure that the check box **Synchronize changes with Nodes** is selected.

__ c. Click **Save.**

Part 3: Install the StockTradeEdition application

____ 6. Install the StockTrade application.

__ a. Expand **Applications**. Then click **Install New Application,** which brings you to the "Preparing for the application installation" panel**.**

__ b. Next to Local Path, click **Browse** to open **C:\LabFilesXD\EditionLab\XDTradeE1.ear** file.

__ c. Ensure that **Show me all installation options and parameters** is set.

__ d. Click **Next**, then click **Next** again.

__ **e.** On **Step 1** "Select installation options" panel, enter two parameters describing the edition, as shown below:

        Application edition: **1.0**
        Edition description: **Initial edition**

__ a. Click **Next.**

__ b. On the "Map Modules to Servers" panel, select the Module **StockTradeEditionWeb** , From the Cluster list, select the cluster **StockTrade_DC,** and click **Apply.** (If there is only one dynamic cluster available, this might already be correctly set by default.)
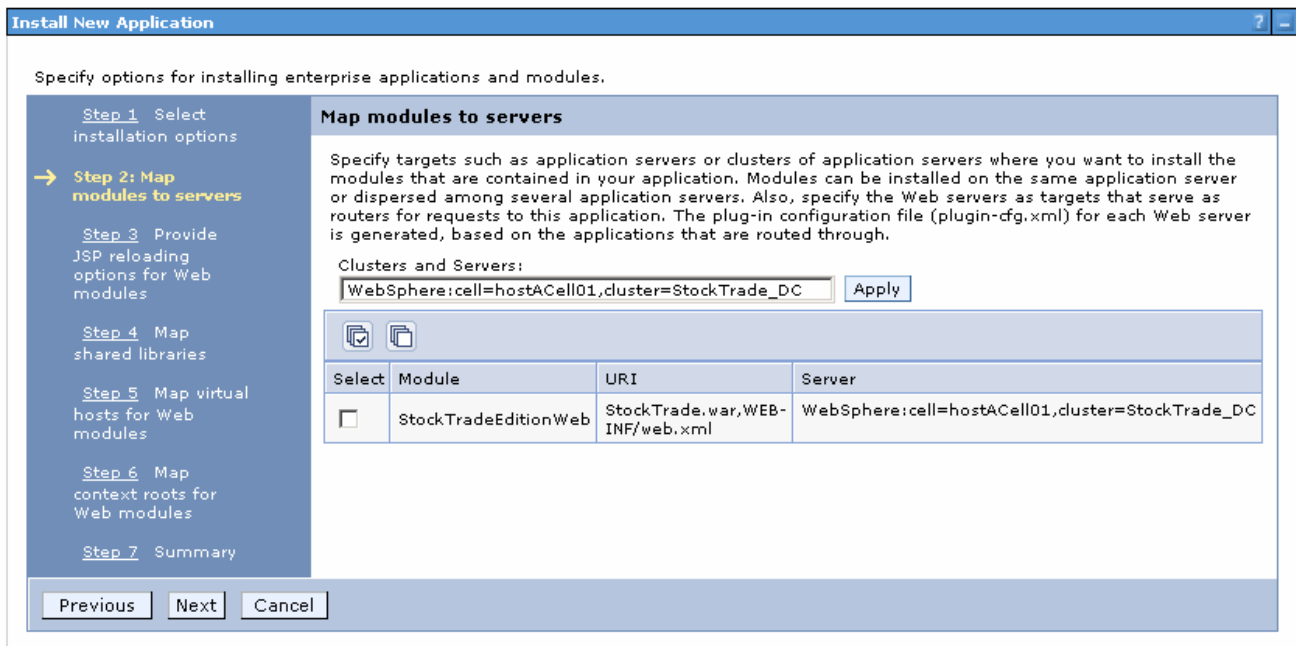
__ c. Note that The StockTradeEditionWeb module is now mapped to the StockTrade_DC cluster. Click **Next.**

__ d. Click on **Step 5**, "Map virtual hosts for Web modules" panel, ensure that StockTradeEditionWeb Module is associated with **default_host**. If it is not, select default_host in the drop-down selection list, check the box to the left of StockTradeEditionWeb, and click "**Next**".

__ e. Click on **Step 7**, "Summary". On the Summary panel, click **Finish.**

Install New Application	? -

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map virtual hosts for Web modules

Step 6 Map context roots for Web modules

→ **Step 7: Summary**

Summary

Summary of installation options

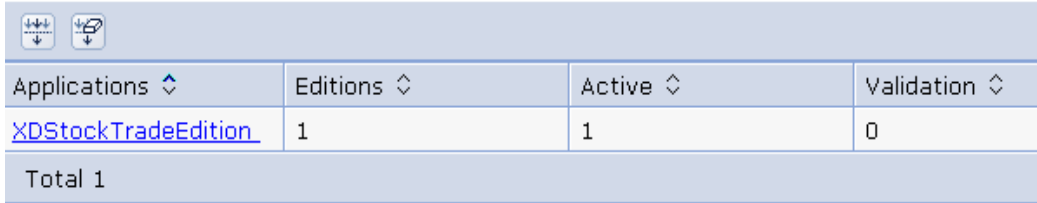| Options	Values
Precompile JavaServer Pages files	No
Directory to install application	
Distribute application	Yes
Use Binary Configuration	No
Deploy enterprise beans	No
Application name	XDStockTradeEdition
Application edition	1.0
Edition description	Initial edition
Create MBeans for resources	Yes
Enable class reloading	No
Reload interval in seconds	
Deploy Web services	No
Validate Input off/warn/fail	warn
Process embedded configuration	No
File Permission	.*\.dll=755#.*\.so=755#.*\.a=755#.*\.sl=755
Application Build ID	Unknown
Allow dispatching includes to remote resources	No
Allow servicing includes from remote resources	No
Cell/Node/Server	Click here

Previous	Finish	Cancel

____ 7.   Save the changes.

__ a. Click **Review** in the Messages area.

__ b. On the Save panel, make sure that the check box **Synchronize changes with Nodes** is selected.

__ c. Click **Save.**

_____ 8. Verify that the initial edition is installed.

__a Expand **Applications** in the navigation pane, and click **Edition Control Center.**

__b Verify that you see one edition of the XDStockTradeEdition application available.

Applications ↕	Editions ↕	Active ↕	Validation ↕
XDStockTradeEdition	1	1	0
Total 1			

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Part 4: Test the application and verify edition management

____ 1.   Check the status of your dynamic cluster instances.

　__ a. Login to the administrative console on the deployment manager (on hostA), if you are not already logged in:

　　http://localhost:9060/ibm/console. Use any string as user ID (for example, wsdemo)

　__ b. Expand **Servers**.

　__ c. Click on **All servers**.

　__ d. Note the status of the dynamic cluster instances StockTrade_DC_hostBNode1, StockTrade_DC_hostCNode1 and the odr server.   At this point the StockTrade servers should all be stopped. If the odr server is already running, leave it running.

____ 2.   Manually set initial conditions.

　__a Select the dynamic cluster instances StockTrade_DC_hostBNode1, StockTrade_DC_hostCNode1 and (if it is not already started) the odr server.

　__b Select **Start**.

　__c Wait for confirmation that the servers are started.

____ 3.   Verify that the XDTradeEdition application is running.

　__ a. Type this address in your browser's address bar:

　　http://hostA/StockTradeEdition/CpuAndSleepBound
　　Keep this browser window open with this URL in the address bar. You will use it later in this exercise.

　__ b. You should see this output; take note at the top of the screen of the **edition number** and, at the bottom of the screen, the **node** on which the application runs. Also note if you refresh the screen several times, the node running the application will likely change.

CPU+Sleep Request/Result

EDITION 1.0

Parameters

deterministic: No (Default)
countMean: 30,000 ms (Default)
countMax: 100,000 (Default)
sleepInterval: 3,000 (Default)
yieldInterval: 1,000 (Default)
sleepLength: 1 ms (Default)
debConc: Yes (Default)
zk: Yes (Default)

Result

true
Servlet run time = 16 ms

Details

Ran at Tue Sep 12 08:23:18 CDT 2006 Ran on hostB

____ 4.   Install a second edition of XDTradeEdtion.

    __ a. Expand **Applications**. Then click **Install New Application,** which brings you to the "Preparing for the application installation" panel**.**

    __ b. Next to Local Path, click **Browse** to open **C:\LabFilesXD\EditionLab\XDTradeE2.ear** file.

    __ c. Ensure that **Show me all installation options and parameters** is set.

    __ d. Click **Next**, then click **Next** again.

__ **e.** On **Step 1** "Select installation options" panel, enter two parameters describing the edition, as shown below, to indicate you are installing a new edition:

Application edition: **1.0.1**
Edition description: **Bugfix edition**

__ f. Note that the application name, "XDStockTradeEdition" is the same as the previously deployed application. Click **Next**.

__ g. On **Step 2 -** Map modules to servers, select the Module **StockTradeEdition**. From the Cluster list, select the cluster **StockTrade_DC**, and click **Apply**. (If there is only one dynamic cluster available, this might already be correctly set by default.) The StockTradeEdition Module is now mapped to the StockTrade_DC cluster. Click **Next**.

__ h. Click on **Step 5** - Map virtual hosts for Web modules. Ensure that StockTradeEdition Module is associated with default_host. If it is not, select default_host in the drop-down selection list, check the box to the left of StockTradeEdition, and click **Next**.

__ i. Click on **Step 7** – Clone Existing Work Classes. This panel asks you to clone a work class from another edition. The cloned work class will apply to this new edition. Select the only item available in the drop-down menu, **XDStockTradeEdition-edition1.0**, and click **Next**.

__ j. On the Summary panel, click **Finish.**

____ 5. Save the changes.

__ a. Click **Review** in the Messages area.

__ b. On the Save panel, make sure that the check box **Synchronize changes with Nodes** is selected.

__ c. Click **Save.**

____ 6.   Position the browser window you previously set up for the application invocation
            (CpuAndSleepBound) and the browser window for the administration console so you can see both
            on your desktop at the same time.

____ 7.   Rollout the second edition to both servers in the cluster.

    __ a. In the console navigation pane, expand **Applications**, then click on **Edition Control Center**.

    __ b. Click on **XDStockTradeEdition**.

Applications ↕	Editions ↕	Active ↕	Validation ↕
XDStockTradeEdition	2	1	0
Total 1			

    __ c. Verify that there are now two editions listed, as shown below.

Select	Editions ↕	Description	Target ↕	State ↕
☐	1.0	Initial edition	WebSphere:cell=hostACell01,cluster=StockTrade_DC	ACTIVE
☑	1.0.1	Bugfix edition	WebSphere:cell=hostACell01,cluster=StockTrade_DC	INACTIVE
Total 2				

Buttons: Activate | Validate | Rollout | Deactivate

    __ d. Select the check box next to edition 1.0.1, and click **Rollout**

__ e. On the next panel, under Rollout Strategy, select **Grouped**, with Group size of 1

__ **f.** Click **OK** to begin the rollout.

    1) During the rollout, begin refreshing the CpuAndSleepBound application screen about once every five seconds and take note of the Edition at the top, and the node that is running the application, at the bottom. During the rollout, you should see the Edition number change. Also observe the node on which the application runs during the various phases of the rollout.

    2) You should see a listing of the status of the rollout of the new edition that looks something like this:

WPVR0010I: Rollout started for edition 1.0.1 of application XDStockTradeEdition.

WPVR0014I: Rollout: Edition 1.0 of application XDStockTradeEdition deactivated. Edition 1.0.1 activated.

WPVR0015I: Rollout: Processing server wsbeta156Node01/StockTrade_DC_wsbeta156Node01.

WPVR0016I: Rollout: Quiescing server/application at wsbeta156Node01/StockTrade_DC_wsbeta156Node01/XDStockTradeEdition-edition1.0.

WPVR0018I: Rollout: Stopping wsbeta156Node01/StockTrade_DC_wsbeta156Node01/XDStockTradeEdition-edition1.0.

WPVR0054I: Rollout: Draining wsbeta156Node01/StockTrade_DC_wsbeta156Node01/XDStockTradeEdition-edition1.0 (30 seconds)

WPVR0053I: Rollout: Drain completed for wsbeta156Node01/StockTrade_DC_wsbeta156Node01.

WPVR0020I: Rollout: Synchronizing node wsbeta156Node01.

WPVR0022I: Rollout: Starting
wsbeta156Node01/StockTrade_DC_wsbeta156Node01/XDStockTradeEdition-edition1.0.1.

WPVR0015I: Rollout: Processing server wsbeta157Node01/StockTrade_DC_wsbeta157Node01.

WPVR0016I: Rollout: Quiescing server/application at
wsbeta157Node01/StockTrade_DC_wsbeta157Node01/XDStockTradeEdition-edition1.0.

WPVR0018I: Rollout: Stopping
wsbeta157Node01/StockTrade_DC_wsbeta157Node01/XDStockTradeEdition-edition1.0.

WPVR0054I: Rollout: Draining
wsbeta157Node01/StockTrade_DC_wsbeta157Node01/XDStockTradeEdition-edition1.0 (30
seconds)

WPVR0053I: Rollout: Drain completed for wsbeta157Node01/StockTrade_DC_wsbeta157Node01.

WPVR0020I: Rollout: Synchronizing node wsbeta157Node01.

WPVR0022I: Rollout: Starting
wsbeta157Node01/StockTrade_DC_wsbeta157Node01/XDStockTradeEdition-edition1.0.1.

WPVR0012I: Rollout for edition 1.0.1 of application XDStockTradeEdition completed successfully.

_____ 8. Return to the Edition Control Center. Verify that Edition 1.0.1 is now listed as active.

Activate	Validate	Rollout	Deactivate

Select	Editions ◇	Description ◇	Target ◇	State ◇
☐	1.0	Initial edition	WebSphere:cell=wsbeta074Cell01,cluster=StockTrade_DC	INACTIVE
☐	1.0.1	Bugfix edition	WebSphere:cell=wsbeta074Cell01,cluster=StockTrade_DC	ACTIVE
Total 2				

_____ 9. You should have observed the following during the group rollout:

__ a. Initially, each invocation Edition 1.0 ran on either of the two nodes

__ b. When one node server began to quiesce, then Edition 1.0 ran only on the other node

__ c. When the first node server restarted, then Edition 1.0 was no longer running, and Edition 1.0.1 (the Bugfix edition) began to run on the newly started node server. Note: In an installation with many servers, both Edition 1.0 and Edition 1.0.1 can be running concurrently during the Group Rollout.

__ d. The remaining server node quiesced, stopped, drained, synchronized and started

__ e. After rollout completed, Edition 1.0.1 ran on either of the two nodes

_____ 10. Back out edition 1.0.1 by re-activating edition 1.0.

__ a. Expand **Applications** in the navigation pane and select **Edition Control Center.**

__ b. Click on **XDStockTradeEdition**.

__ c. Select the check box next to Edition **1.0**, click **Rollout,** then select **Atomic,** then click **OK**.

Note: an Atomic rollout ensures that only one version of the application runs during the rollout; the availability of the application will be limited for a period of time during the rollout.

__ d. Verify that the output shows that the rollout is complete.

__ e. Verify that the edition is changed back to Edition **1.0** by refreshing the browser with the application URL.

____ 11. Stop the servers.

    __a Expand **Servers** in the navigation pane.

    __b Select **Application Servers**.

    __c Select the running dynamic cluster instances.

    __d Select **Stop**.

____ 12. Wait for confirmation that the servers are stopped.

____ 13. To prepare the system for other lab exercises, uninstall both editions of the application.

__ a. In the navigation pane, expand **Applications** and click on **Enterprise Applications**.

__ b. Select the check boxes next to both of the installed applications, and click **Uninstall**.

__ c. Click **OK** to confirm uninstallation.

____ 14. Save the changes.

__ a. Click **Save** in the Messages area.

__ b. On the Save panel, make sure that the check box **Synchronize changes with Nodes** is selected.

__ c. Click the **Save** button.

____ 15. Logout of the administrative console by clicking the **Logout** link.

Edition Management

What you did in this exercise

In this exercise, you installed two *editions* of the same application, and then used the edition control center to manage the applications in a live environment. You used the rollout feature to rollout edition 1.0.1 across your dynamic cluster without server downtime. You then backed out that update by rolling out the original version.

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