
Lab 1 Reviewing the Deploying your Intelligent Management topology

Through the following labs you will learn how to setup and configure Intelligent Management tools. The topology has already been setup in a virtual image.

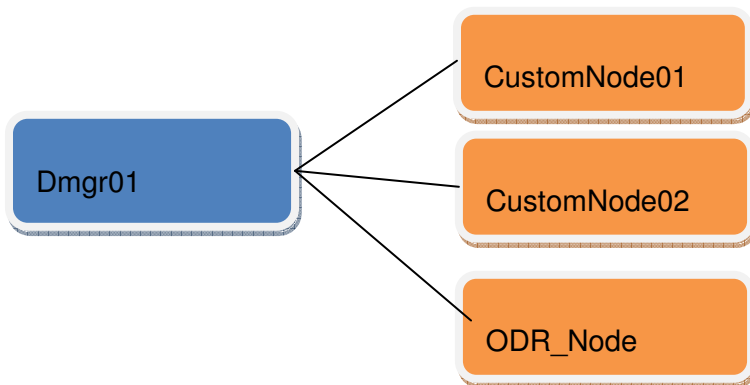
System information

WebSphere is installed at /home/wasadmin/IBM/WebSphere/AppServer855

The current topology consists of

1 Deployment Manager: Dmgr01

3 Custom Profiles (Nodes): CustomNode01, CustomNode02, ODR_Node



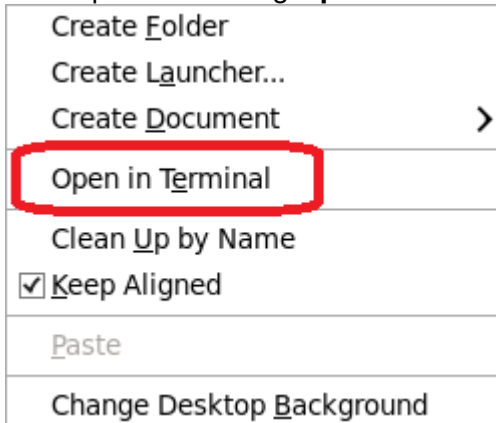
To begin we need to log into the virtual machine, start the server and verify the nodes are connected.

1) Launch the virtual machine located on your laptop

2) Log into the machine
User ID: **wasadmin**

Password: **ibmpassw0rd**

- 3) Start the deployment manager, you can do this by opening the terminal by right clicking on the desktop and selecting **Open in Terminal** from the context window



- 4) Navigate to the deployment manager home:
cd /home/wasadmin/IBM/WebSphere/AppServer855/profiles/Dmgr01/bin
- 5) Start the deployment manager:
./startManager.sh
- 6) Start all 3 of the node agents:
cd /home/wasadmin/IBM/WebSphere/AppServer855/profiles/CustomNode01/bin
./startNode.sh
cd /home/wasadmin/IBM/WebSphere/AppServer855/profiles/CustomNode02/bin
./startNode.sh
cd /home/wasadmin/IBM/WebSphere/AppServer855/profiles/ODR_Node/bin
./startNode.sh
- 7) Log into the admin console and verify the nodes are connected and synchronized
- a. Open firefox and navigate to <https://labvm.ibm.comL9043/ibm/console>
Tip: this is bookmarked on your workstation
 - b. Login user the credentials
User ID: **admin**
Password: **admin**
- 8) Navigate to **System administration → Nodes**

- 9) Verify that all the nodes are connected and synchronized, showing (↔) showing up in the **Status** column. If they are not, do not proceed with this lab, and contact the instructor

Add Node Remove Node Force Delete Synchronize Full Resynchronize Stop					
Select	Name ↕	Host Name ↕	Version ↕	Discovery Protocol ↕	Status ↻
You can administer the following resources:					
<input type="checkbox"/>	CustomNode01	labvm.ibm.com	ND 8.5.5.0	TCP	↔
<input type="checkbox"/>	CustomNode02	labvm.ibm.com	ND 8.5.5.0	TCP	↔
<input type="checkbox"/>	ODR_Node	labvm.ibm.com	ND 8.5.5.0	TCP	↔
	labvmCellManager01	labvm.ibm.com	ND 8.5.5.0	TCP	↔
Total 4					

- 10) Before we start creating our servers, navigate to **System administration → Console Preferences**
- 11) Select the option **Synchronize changes with Nodes**. This will force the deployment manager to synchronize all the nodes each time a save is made

Console preferences

Console preferences

Specify user preferences for the administrative console workspace.

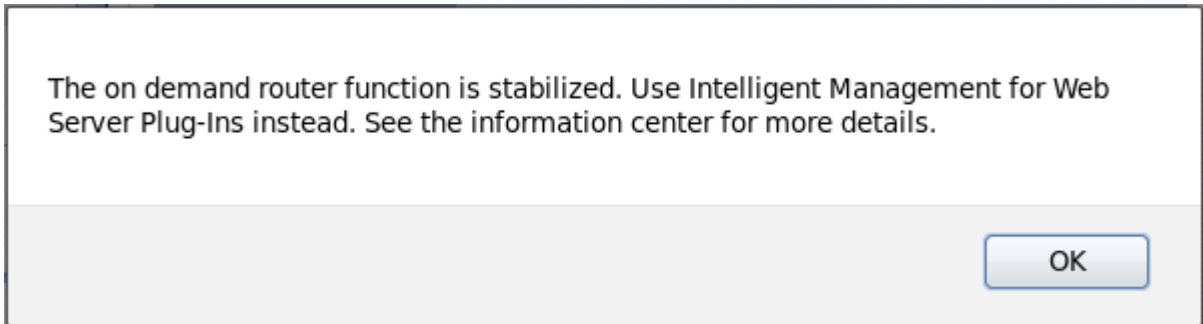
- ☒ Turn on workspace automatic refresh
- ☐ No confirmation on workspace discard
- ☐ Use default scope
- ☒ Show the help portlet
- ☐ Enable command assistance notifications
- ☐ Log command assistance commands
- ☒ Synchronize changes with Nodes

[Bidirectional support options](#)

Apply Reset

- 12) Now we start by creating an **On Demand Router (ODR)**
- 13) Navigate to **Servers → Server Types → On Demand Routers**
- 14) Select **New...**

15) You will see a pop-up, click OK to proceed.



16) Specify the following setting
Select Node: **ODR_Node**
Server Name: **ODR**

17) Click **Next**, use the default settings for the following options and then click finish.

18) Click Save

Messages

New server is created successfully.

Modify variables, resources, and other server configuration settings, such as message broker queue names before running the newly created server.

Changes have been made to your local configuration. You can:

- Save directly to the master configuration.
- Review changes before saving or discarding.

An option to synchronize the configuration across multiple nodes after saving can be enabled in [Preferences](#).

The server may need to be restarted for these changes to take effect.

19) Start the **ODR**. Navigate to **Servers → Server Types → On Demand Routers** if you are not already there. Select the **ODR** server, and click **Start**

New...DeleteTemplates...StartStop

Select	Name	Node	Version	Protocol	Status
You can administer the following resources:					
<input checked="" type="checkbox"/>	ODR	ODR_Node	ND 8.5.5.0	HTTP, SIP	<div></div>

Total 1

20) Next we create a Dynamic Cluster. Navigate to **Servers → Clusters → Dynamic clusters**

21) Select **New...**

22) Specify Server type: **WebSphere application server**. Click **Next**

23) Specify the Dynamic cluster name: **DynamicCluster01**. Click **Next**

The screenshot shows a wizard window titled "Create a new dynamic cluster". On the left is a vertical sidebar with six steps: "Step 1: Select a dynamic cluster server type", "Step 2: Select the membership method" (highlighted with a yellow arrow), "Step 3: Define dynamic cluster members", "Step 4: Select a dynamic cluster template", "Step 5: Specify dynamic cluster specific properties", and "Step 6: Summary". The main area is titled "Select the membership method" and contains a section "Membership method" with two radio buttons. The first radio button, "Automatically define cluster members with rules", is selected. Below it is a text input field labeled "Dynamic cluster name" containing the text "DynamicCluster01", which is highlighted with a red rectangle. Below the input field are two checkboxes: "Prefer local enabled" (checked) and "Create a replication domain for this cluster" (unchecked). The second radio button, "Manually define cluster members", is unselected. At the bottom of the window are three buttons: "Previous", "Next", and "Cancel".

24) On the “**Define dynamic cluster members**” page we select which nodes will be included in this cluster. Click on the Preview membership to see which nodes would qualify based on the given

rule.

The screenshot shows a wizard window titled "Create a new dynamic cluster". On the left, a sidebar lists six steps: Step 1: Select a dynamic cluster server type, Step 2: Select the membership method, Step 3: Define dynamic cluster members (highlighted with a yellow arrow), Step 4: Select a dynamic cluster template, Step 5: Specify dynamic cluster specific properties, and Step 6: Summary. The main area is titled "Define dynamic cluster members" and contains an "Edit rule" section. Below this, there is a "Membership policy" label and a text box containing the rule: `node_nodegroup = 'DefaultNodeGroup'`. Below the text box, a link "[Preview membership]" is highlighted with a red rectangle. At the bottom of the wizard, there are three buttons: "Previous", "Next", and "Cancel".

- 25) We notice that that 3 nodes qualify under the membership rules. ODR_Node, CustomNode01, and CustomNode02. We don't want the ODR_Node to host application servers for this cluster, so we will edit the rules to exclude it.

The screenshot shows a dialog box titled "Membership policy preview". Inside, it states "Dynamic cluster members are created on the following nodes." followed by "Total 3". Below this, there is a list of three nodes, each preceded by a small cube icon: ODR_Node, CustomNode02, and CustomNode01. At the bottom of the dialog, there is a link "[Close]".

- 26) Close the Membership policy preview, and select "Subexpression builder". On the subexpression builder popup, select the properties:
Logical Operator: **and**
Select Operand: **Node name**
Operator: **Not Equals (<>)**

Value: **ODR_Node**

The screenshot shows a 'Subexpression builder' dialog box. At the top, it says 'Logical operator' with a dropdown menu set to 'and'. Below this is a smaller 'Subexpression builder' section. It has a 'Select operand:' dropdown set to 'Node name', an 'Operator' dropdown set to 'Not Equals (<>)', and a 'Value' text field containing 'ODR_Node'. There is a 'Generate subexpression' button. Below that, the 'Subexpression:' text field shows 'node_name <> \'ODR_Node\''. There is an 'Append' button and a '[Close]' link at the bottom right.

27) Select **Generate subexpression**

28) Select **Append** to add the rule.

29) Select **close** to close the popup

30) Select **preview membership** to verify that the ODR_Node is no longer in the list of nodes to be included in the cluster.

The screenshot shows a 'Membership policy preview' dialog box. It contains the text 'Dynamic cluster members are created on the following nodes.' followed by 'Total 2'. Below this, there are two entries: 'CustomNode02' and 'CustomNode01', each preceded by a small cube icon. At the bottom, there is a '[Close]' link.

31) Continue through the rest of the prompts, and review and select the default values.

32) **Save** the changes.

33) Now that the dynamic cluster is created, we can set it to automatic, so that it automatically starts and stops servers as needed.

34) Navigate to **Servers → Clusters → Dynamic clusters** if not already there.

35) Select the newly created cluster, and choose **Automatic** from the drop down options.

36) Select **Set Mode**

The screenshot shows the 'Dynamic Clusters' management interface. At the top, there's a title bar 'Dynamic Clusters' with a help icon. Below it, a section titled 'Dynamic Clusters' provides a description: 'A dynamic cluster is a server cluster that uses weights to balance the workloads of its cluster members dynamically, based on performance information that is collected from the cluster members. If a cluster member fails, requests are routed to other members of the cluster. The dynamic cluster can start or stop instances depending on the workload in the environment.' Below this is a 'Preferences' section with a 'New...' button, a 'Delete' button, and a dropdown menu currently set to 'Automatic'. A 'Set Mode' button is highlighted with a red box. Below the dropdown, the 'Automatic' option is also highlighted with a red box. A table below shows the cluster 'DynamicCluster01' with a checked checkbox, 'WebSphere application server' type, and 'Supervised' operational mode. The 'Total 1' is shown at the bottom.

Select	Name	Type	Operational mode
<input checked="" type="checkbox"/>	DynamicCluster01	WebSphere application server	Supervised

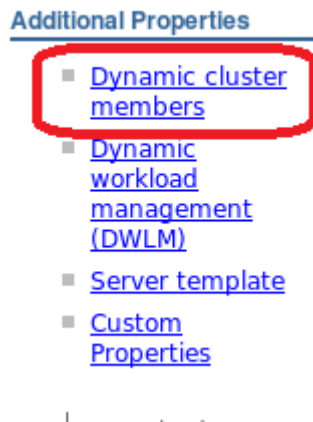
37) Now we can review the dynamic cluster configuration. Select the DynamicCluster01

38) Notice the Number of running instances is still set to 0. This is because we don't have any applications installed to the cluster, so there is no reason to have any of the servers running.

The screenshot shows the 'General Properties' configuration page for 'DynamicCluster01'. It includes fields for 'Name' (DynamicCluster01), 'Type' (WebSphere application server), 'Number of running instances' (0), and 'Operational mode' (Supervised). The 'Number of running instances' field is highlighted with a red box. There is also an unchecked checkbox for 'Enable failover of transaction log recovery'.

Name	DynamicCluster01
Type	WebSphere application server
Number of running instances	0
Operational mode	Supervised
Enable failover of transaction log recovery	<input type="checkbox"/>

- 39) Select **Dynamic cluster members** from the **Additional Properties** on the right hand side of the page.



- 40) Notice that 2 servers were created automatically, one for each node.

This concludes our lab on creating a dynamic cluster. Next we will use the dynamic cluster and the ODR that we create to use the Edition management feature.

