

# **UCMDB120 – Universal CMDB 10.x Essentials**

For version: 10.20

Revision A.1



## **Lab Guide**



# UCMDB120 – Universal CMDB

## 10.x Essentials

### Lab Guide

Revision A

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**UCMDB120 – Universal CMDB 10.x Essentials**

For version 10.2

Revision A.1

Lab Guide

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# Lab 1 – Accessing the Lab Environment

## Objectives

After completing this lab, you should be able to:

- Access the lab environment from the Las Vegas facility
  - or
- Access the lab environment from the Highfield facility

The exercise you use depends on where the training environment is located. Your trainer will direct you to the correct exercise.

Time to complete: 5 minutes

# Exercise 1 – Accessing the Lab Environment from the Las Vegas Facility

In this exercise, you access the classroom lab environment from the Las Vegas location.

In the classroom lab environment, each student has a dedicated set of servers. Complete the following steps to connect to your student access virtual machine (AVM).

**Note:** To achieve the best possible lab access performance, terminate any active VPN connections before accessing the lab environment.

To access the lab environment, perform the following steps:

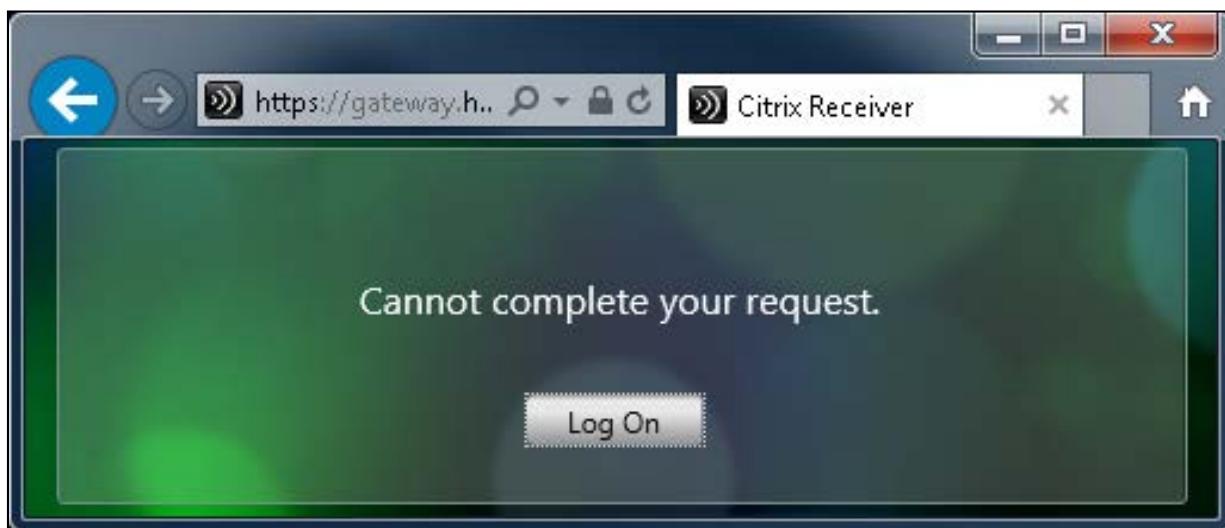
1. On your local machine, bring up Internet Explorer (IE) or Firefox.
2. Enter the URL for the classroom lab environment:

<https://gateway.hpetrain.com>

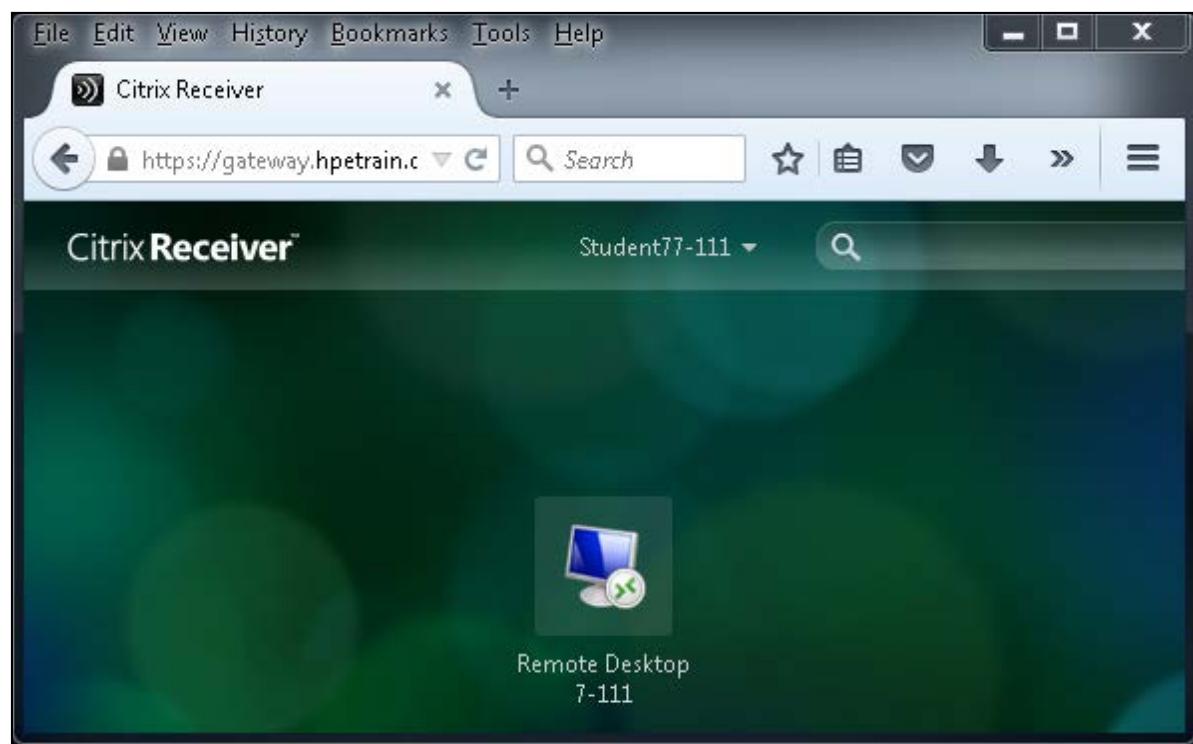
3. When the Welcome page is displayed, enter the gateway User name and Password assigned to you by the instructor:



4. If the following message is displayed, click the Log On button.

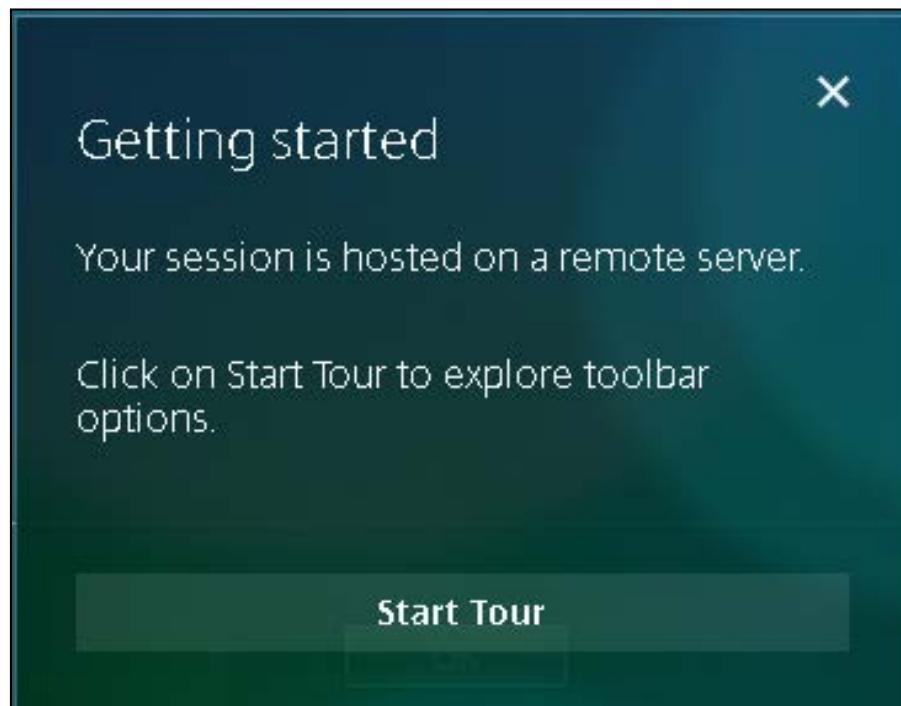


5. The HPE Software Education lab access page should look similar to the screenshot shown below. However, your user name and Bookmark label will not be the same as those shown.



6. Click the bookmark to access the desktop of your AVM.

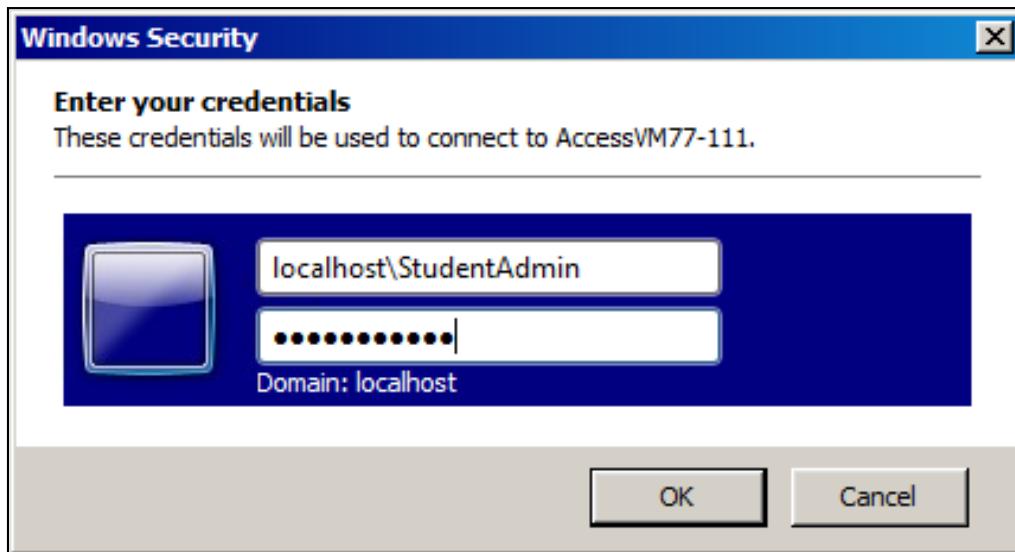
7. If the following message is displayed, click the x in the upper-right corner.



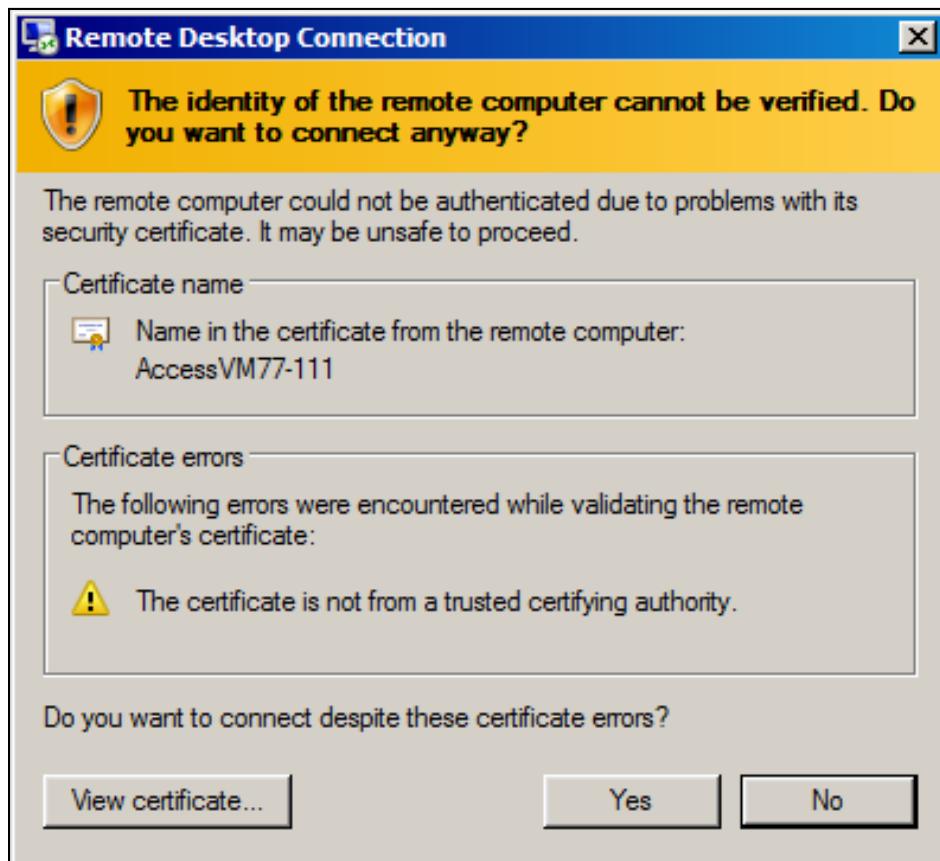
8. When the unauthorized access warning is displayed, click the OK button.



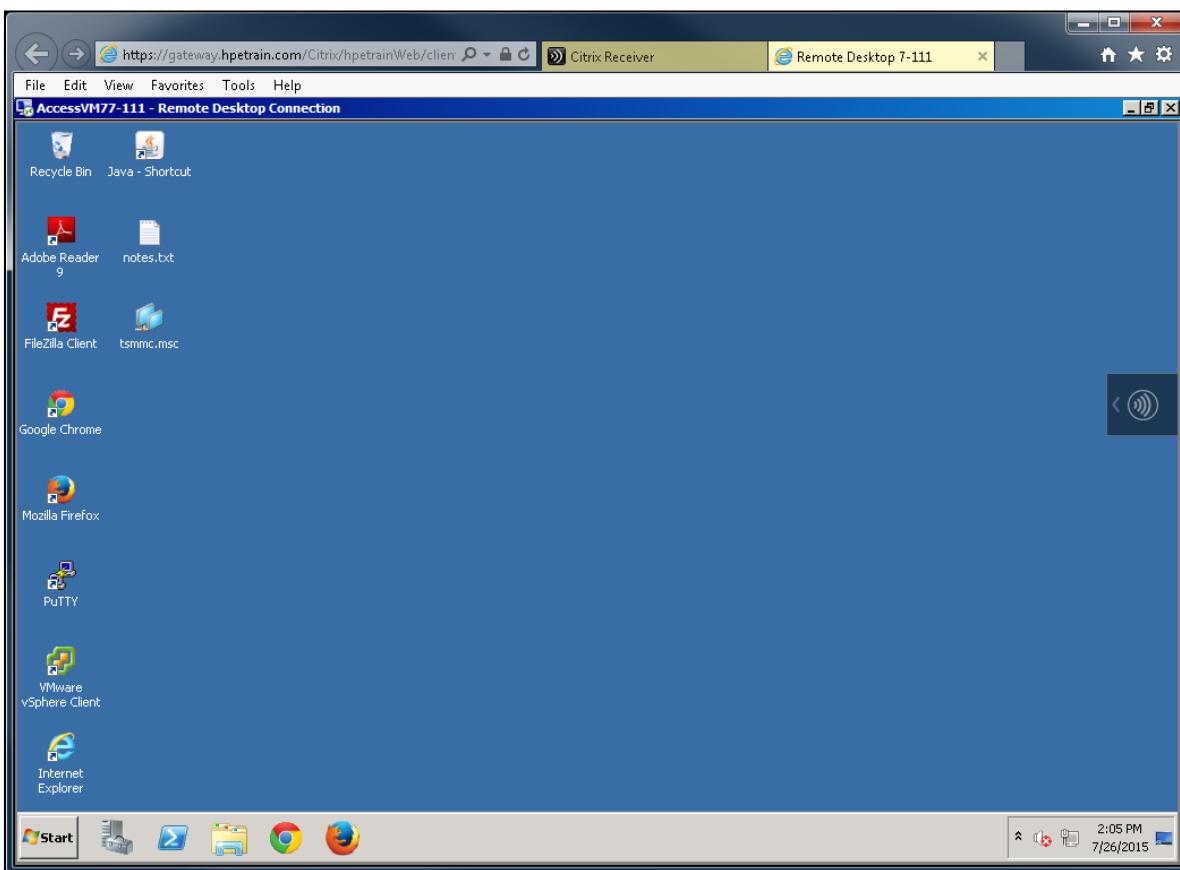
9. When prompted, enter the AVM User name and Password assigned to you by the instructor.



10. If a certificate error similar to the screenshot below is displayed, click the Yes button to connect to the server anyway.



11. Your AVM desktop should look similar to the screenshot below.

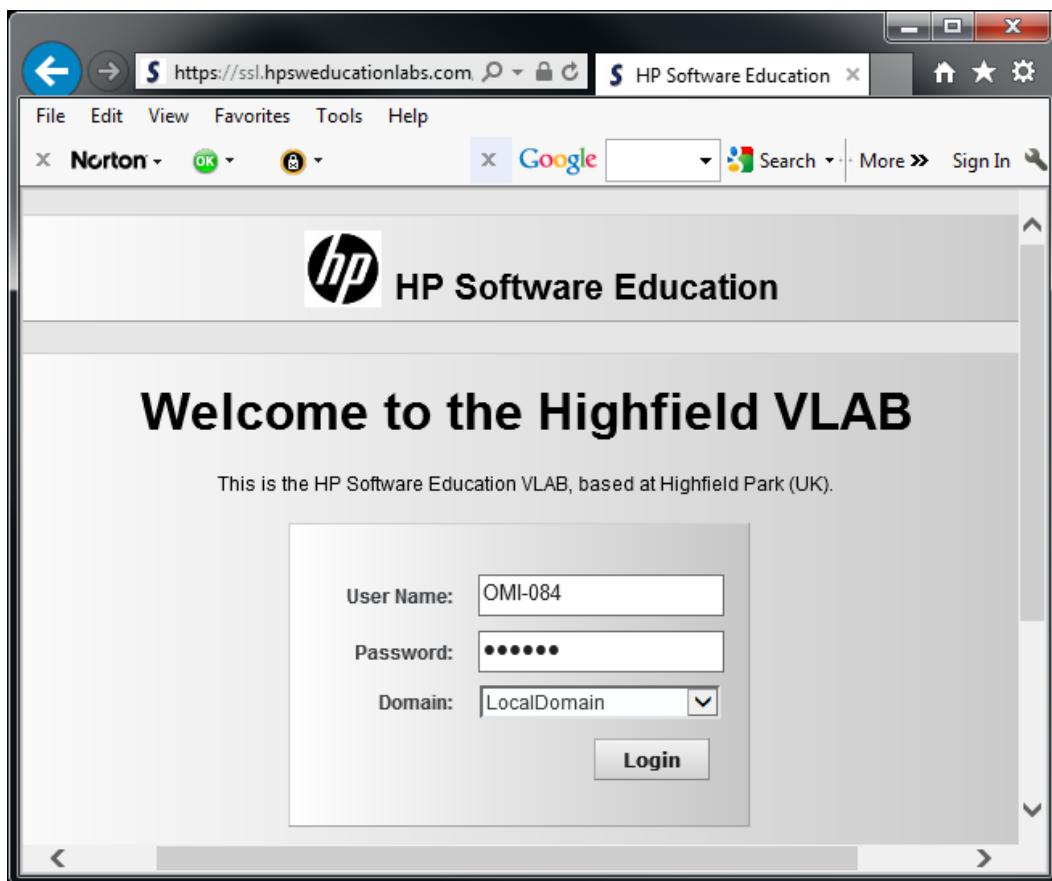


## Exercise 2 – Accessing the Lab Environment from the Highfield Facility

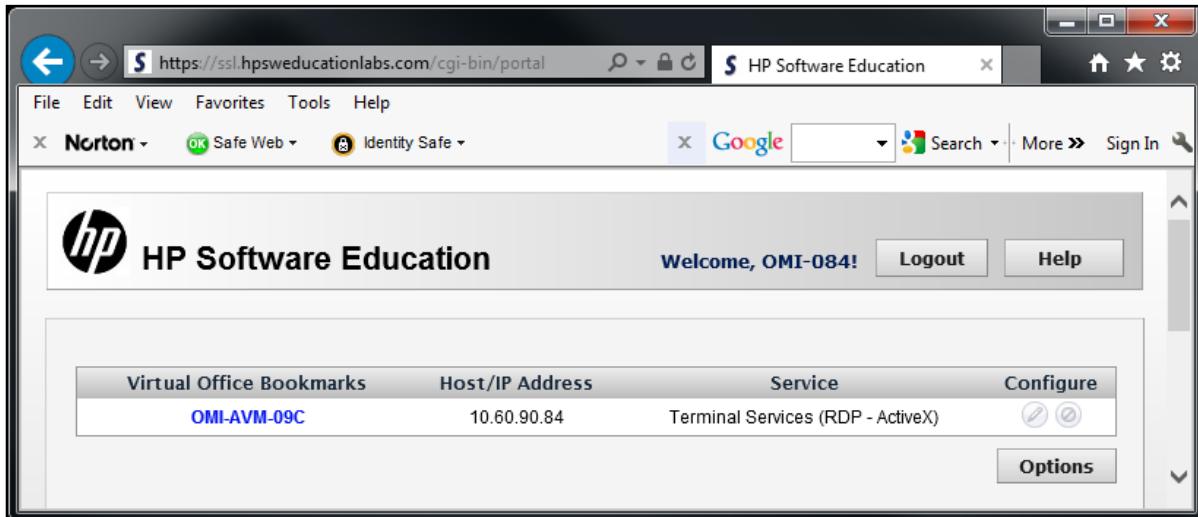
In this exercise, you access the classroom lab environment from the Highfield location.

In the classroom lab environment, each student has a dedicated set of servers. Complete the following steps to connect to your student AVM.

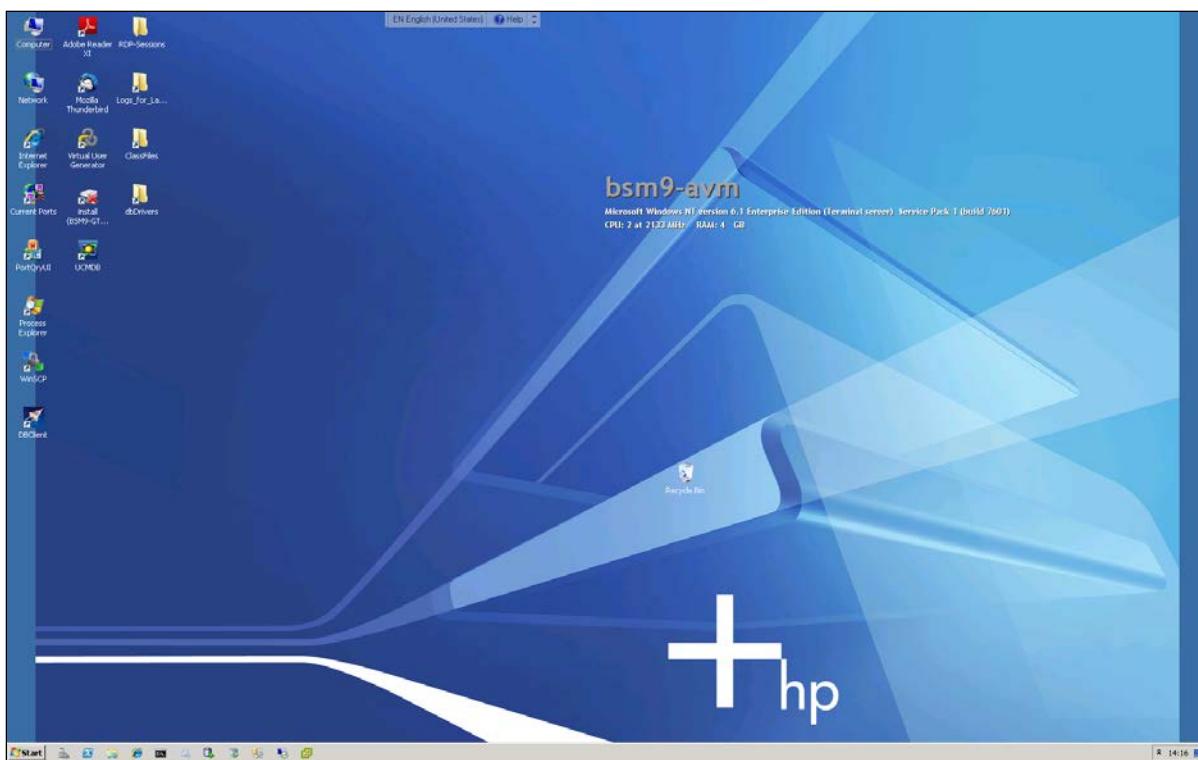
1. On your local machine, bring up IE.
2. Enter the URL for the classroom lab environment provided by the instructor.
3. When the Welcome page is displayed, enter the User Name and Password assigned to you by the instructor:



4. The HP Software Education lab access page should appear similar to the image shown below. Your User Name and Bookmark label will not be the same as those shown.



5. Click the bookmark to access the desktop of your AVM. Your AVM desktop should appear similar to the image below:



6. Throughout the course, you will use IE to access applications. You will also use Windows Remote Desktop Protocol (RDP) to access the BSM server and the OMW server. Notice that the toolbar on your AVM provides access to those applications:



This page is intentionally left blank.

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## Lab 2 – Introduction to CMS and HP CMS

There are no labs for this module.

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# Lab 3 – Introduction to UCMDB

There are no labs for this module.

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# Lab 4 – IT Universe Manager

## Objectives

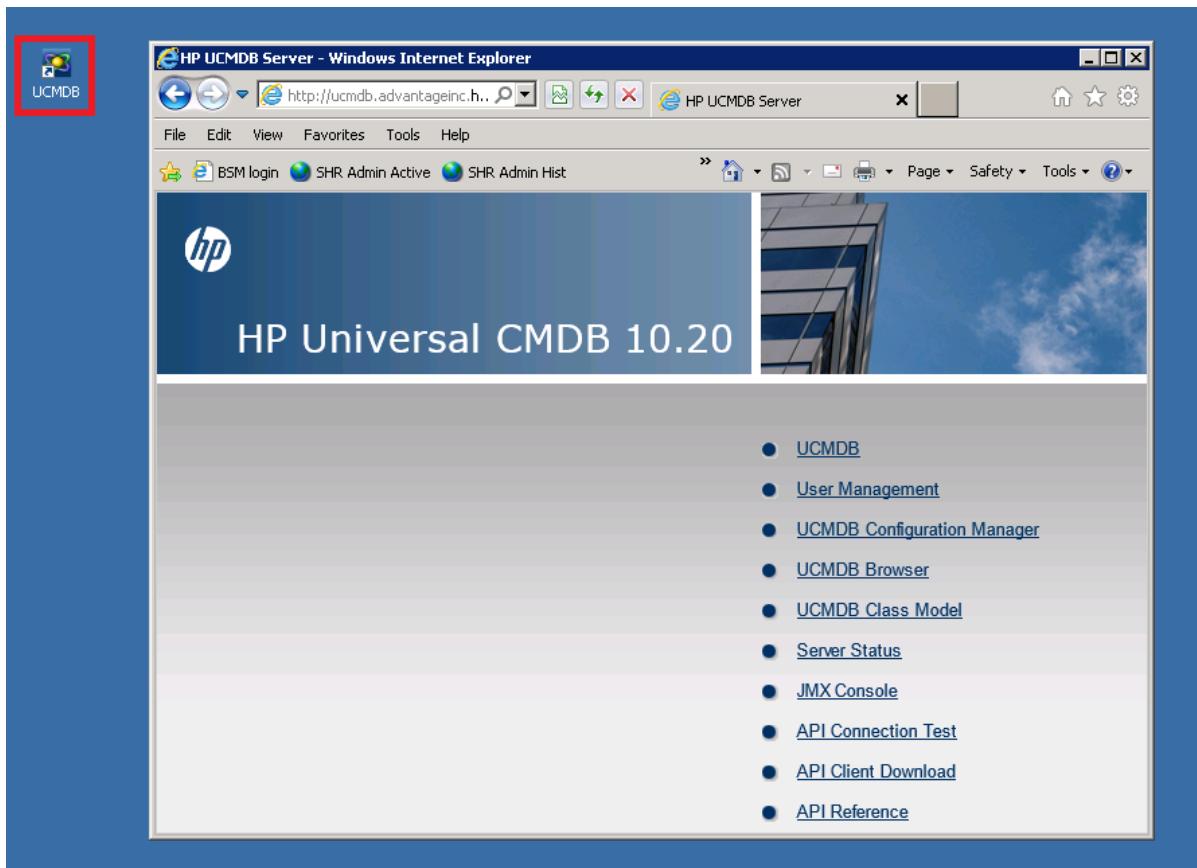
After completing this lab, you should be able to:

- Explore the Search CIs tab and Topology pane and create a related CI manually
- Explore map groupings using the IT Universe Manager
- Investigate CMDB data on your own, without the aid of step-by-step instructions

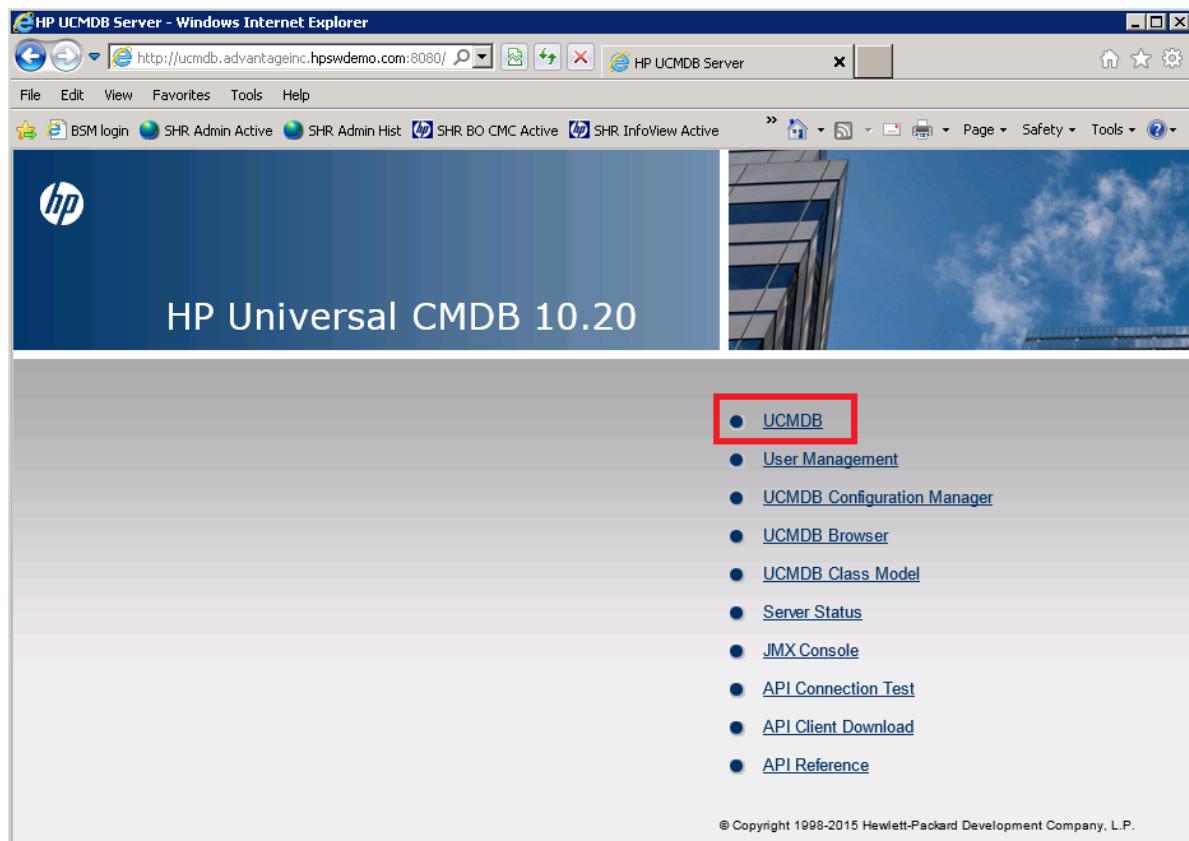
# Exercise 1 – Exploring the Search CIs Tab and Topology Pane and Creating a Related CI Manually

To explore the Search CIs tab and retrieve the related CIs for a CI, perform the following steps:

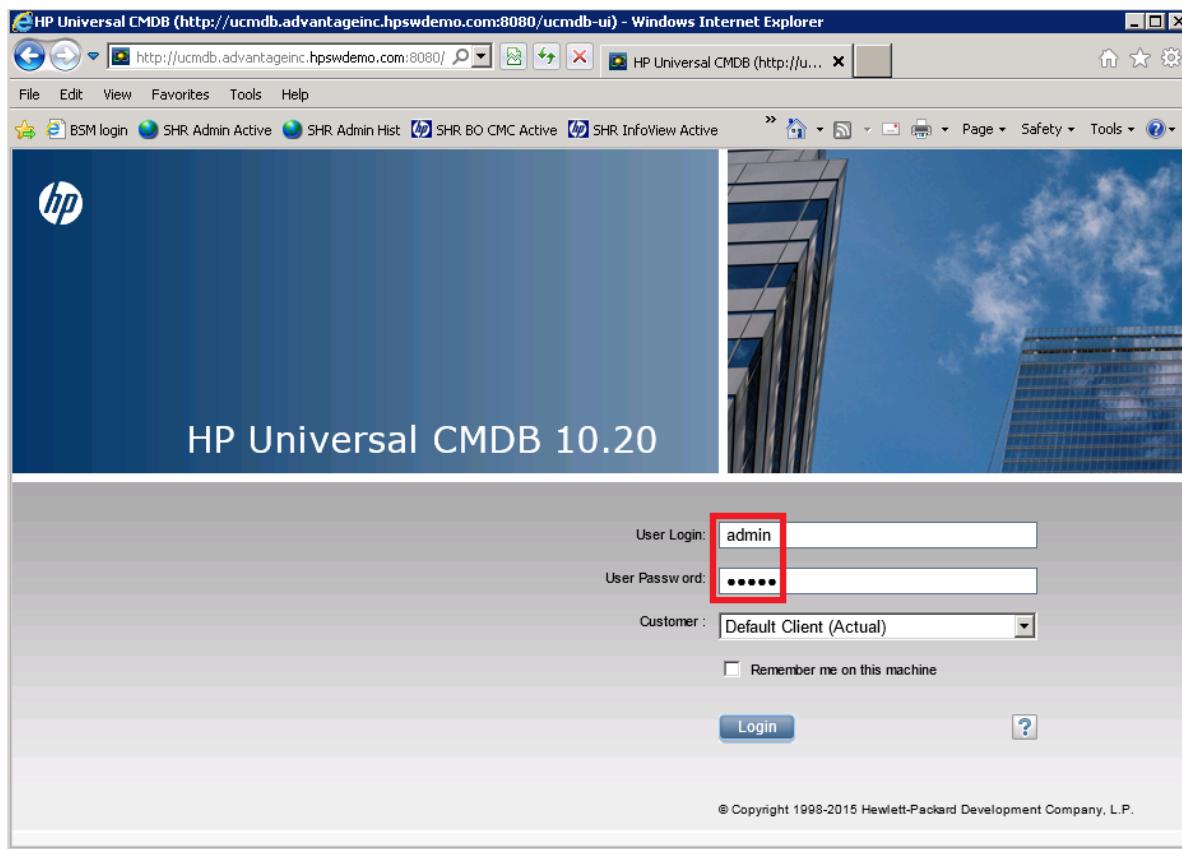
1. From your Access Virtual Machine (AVM) desktop, double-click the UCMDB shortcut to open the UCMDB home page, as shown in the following screenshot:



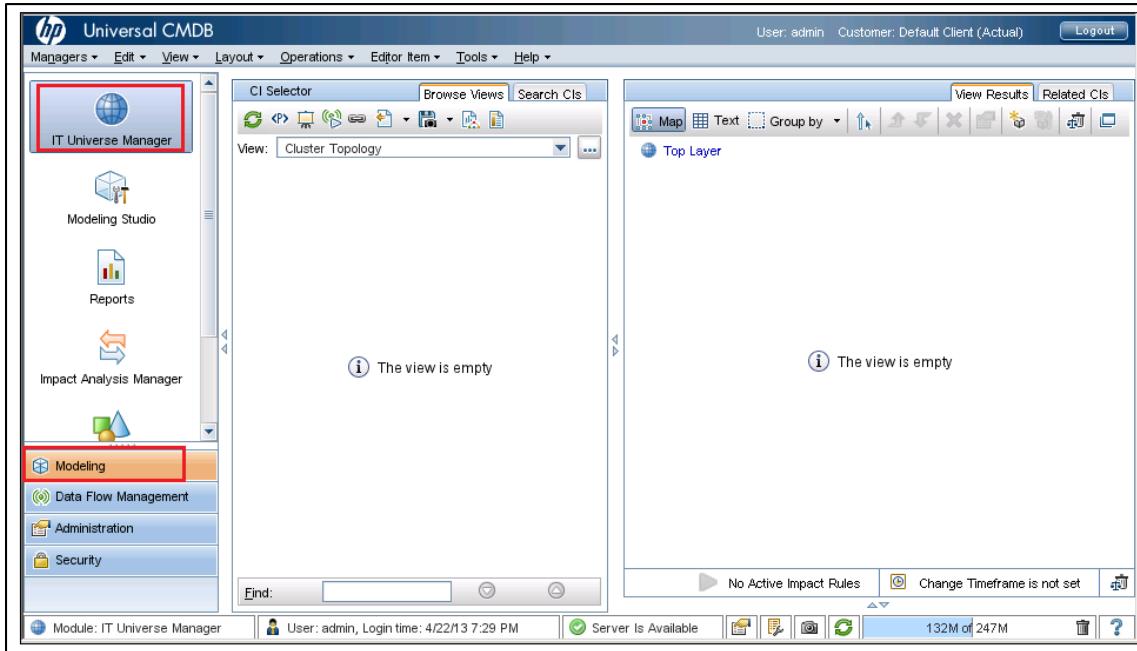
- From the UCMDB home page, click the UCMDB link to access the UCMDB login page, as shown in the following screenshot:



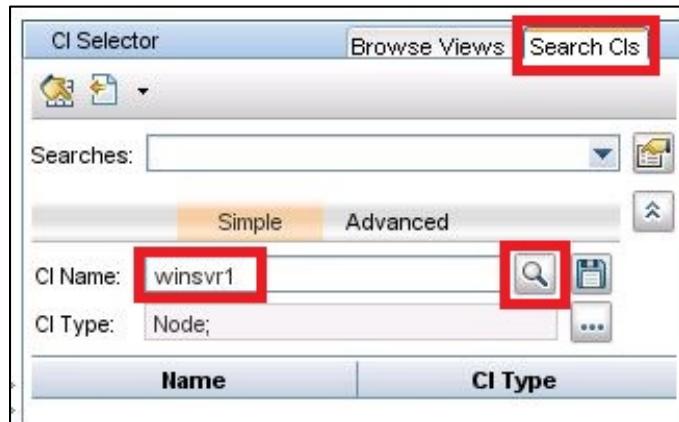
- In the login page, enter **admin** in the User Login field and **admin** in the User Password field. Leave the default value in the Customer drop-down, as shown in the following screenshot:



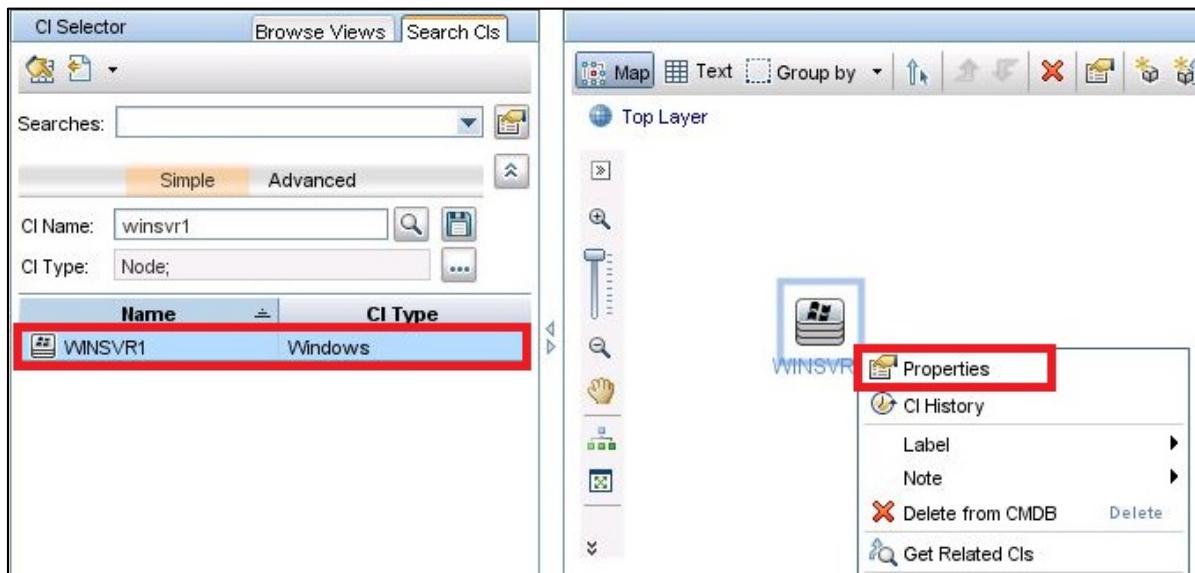
4. Click the Modeling menu on the bottom-left side of the interface and then click the IT Universe Manager button, as shown in the following screenshot:



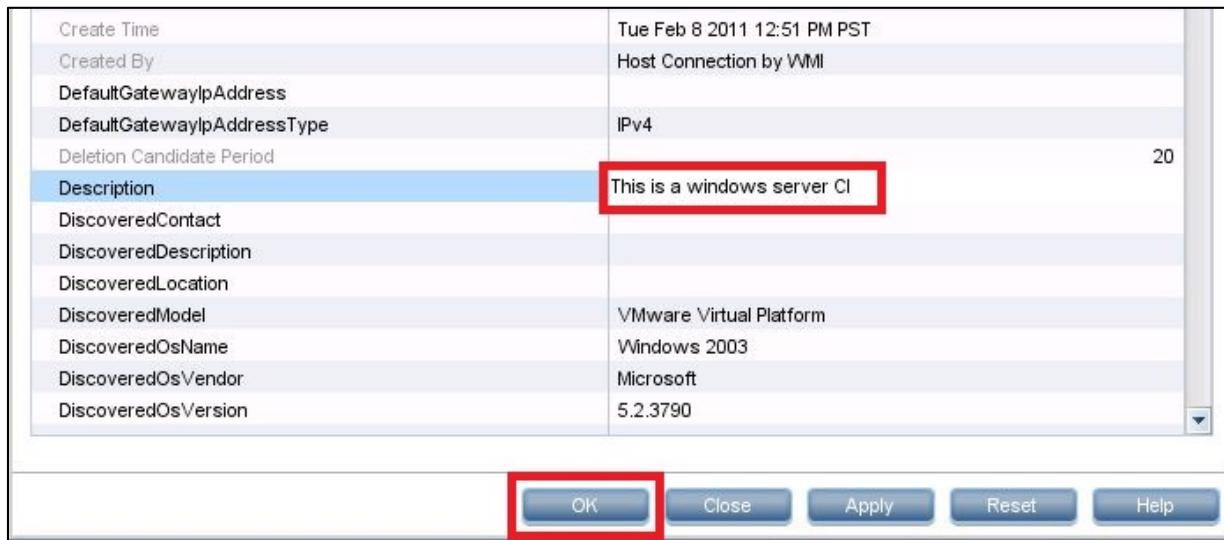
5. In the IT Universe Manager, from the CI Selector pane, click the Search Cls tab and type **winsvr1** in the CI Name text box. Click the Start the Search button, as shown in the following screenshot:



6. Click the WINSVR1 CI displayed in the CI Selector search panel. Right-click the CI displayed in the content pane and select the Properties menu item from the context menu, as shown in the following screenshot:



7. In the Configuration Item Properties dialog box, scroll down and type **This is a windows server CI** under the value column against the Description attribute, as shown in the following screenshot:

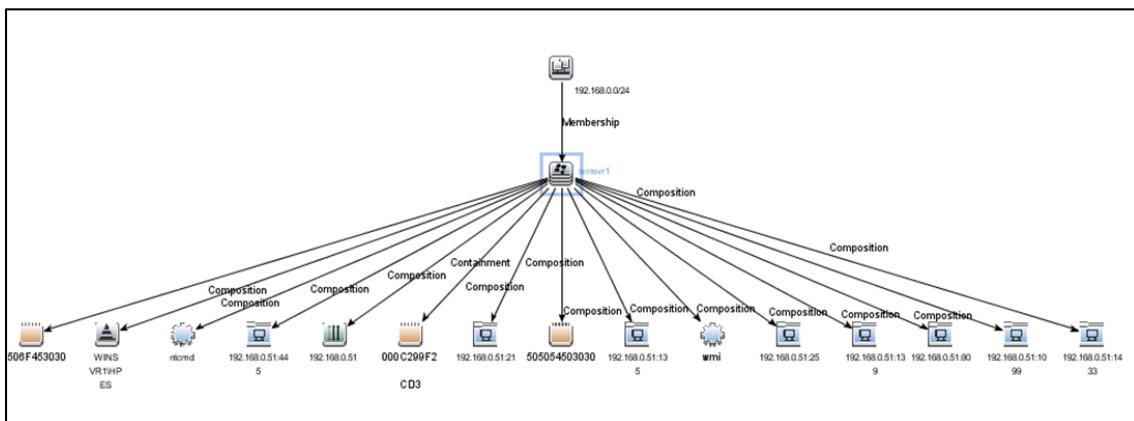


8. Click the OK button.

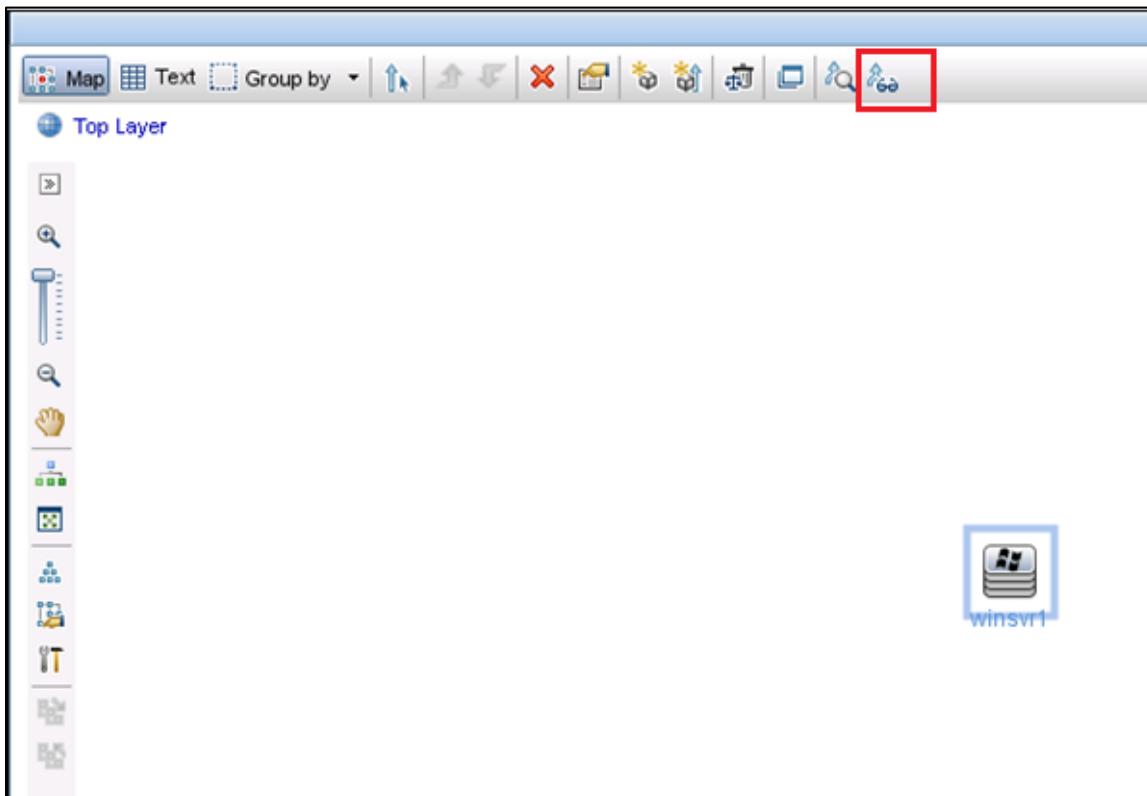
9. Click the Enable Related CI Retrieval button on the toolbar, as shown in the following screenshot:



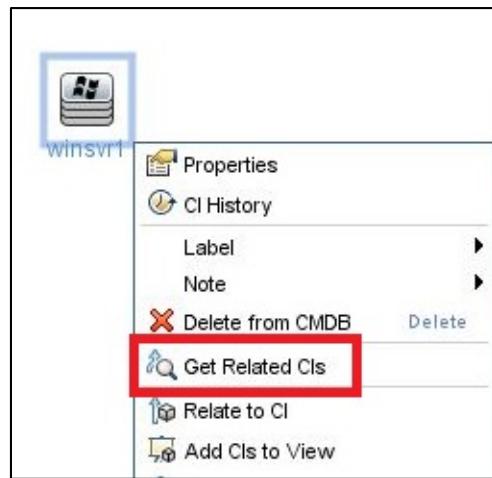
The output is displayed, as shown in the following screenshot:



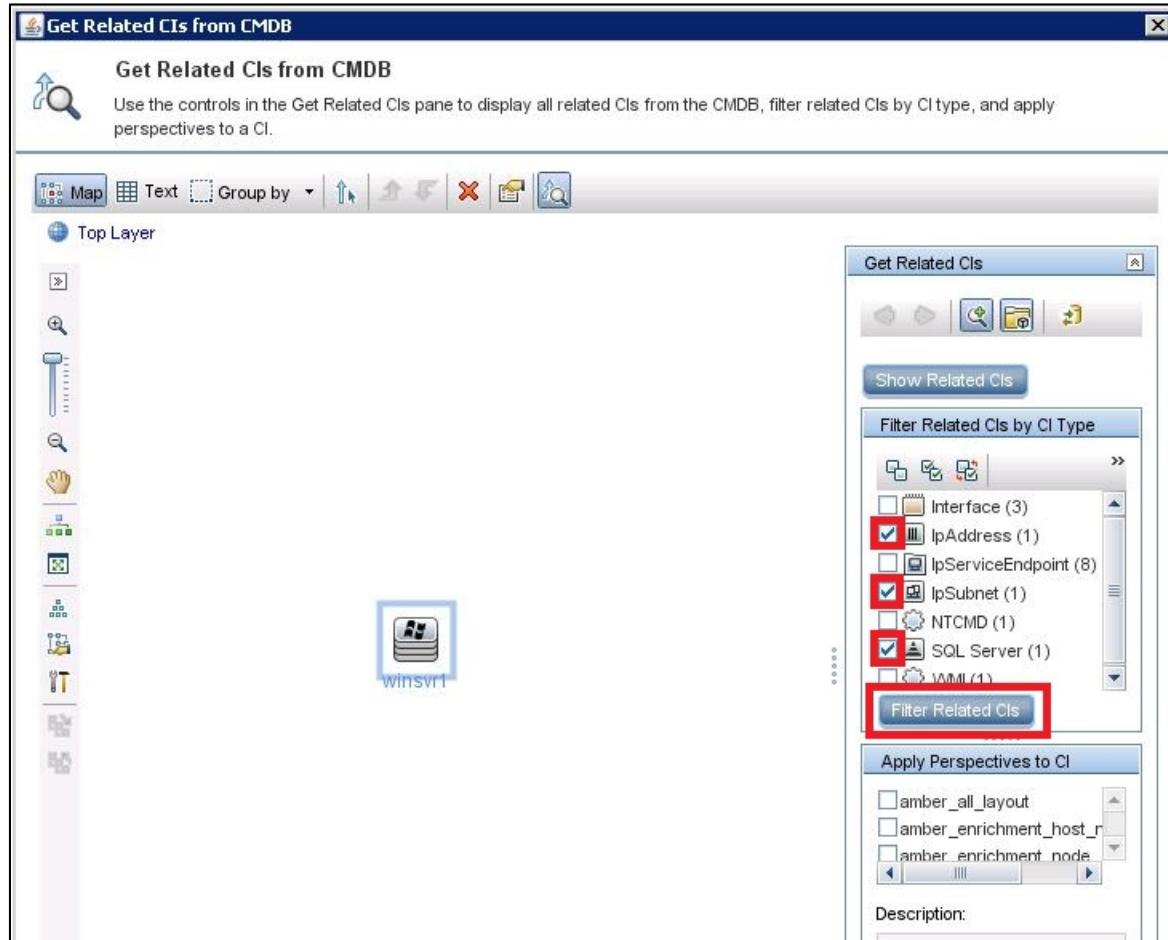
10. After verifying the CIs that are connected to WINSVR1 CI, click the Disable Related CI Retrieval button on the toolbar. This hides all the connected CIs, as shown in the following screenshot:



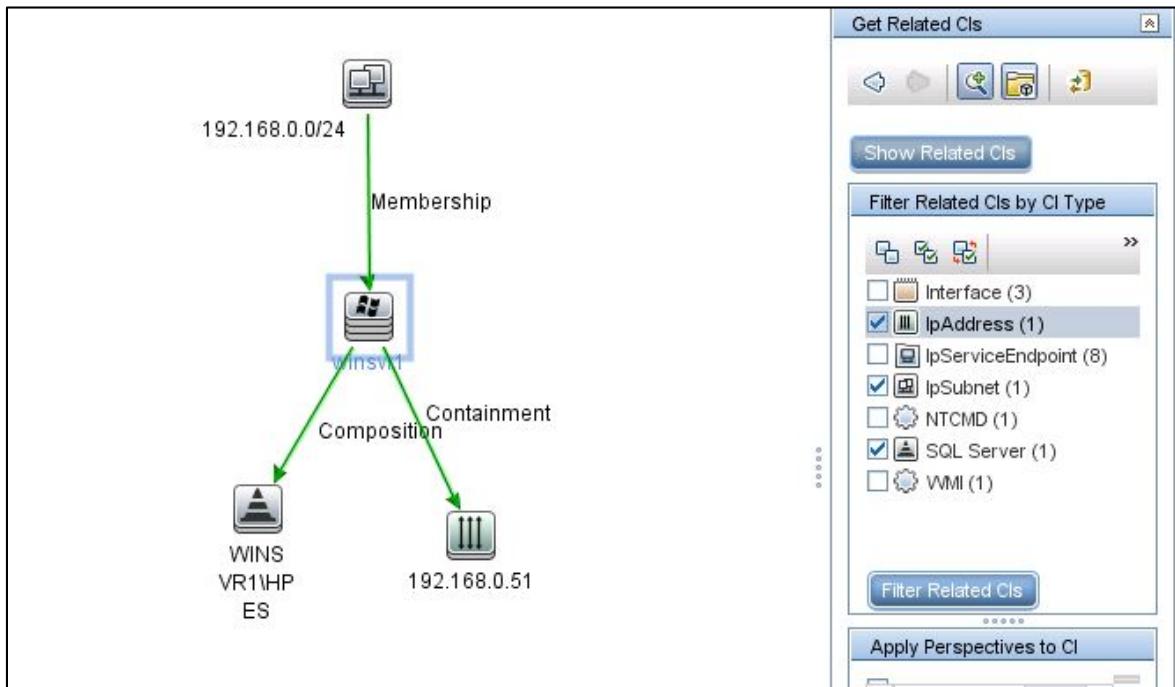
11. Right-click winsvr1 and choose Get Related CIs from the context menu, as shown in the following screenshot:



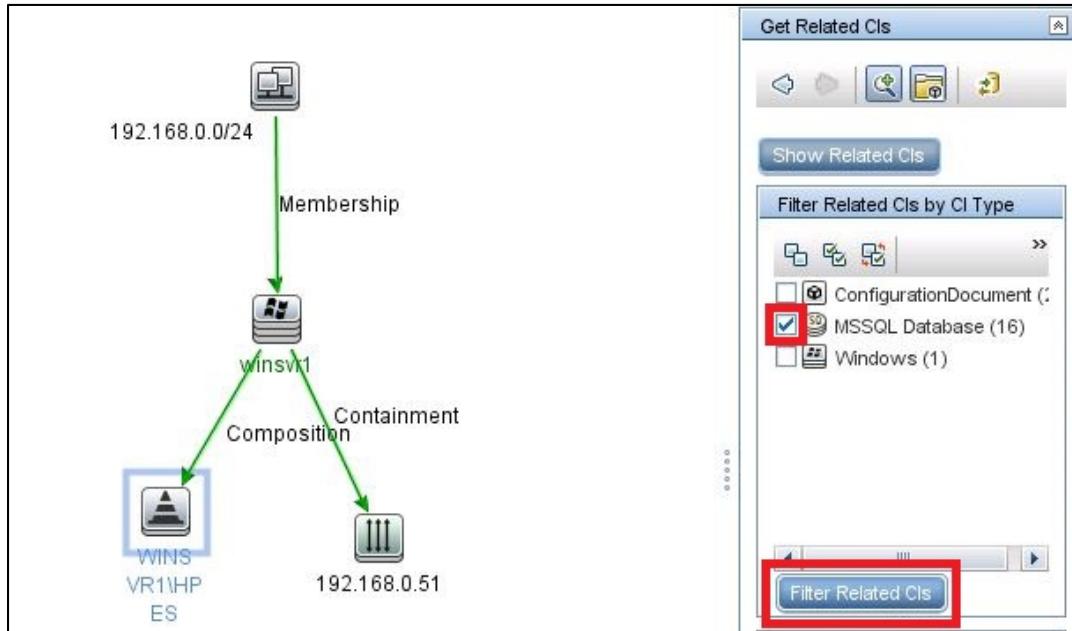
12. The Get Related CIs from CMDB dialog is displayed. In the filter pane (on the right) check IpSubnet, IpAddress, and SQL Server and then click the Filter Related CIs button, as shown in the following screenshot:



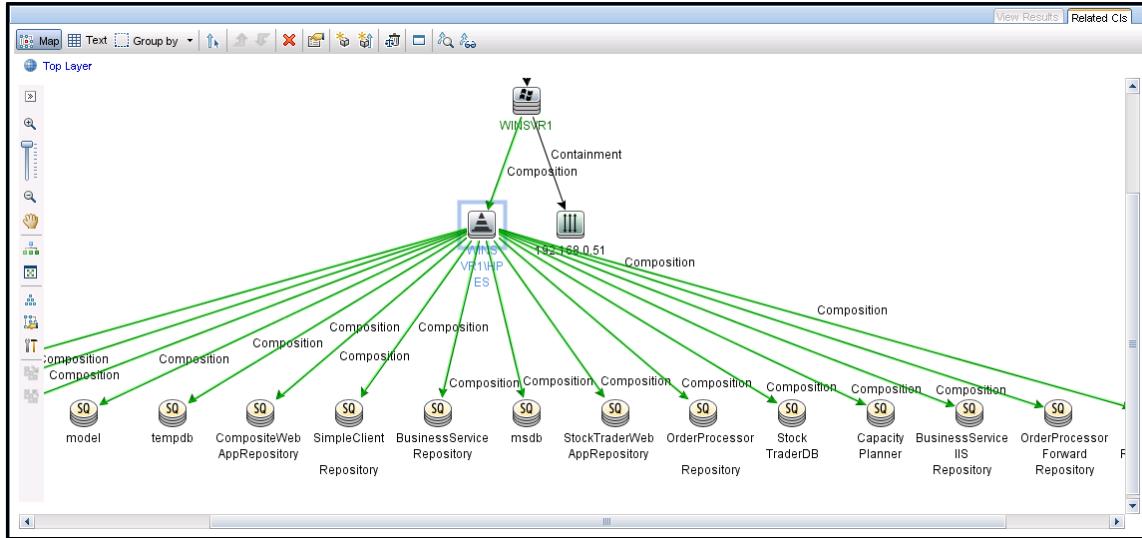
13. Verify the result with the following screenshot:



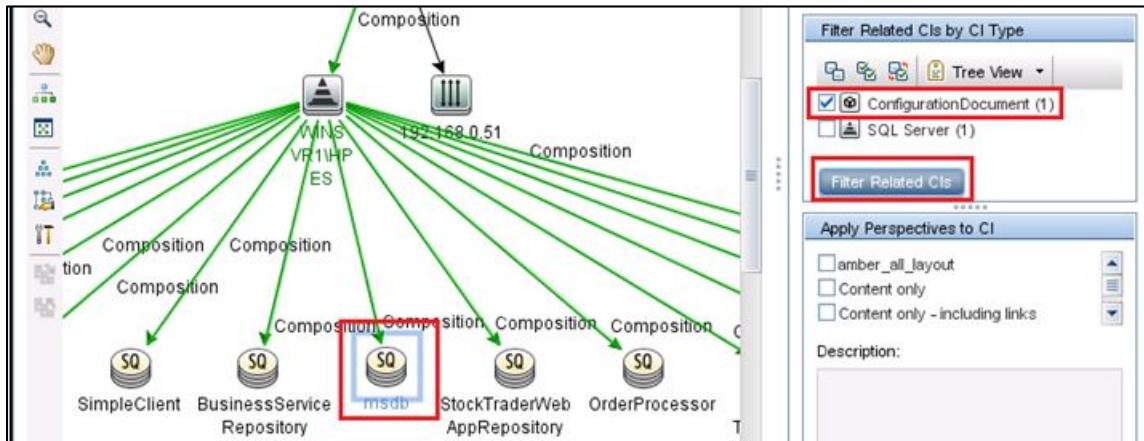
14. Select WINSVR1\HPES SQL Server CI. From the Get Related Cls pane, check MSSQL Database. Then click the Filter Related Cls button below that, as shown in the following screenshot:



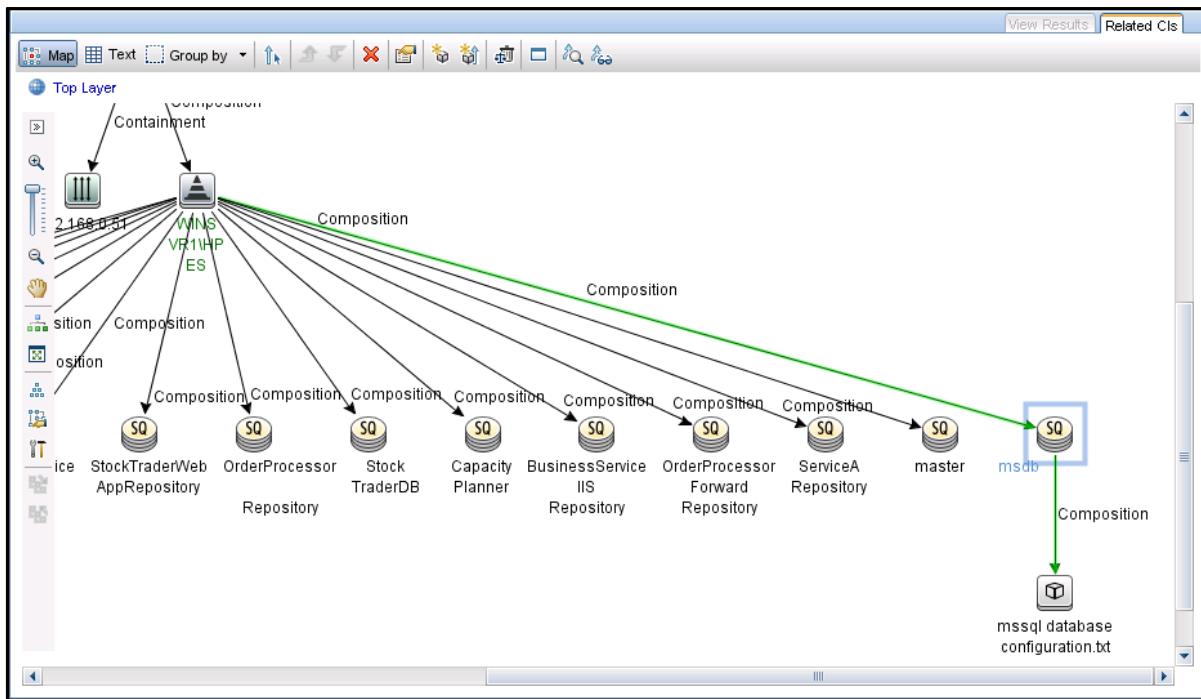
15. All the MSSQL Server Databases are displayed below the selected SQL Server CI, as shown in the following screenshot:



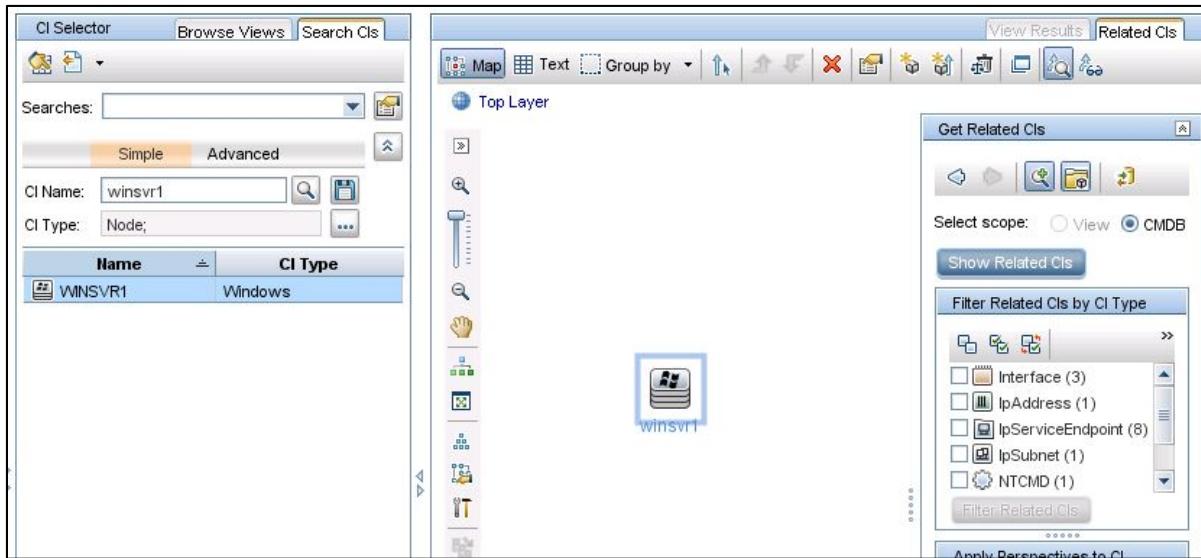
16. Locate and select the MSDB MSSQL Database CI and check the ConfigurationDocument CI check box in the Get Related CIs pane on the right side. Then click the Filter Related CIs button again, as shown in the following screenshot:



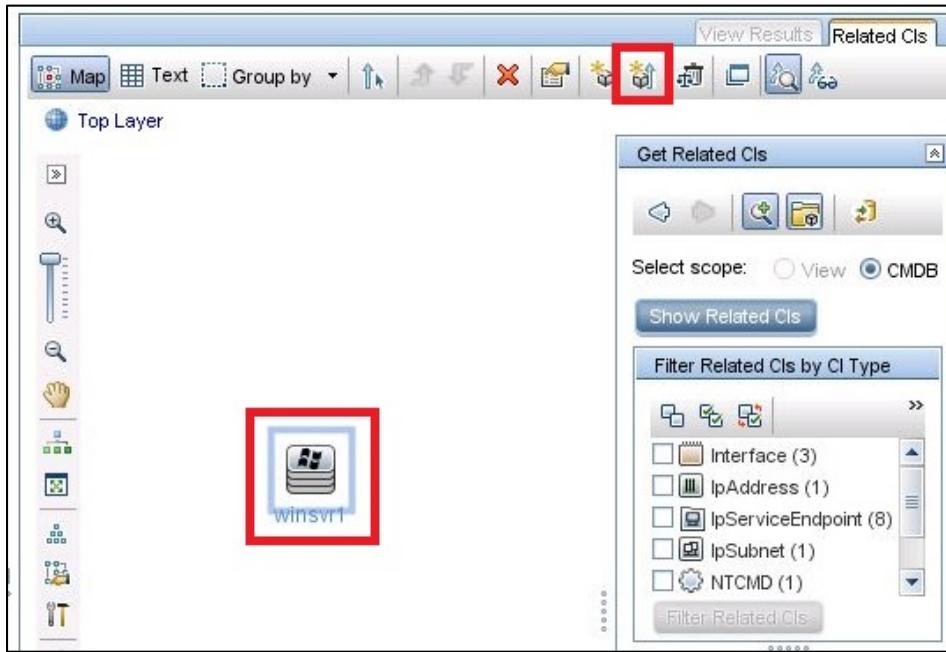
17. The ConfigurationDocument CI connected to the database CI is displayed, as shown in the following screenshot:



18. Click the OK button to close the dialog and return to the main IT Universe Manager window. Verify the result with the following screenshot:

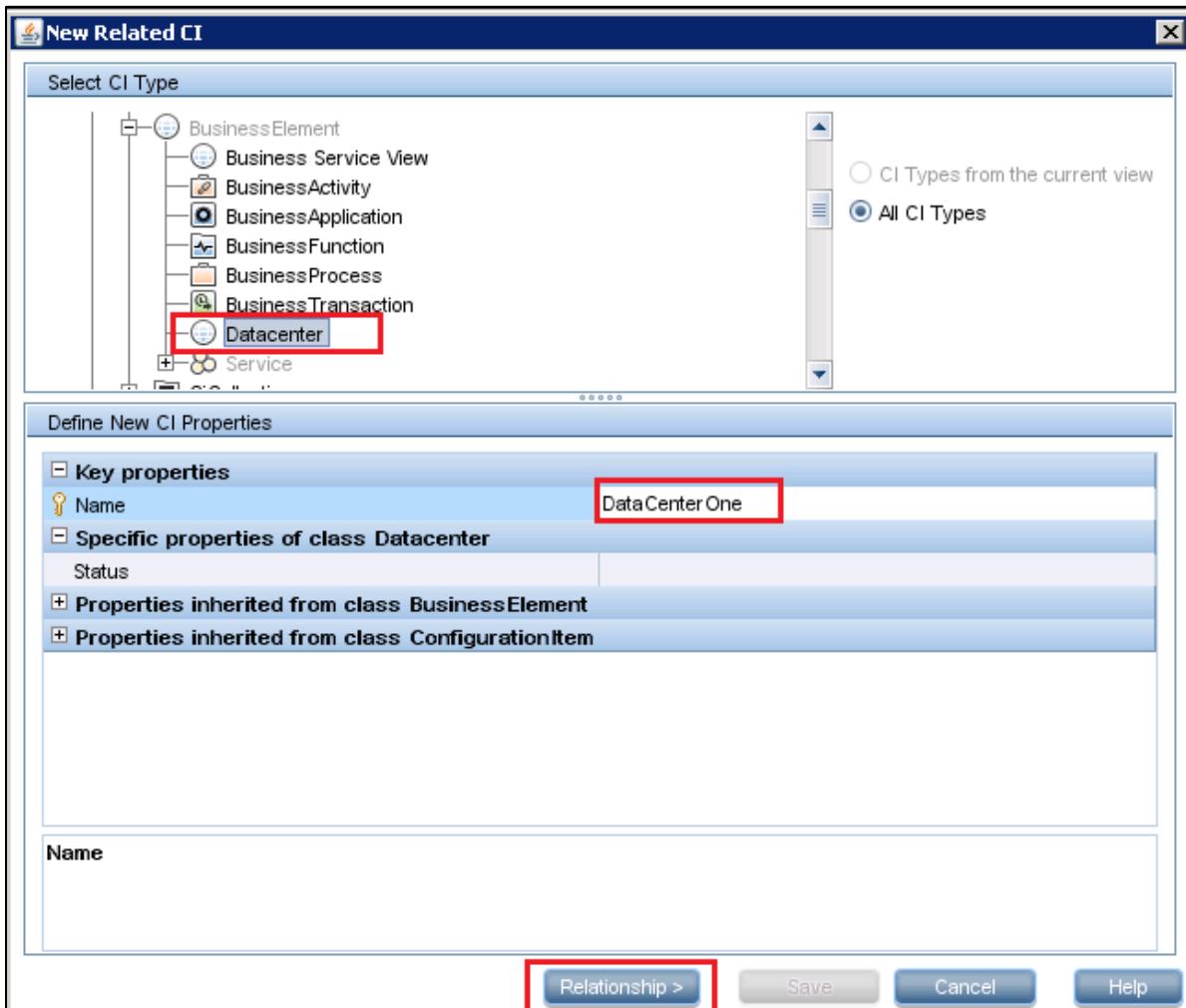


19. To create a new related CI with WINSVR1 manually, select WINSVR1 CI from the topology pane. Then click the New Related CI button on the toolbar, as shown in the following screenshot:



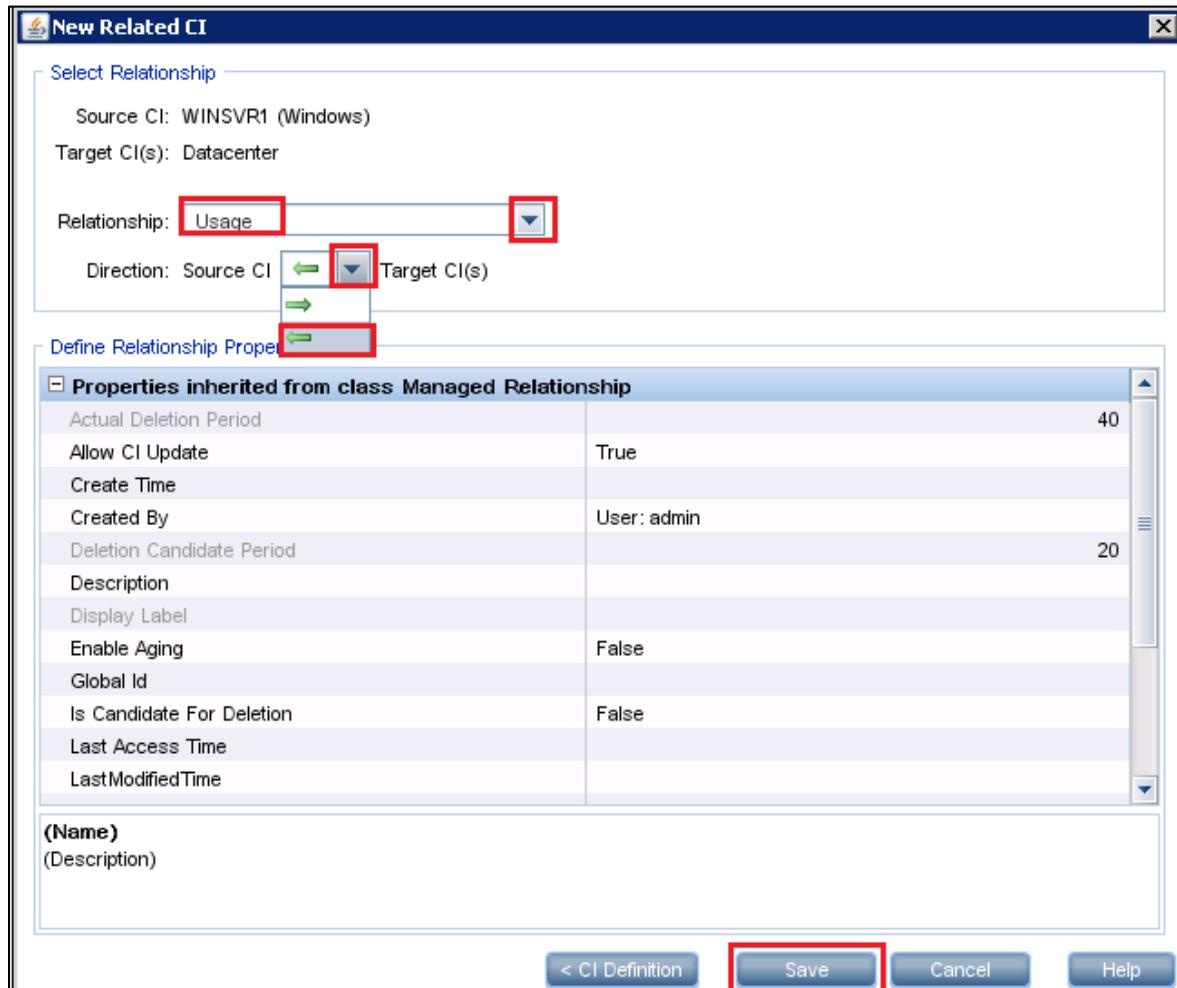
20. In the New CI window displayed, select CI Type frame, click the top CI Type tree in the Class Model and type **datacenter** to search and locate the DataCenter CI Type.

21.Under the Define New CI Properties frame, click Name attribute and type **DataCenter One** in the right-side value column, as shown in the following screenshot:



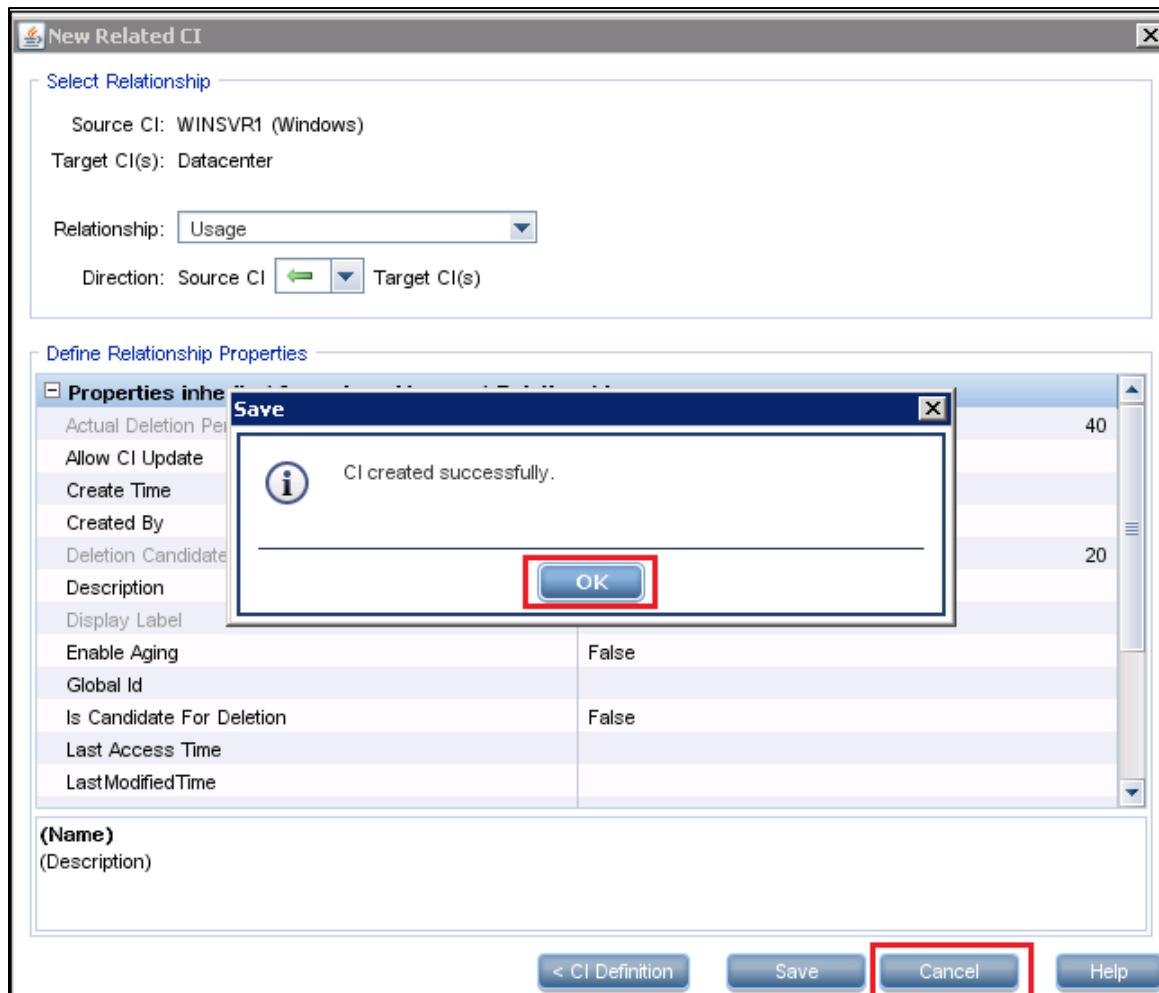
22.Then click the Relationship > button.

23. From the Select Relationship frame, select the Relationship as Usage and Direction from DataCenter CI to Node CI (WINSVR1). Then click the Save button, as shown in the following screenshot:

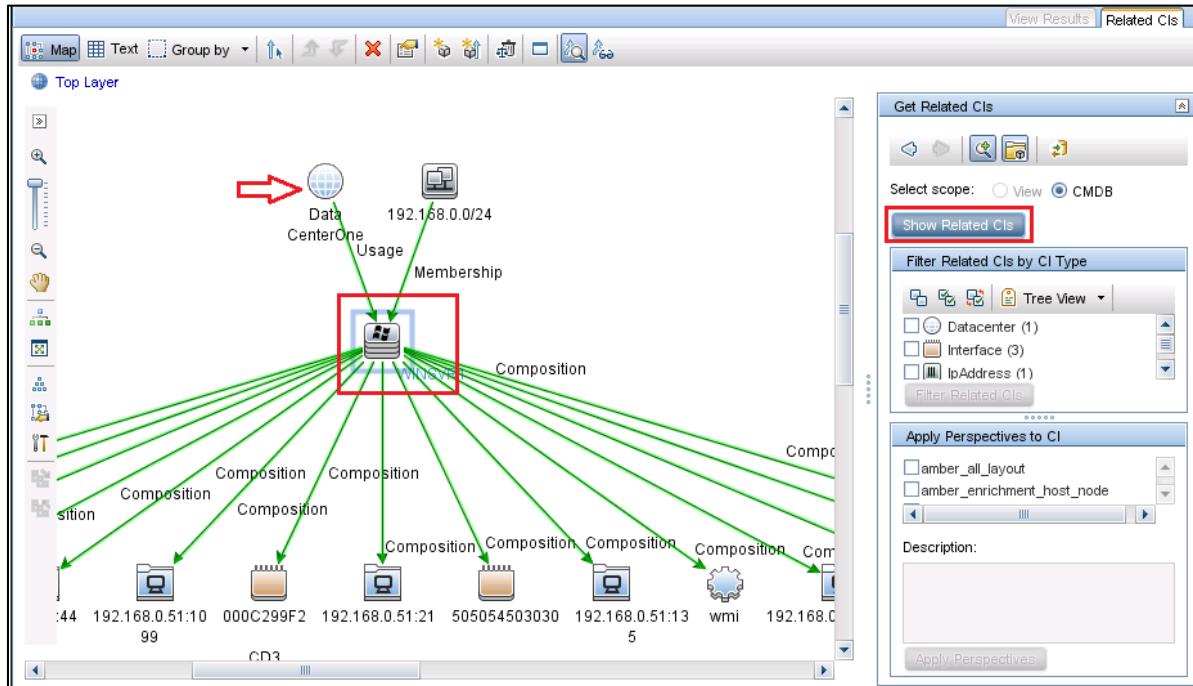


24. Click the OK button in the Save message prompt which is displayed.

25. Click the Cancel button to close the New Related CI window, as shown in the following screenshot:



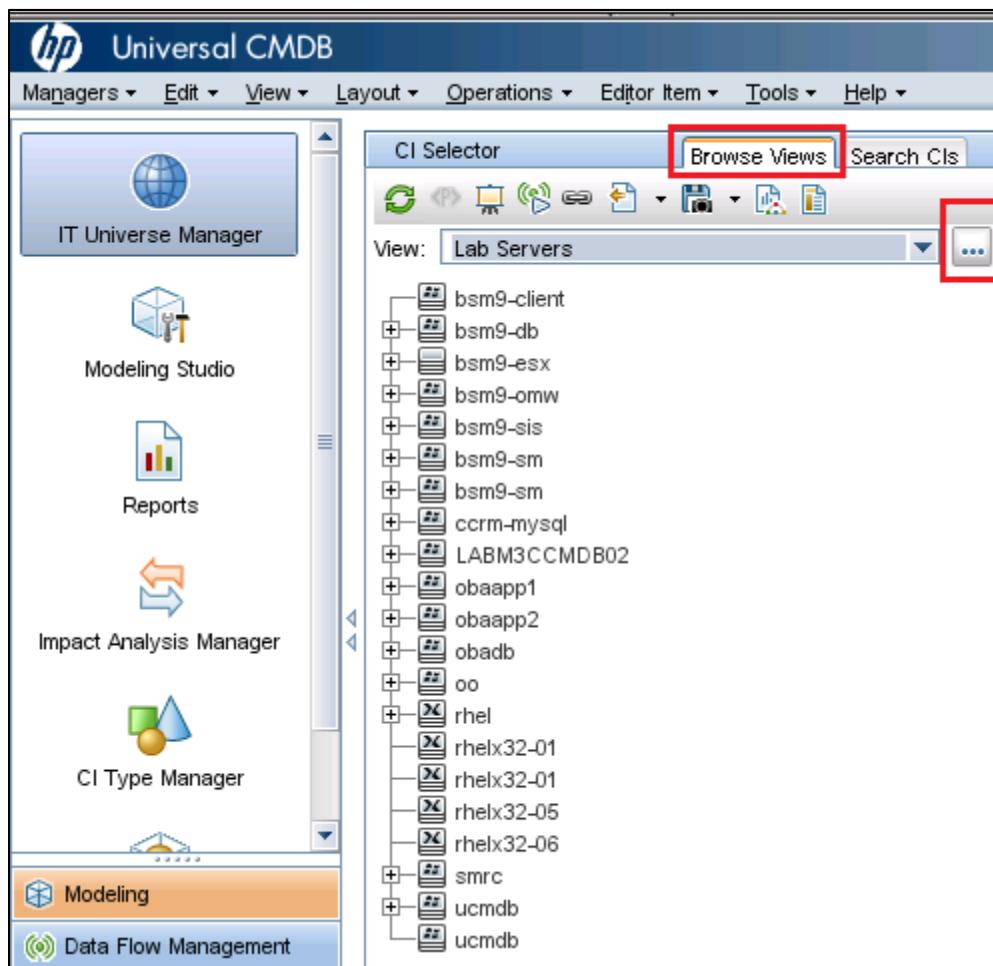
26. In the ITU Manager topology pane, with WINSVR1 selected, click the Show Related CIs button in the Get Related CIs pane to display the new DataCenter CI you just created, as shown in the following screenshot:



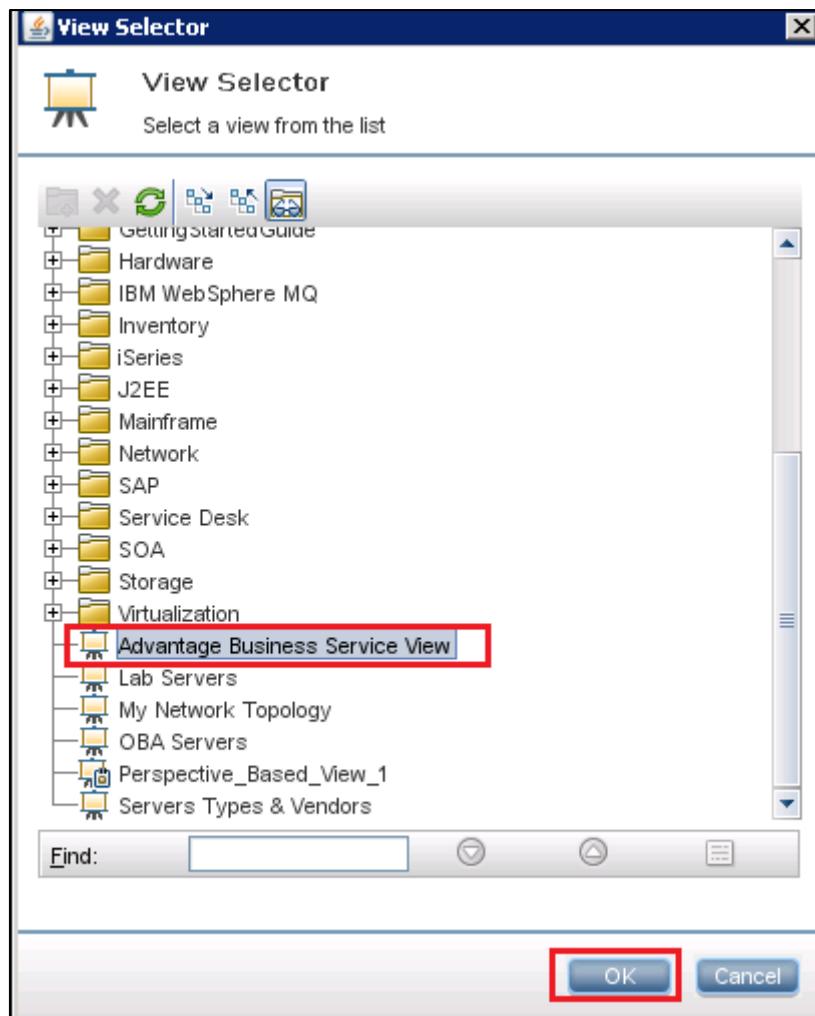
## Exercise 2 – Exploring Map Groupings Using the IT Universe Manager

To explore map groupings using IT universe manager, perform the following step:

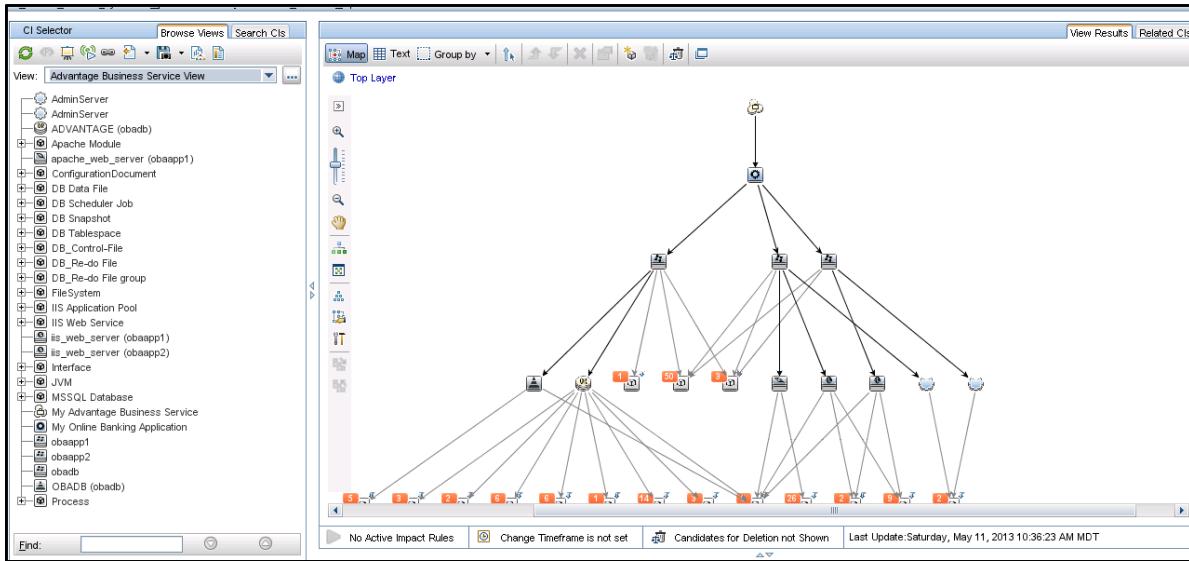
1. Go to IT Universe Manager and click the Opens the Views Tree dialog button from the Browse Views tab in the CI Selector, as shown in the following screenshot:



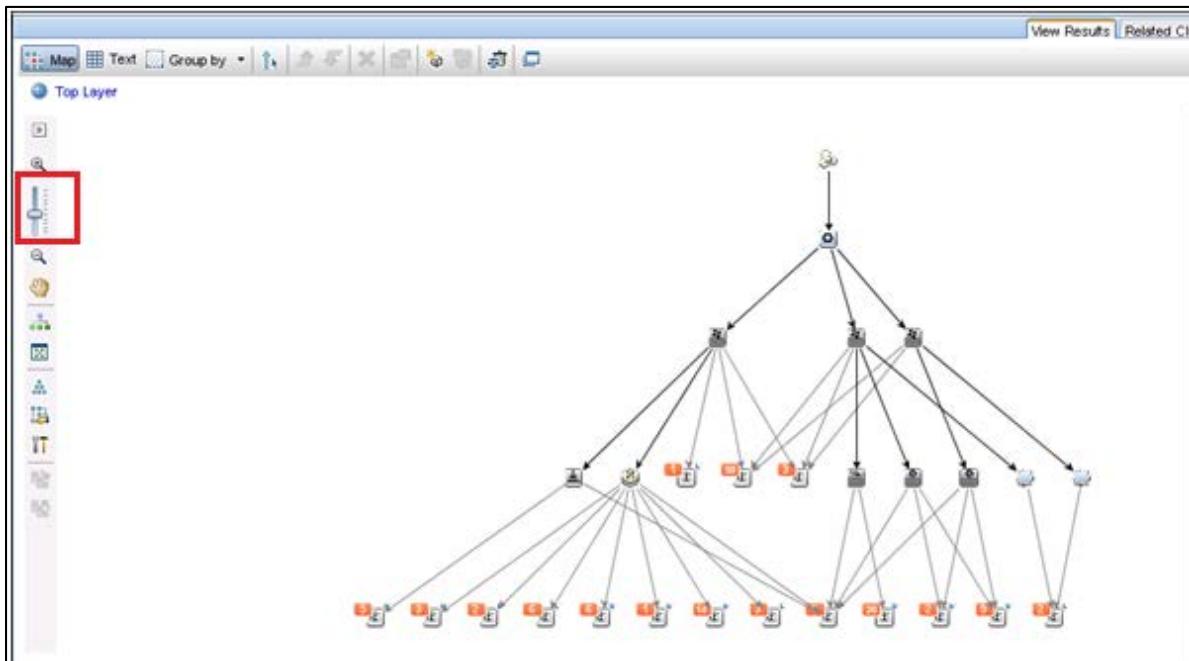
2. From the View Selector dialog box, select the Advantage Business Service View and click the OK button to display it, as shown in the following screenshot:



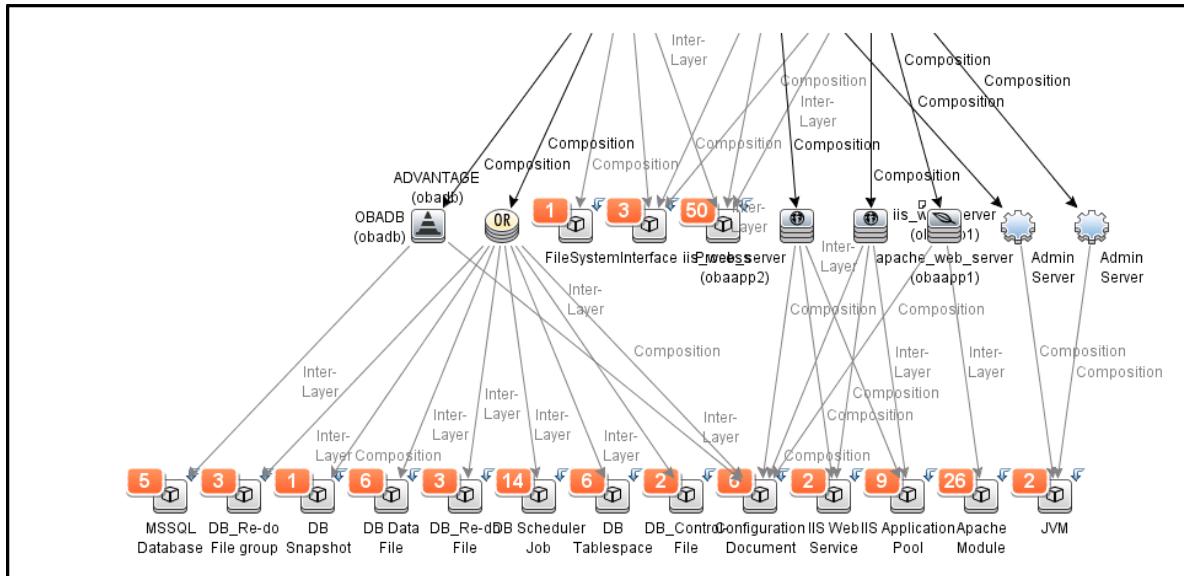
3. The Advantage Business Service View is displayed in the topology pane on the right side, as shown in the following screenshot:



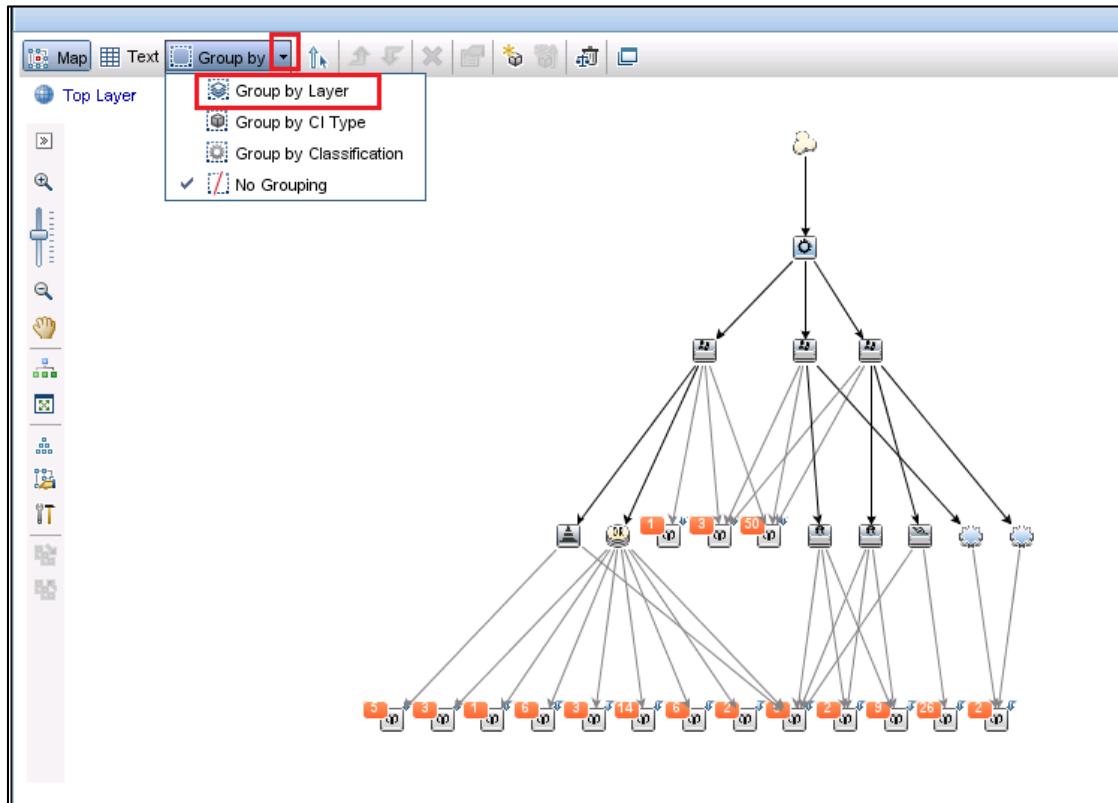
4. Adjust the zoom bar from the left-side tool bar to get a readable view of the Cls, as shown in the following screenshot:



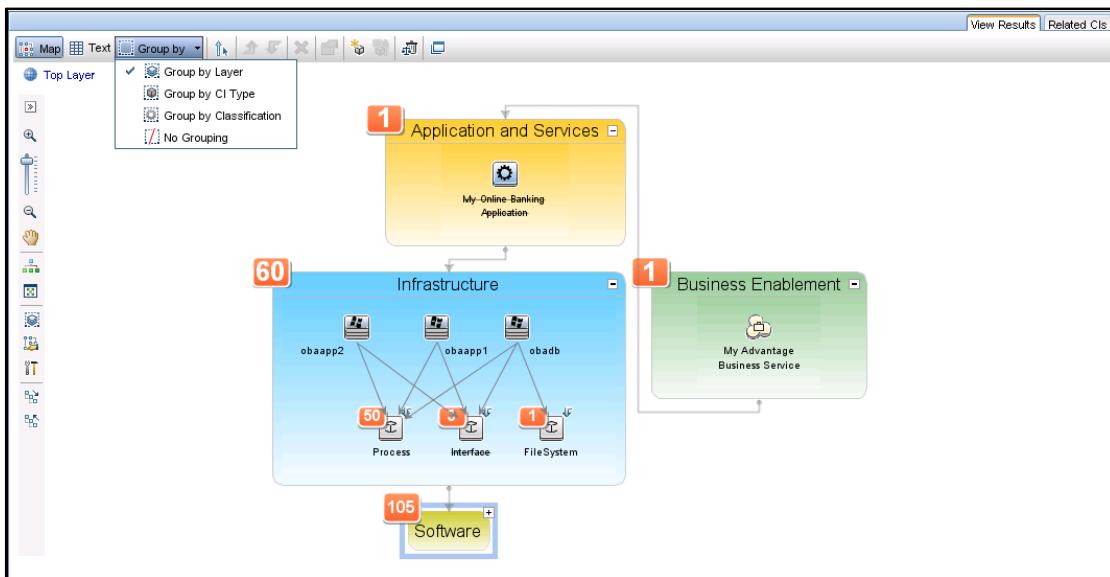
5. Take note of the CIs with sub-layers which show the number of CIs that are folded under them, as shown in the following screenshot:



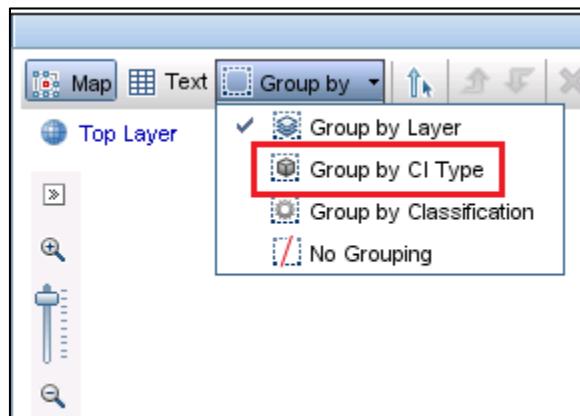
6. Click the drop-down menu Group by from the Topology pane toolbar and observe that No Grouping is selected by default. Then Switch to Group by Layer by clicking that menu item, as shown in the following screenshot:



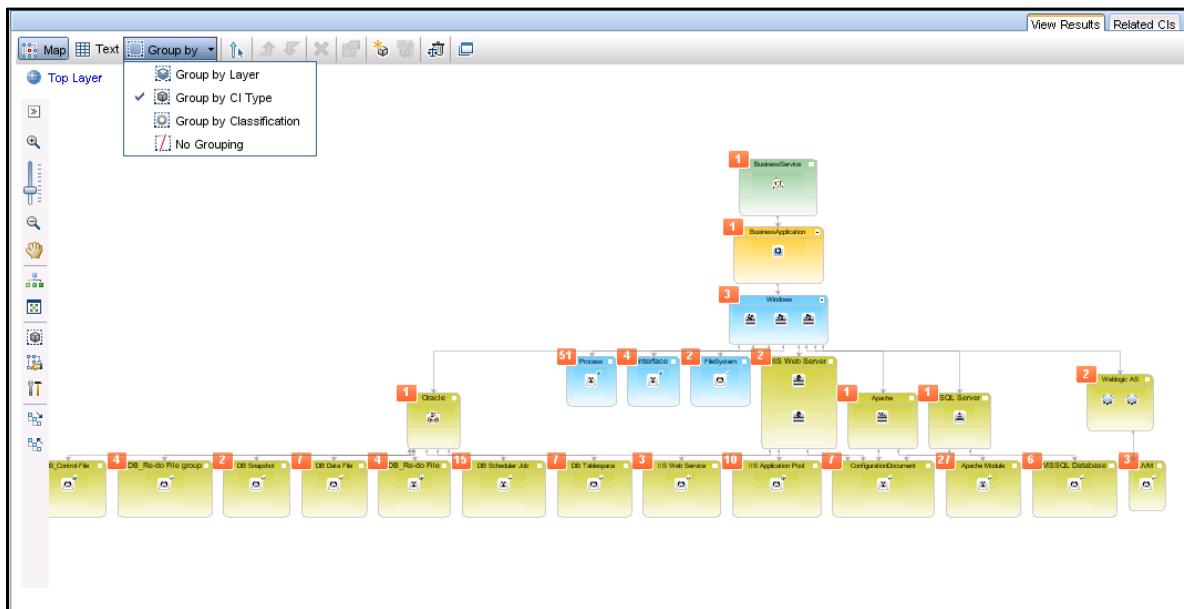
7. Verify the Topology pane displayed with the following screenshot. Observe that the different layers in the view are grouped into different containers with the corresponding names and the number of items available in the group.



8. Switch to Group by CI Type, from the Group by menu, as shown in the following screenshot:

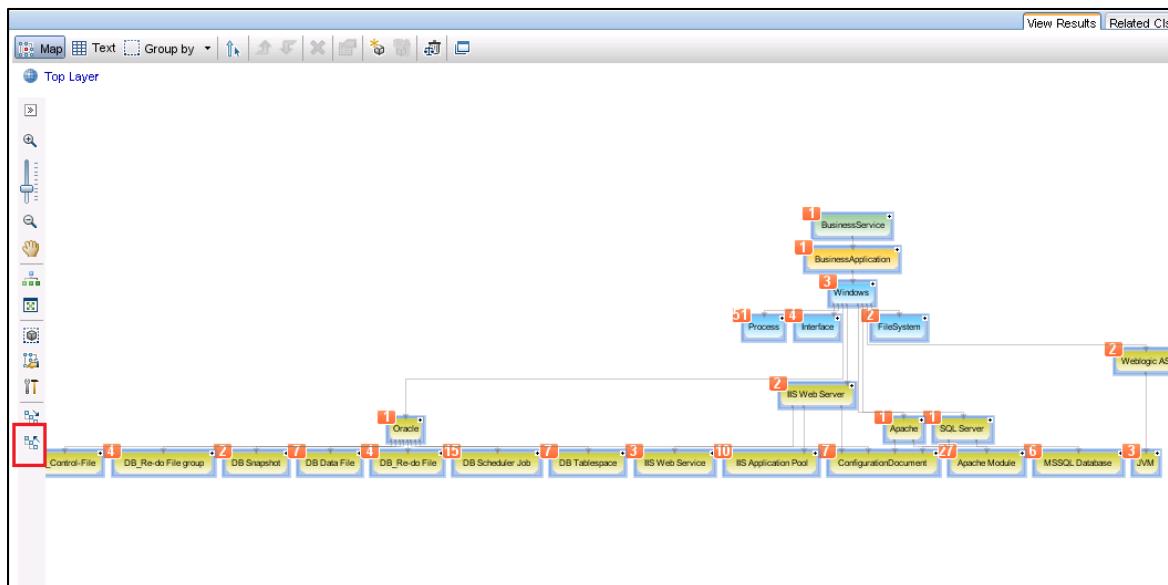


- Verify the Topology pane displayed with the following screenshot. Observe that the different layers in the view are grouped into different containers with the corresponding CI Type names and the number of CIs available in the groups.



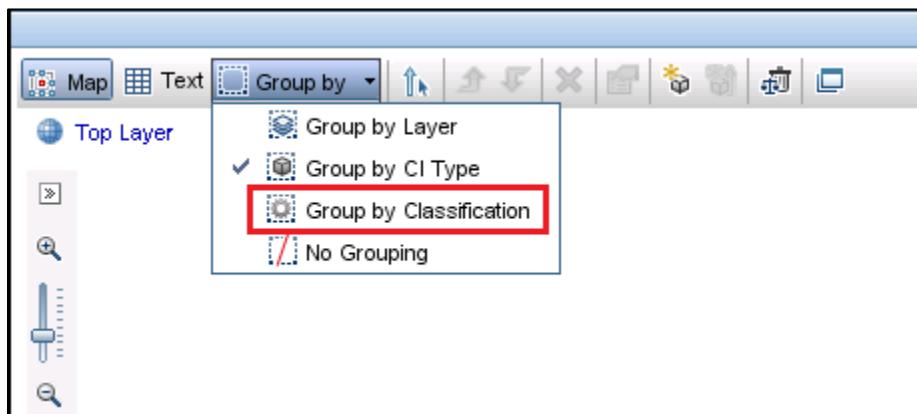
**Note:** Adjust the zoom bar from the left-side tool bar to get a readable view of the CIs.

- Select Collapse All Groups in the toolbar, as shown in the following screenshot:

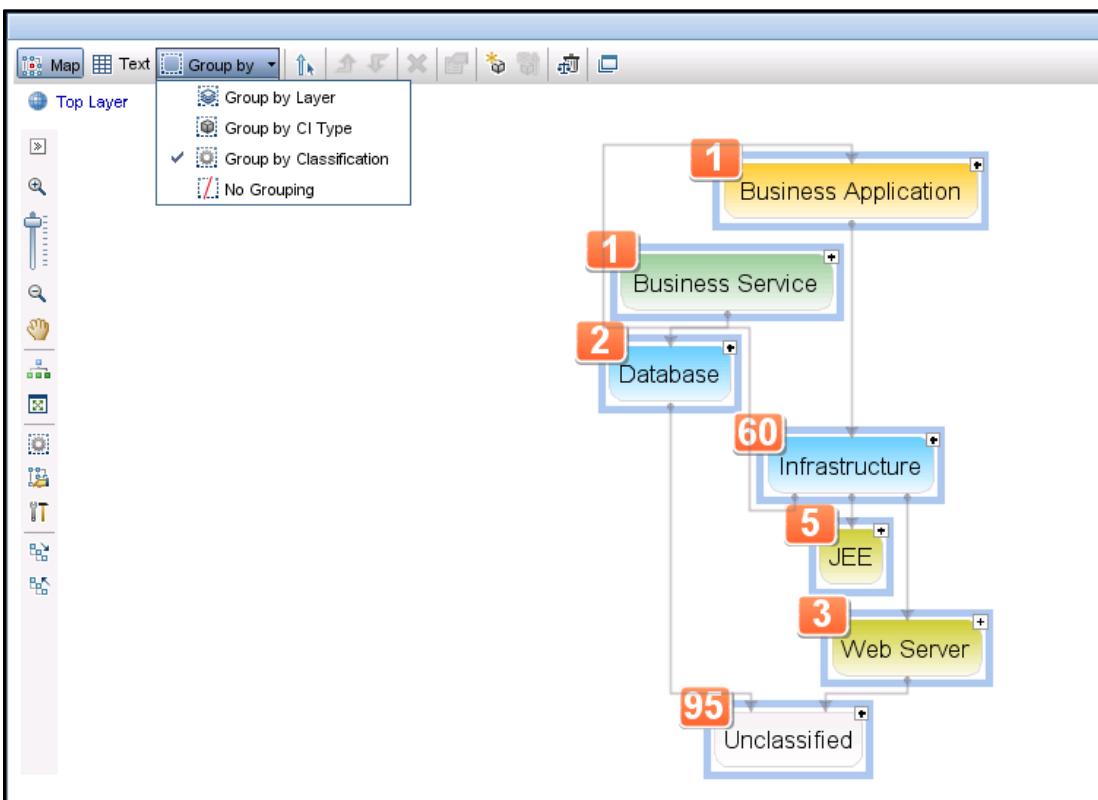


**Note:** Adjust the zoom bar from the left side tool bar to get a readable view of the CIs.

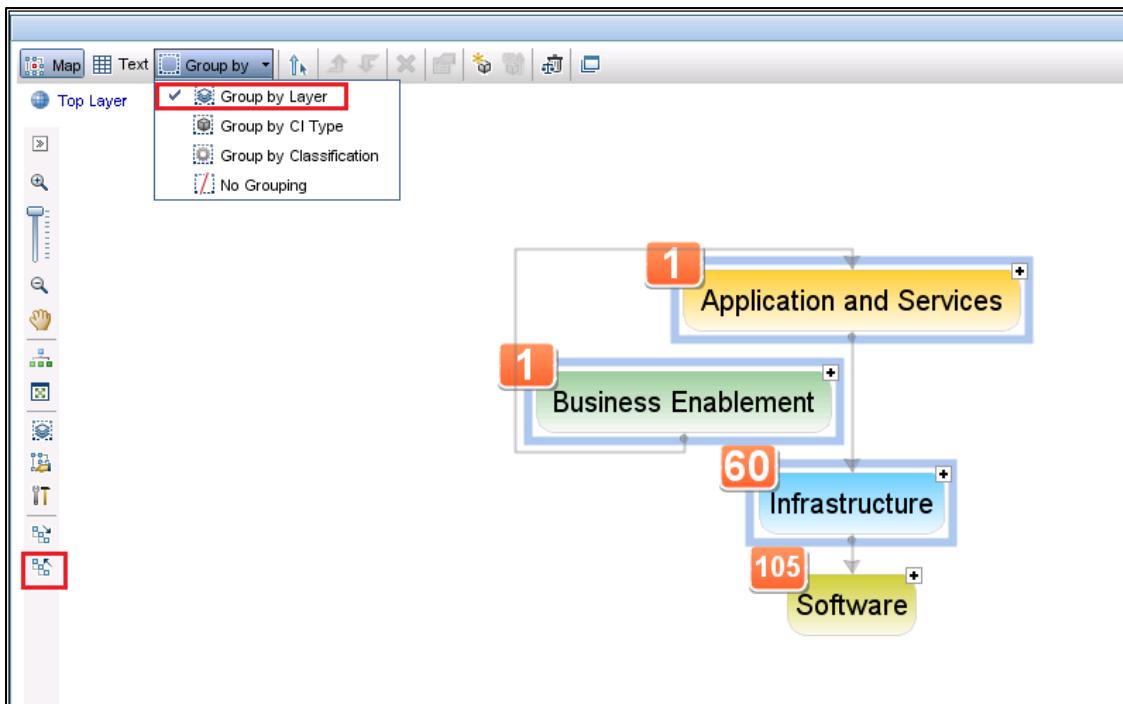
11. Switch to Group by Classification, as shown in the following screenshot:



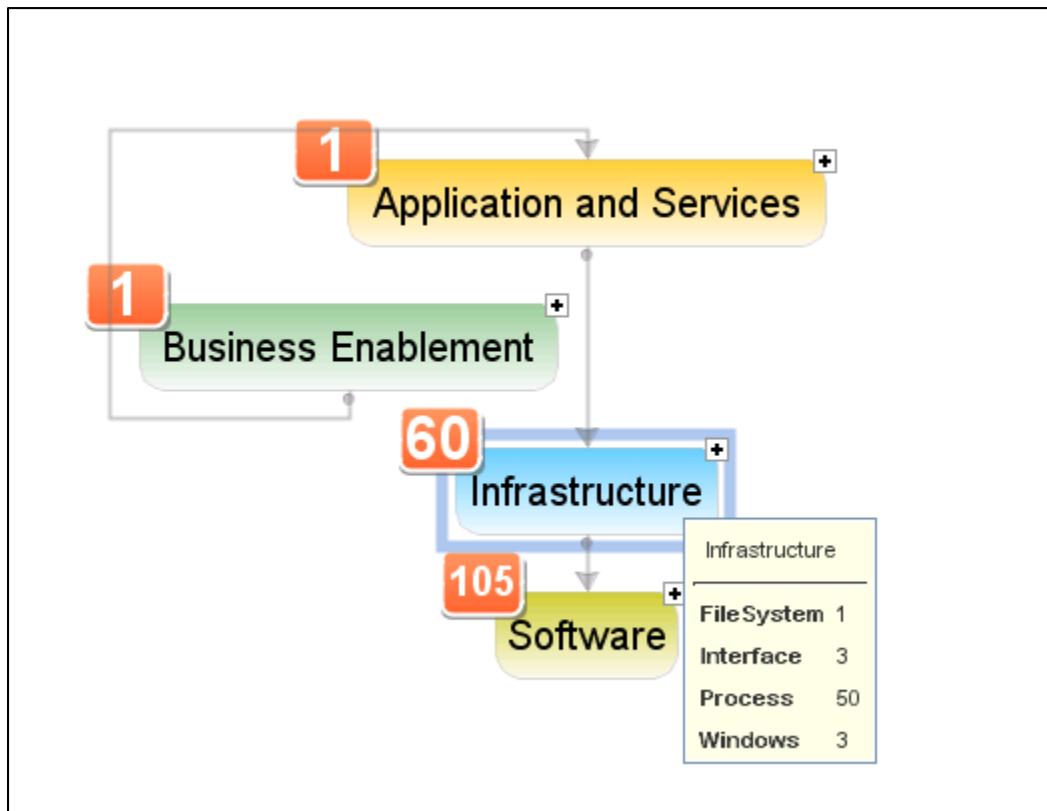
12. Observe the change in grouping and the names used for labeling the groups, as shown in the following screenshot:



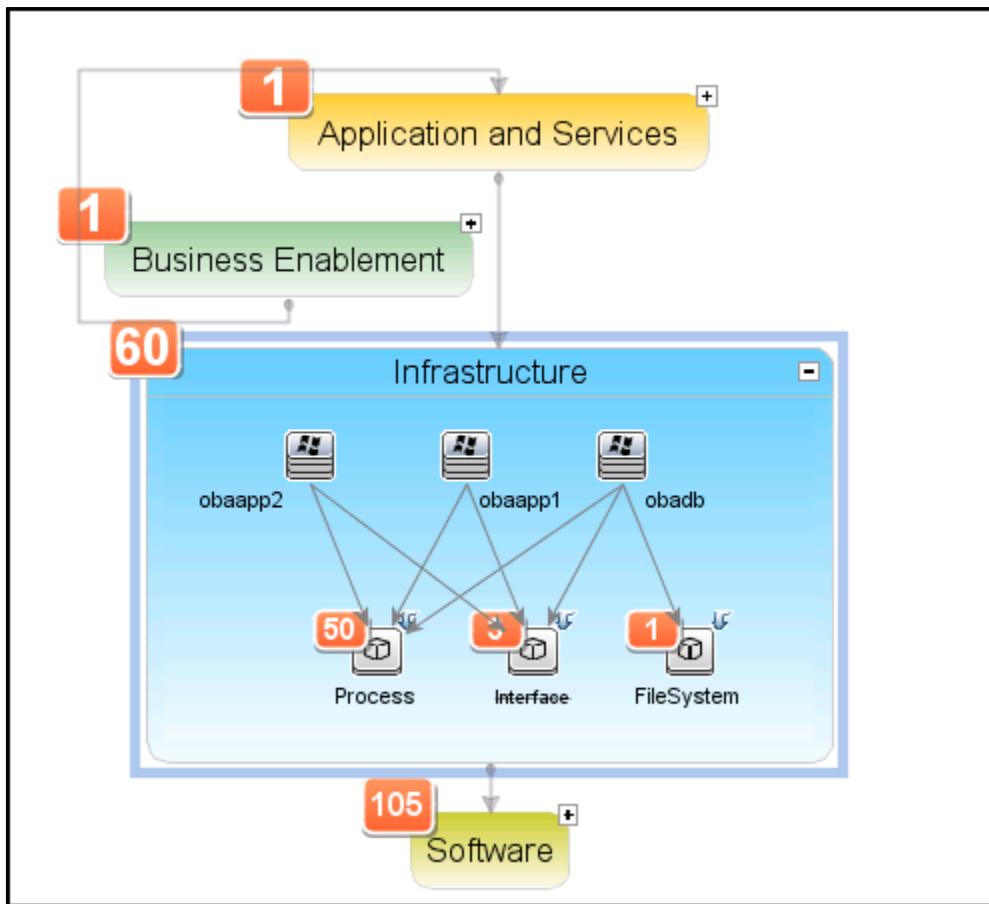
13. Go back to Group by Layer and select Collapse All Groups in the toolbar, as shown in the following screenshot:



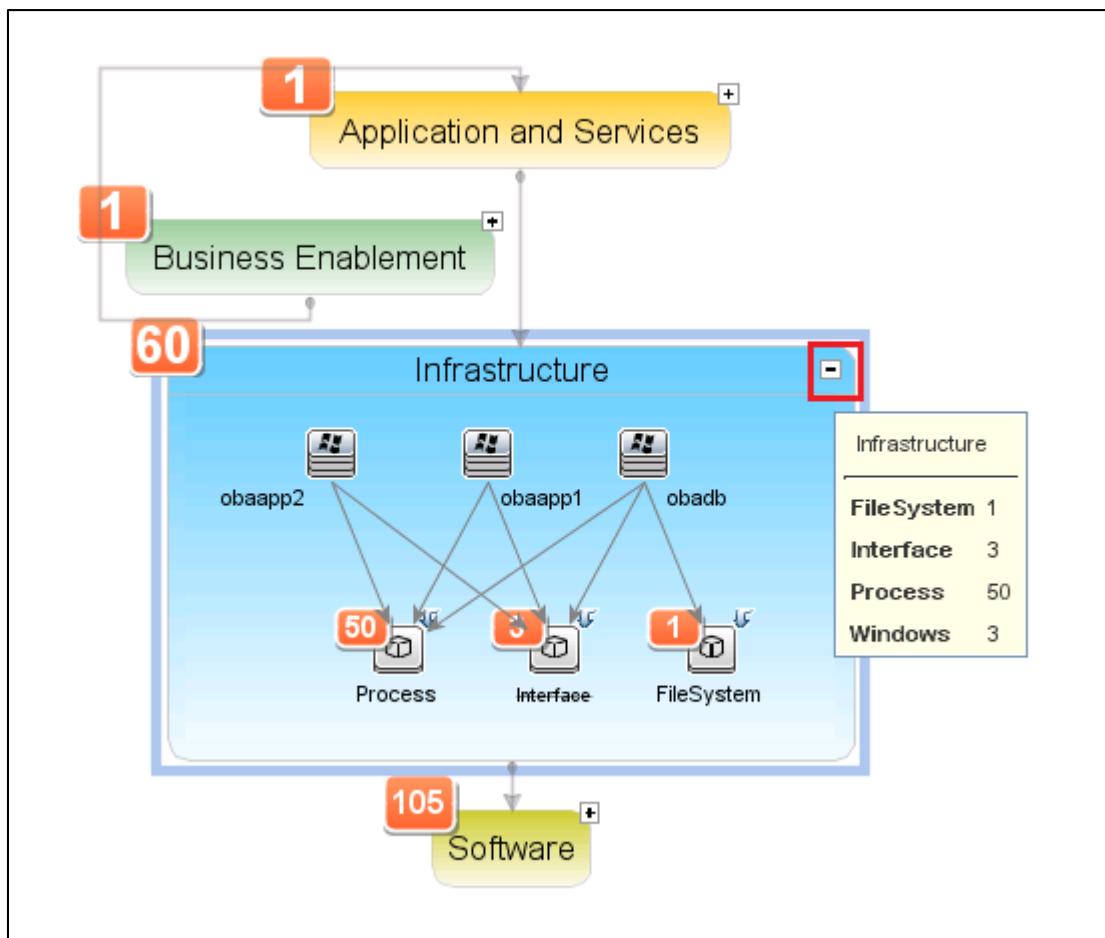
14. Hover over Infrastructure layer to show the number of CIs which are folded under the layer organized by CI Types, as shown in the following screenshot:



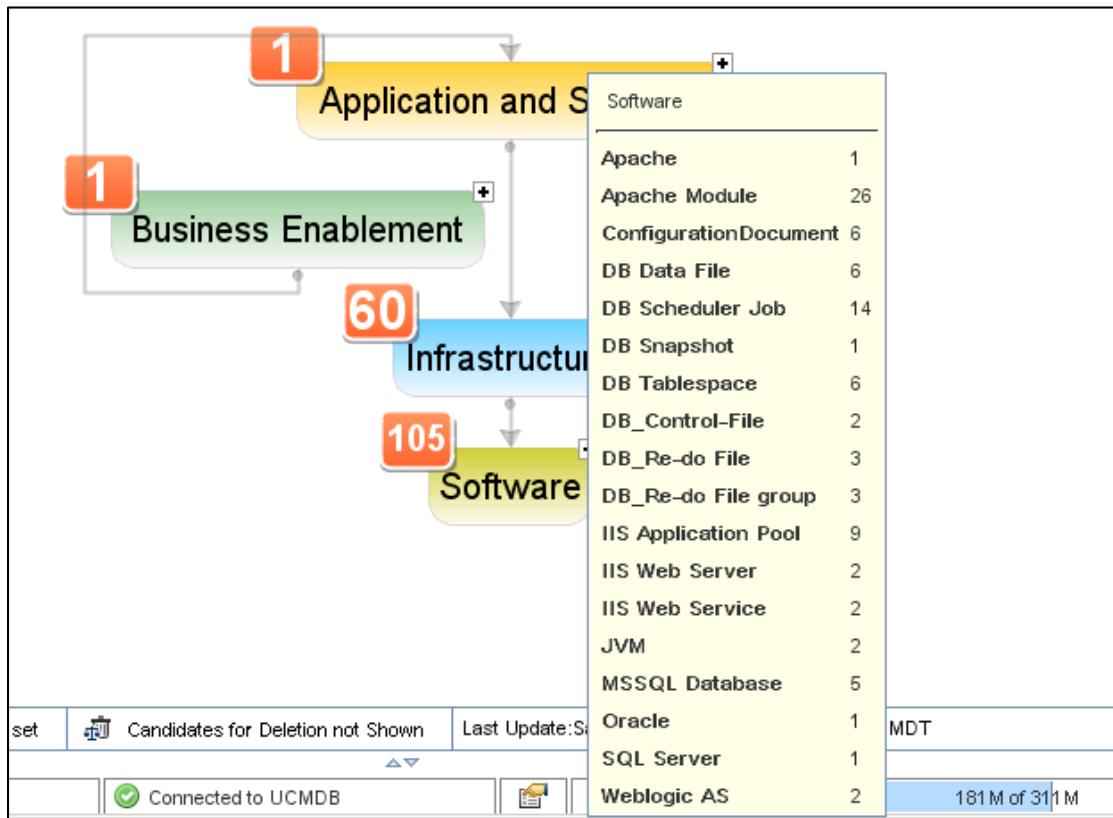
15. Expand the Infrastructure layer by clicking the plus (+) button on the box to see the CIs and relationship between the CIs, as shown in the following screenshot:



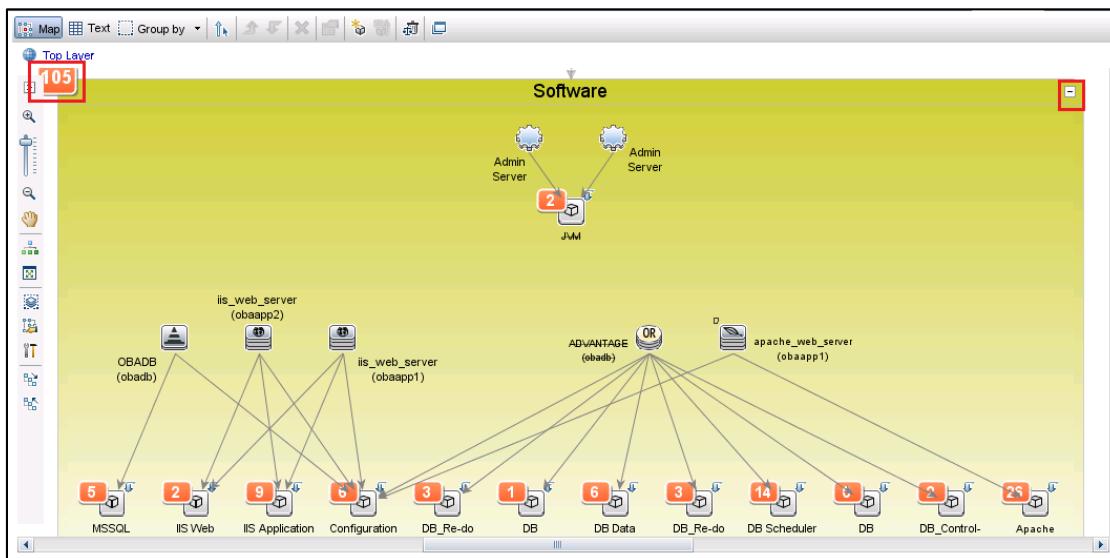
16. Click the minus (-) button to close it back to the normal state, as shown in the following screenshot:



17. Hover over the Software layer, as shown in the following screenshot:

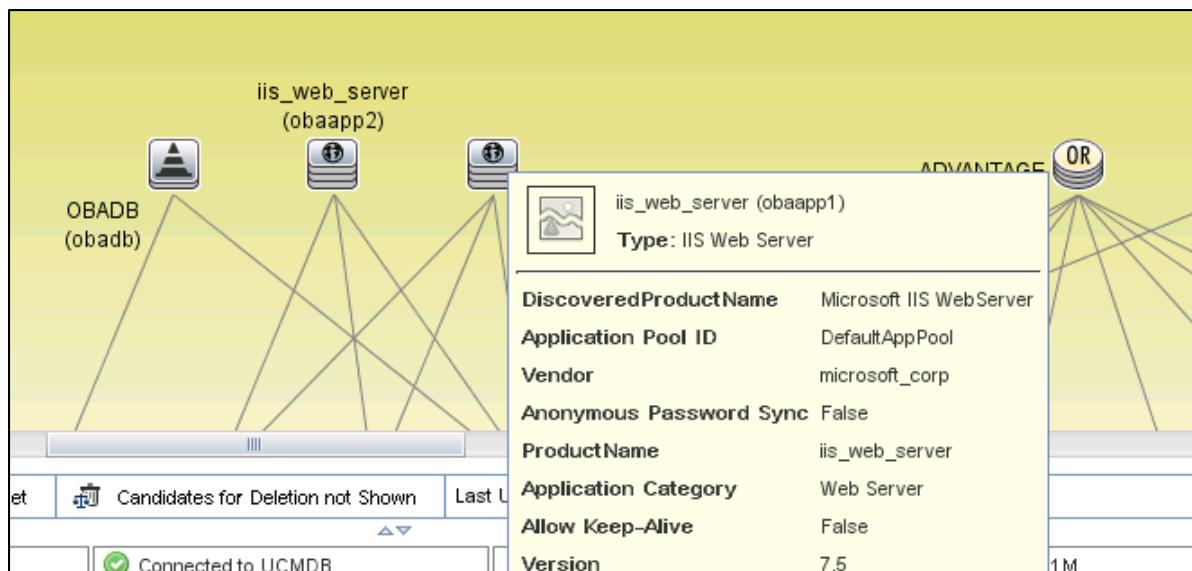


18. Expand the Software layer by clicking the +button. It opens as shown in the following screenshot:

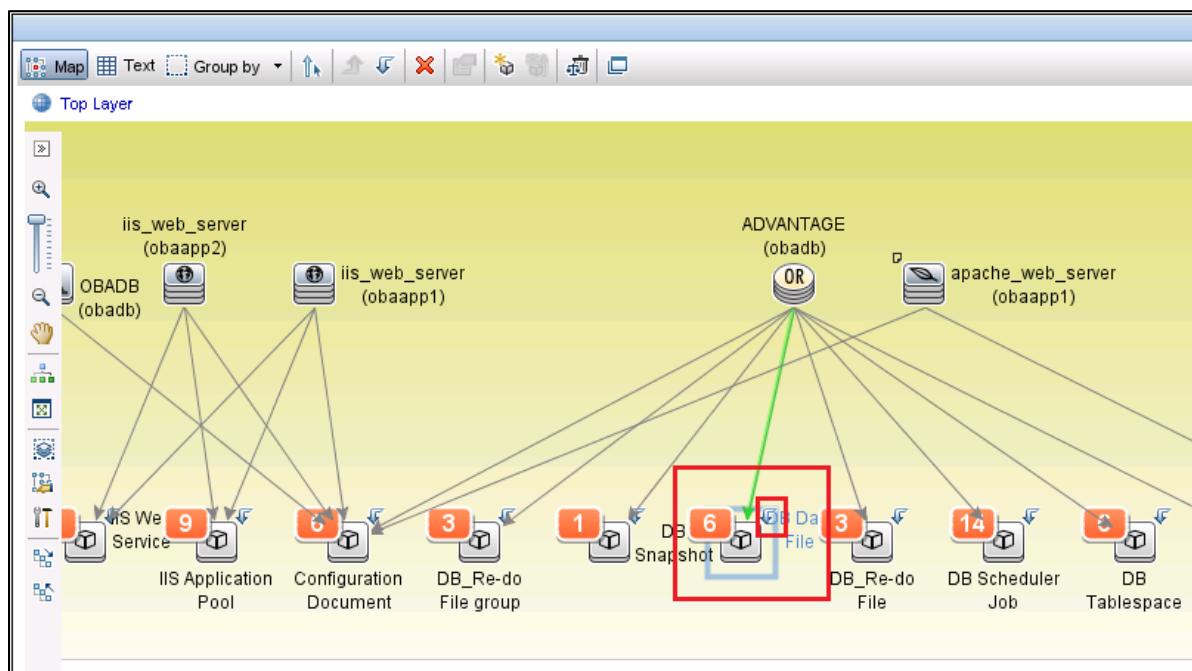


**Note:** Adjust the zoom bar from the left-side tool bar to get a readable view of the Cls.

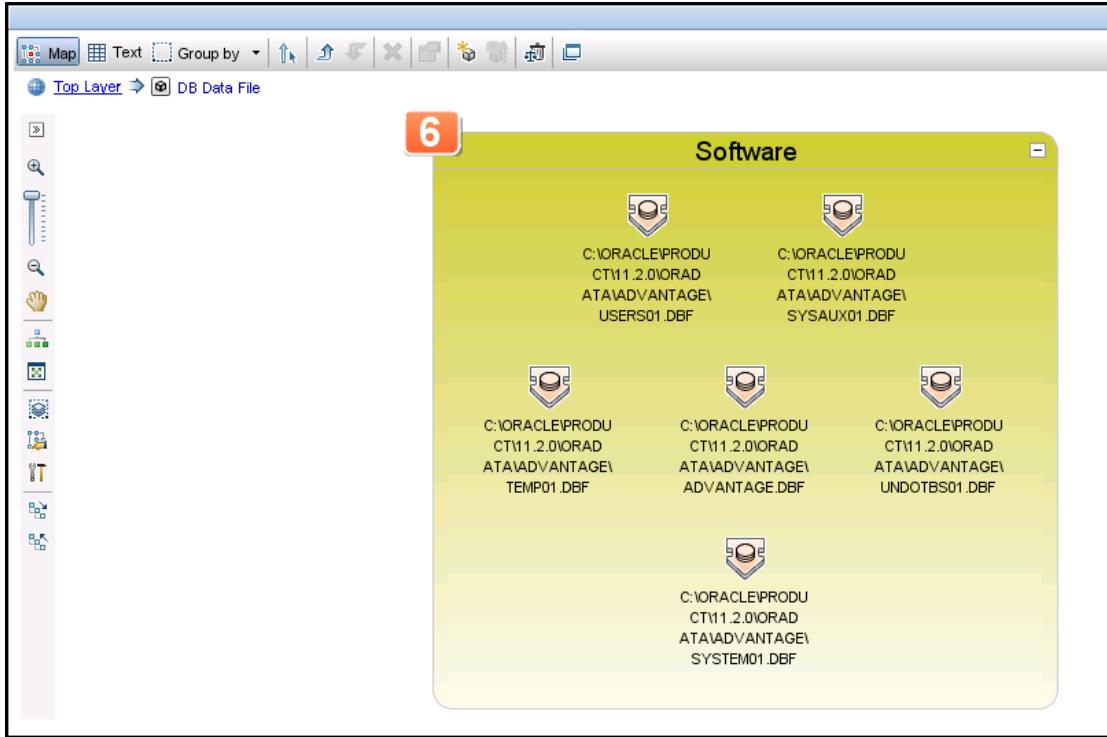
19. Hover over any CI inside the layer to see the CI attribute details, as shown in the following screenshot:



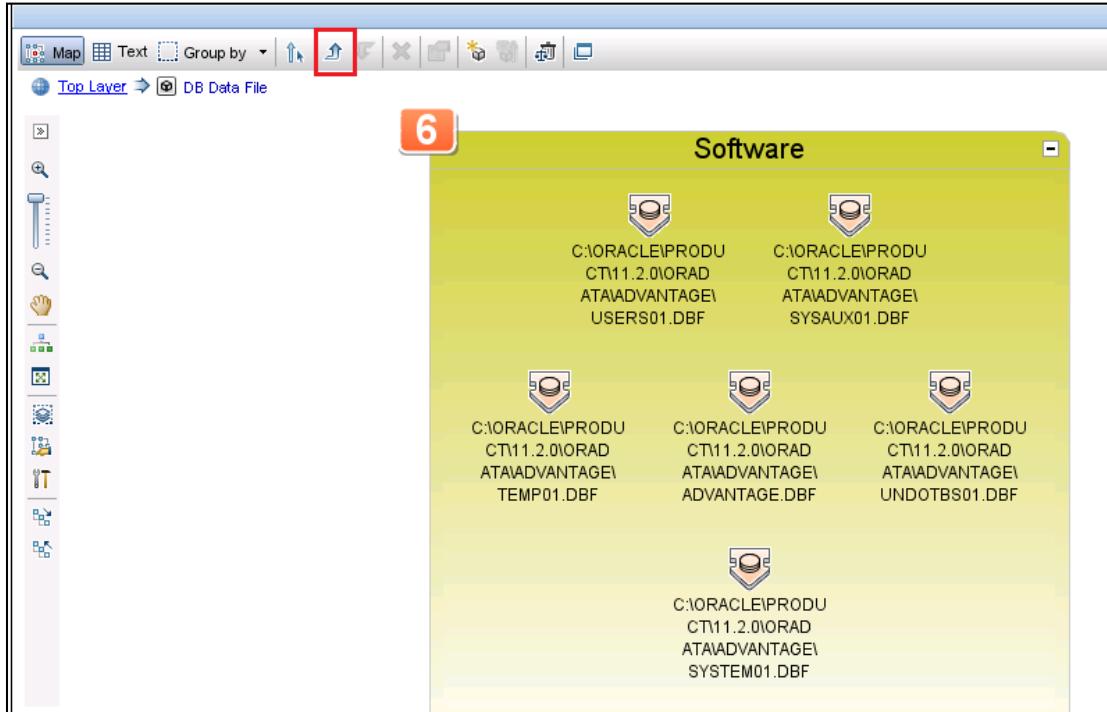
20. Select a CI with sub-layer and then click the down-pointing bend arrow above the CI to go to the sub-layer, as shown in the following screenshot:



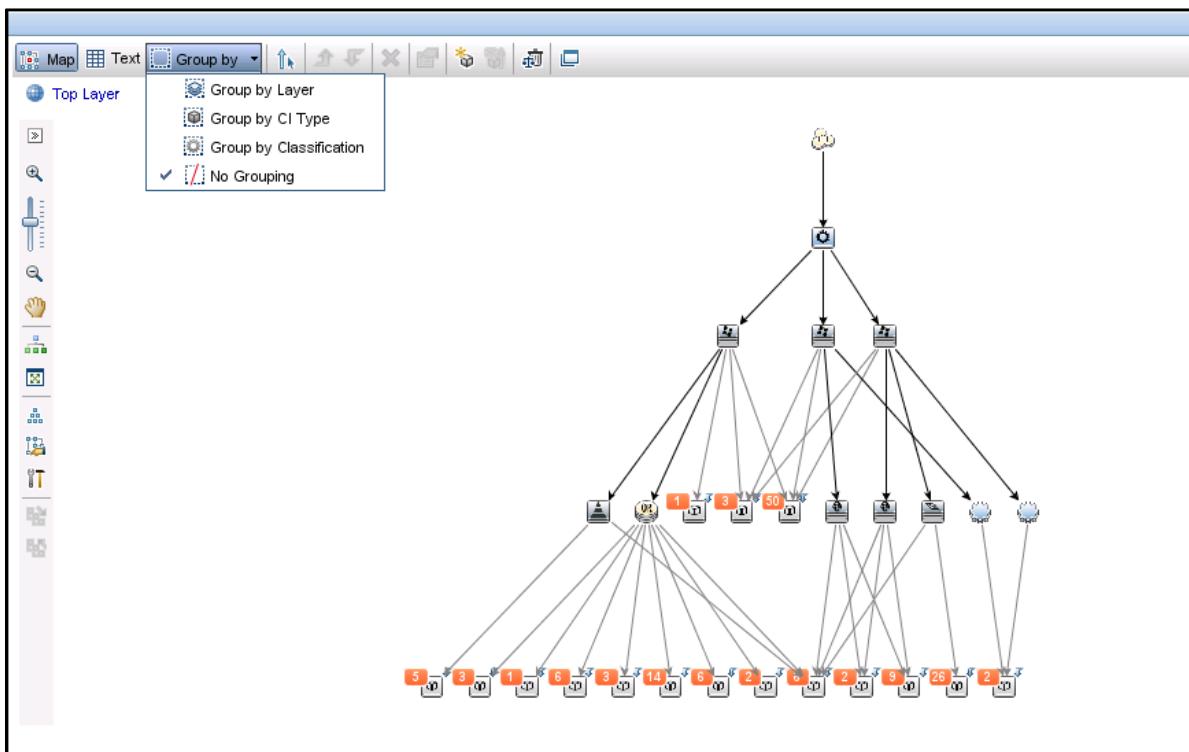
21. The sub-layer opens and displays the individual Cls within, as shown in the following screenshot:



22. Click the upward-pointing bend arrow from the toolbar to go back to the parent layer, as shown in the following screenshot:



23. Go back to No Grouping, as shown in the following screenshot:



**Note:** Adjust the zoom bar from the left-side tool bar to get a readable view of the CIs.

## Exercise 3 – Working on Your Own to Investigate CMDB Data

This is a chance to use what you've learned to investigate data in the CMDB without step-by-step instructions.

To investigate CMDB data, complete the following steps:

1. Advantage Inc has a Weblogic Application Server named OBA. Fill in the following details relating to the machine on which this is installed:
  - Discovered OS Name:
  - Discovered OS Version:
  - IP Subnet:
2. How many devices of each of the following types are on the IP Subnet you found in step 1?
  - Switch:
  - UNIX:
  - Windows:
3. What is the name of the J2EE Domain the OBA Weblogic AS is related to?
4. What Java 2 Enterprise Edition (J2EE) applications are part of the J2EE domain that you found in Step 3?

---

# Lab 5 – CIT Manager

## Objectives

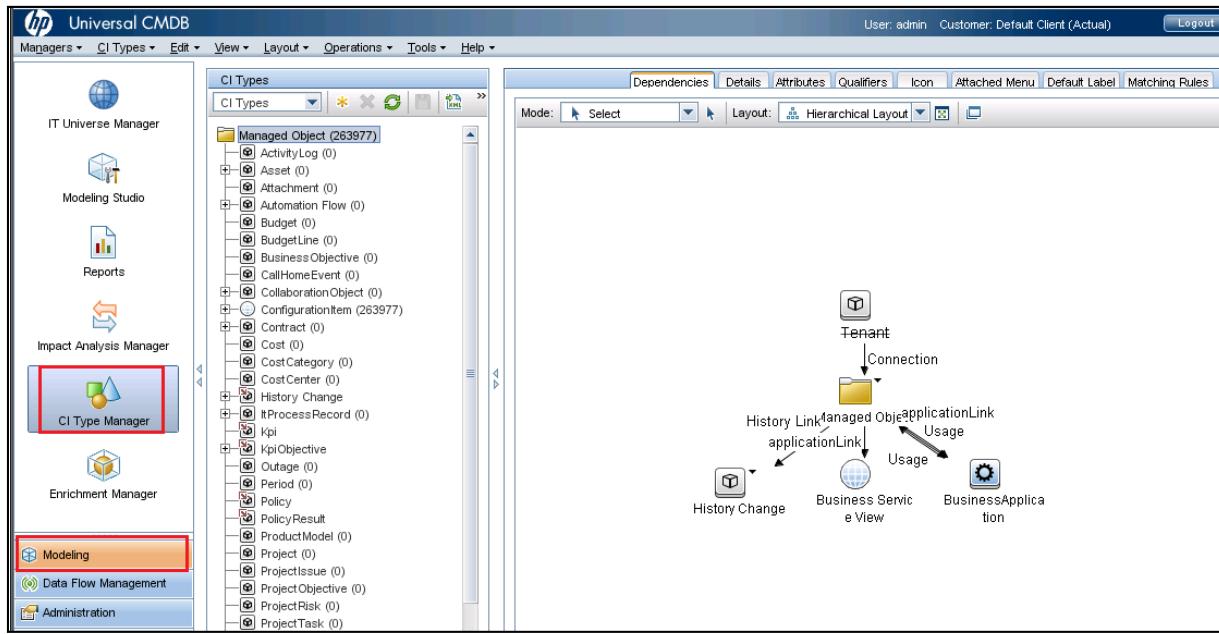
After completing this lab, you should be able to:

- Explore CITs using CIT Manager
- Define new CI types, attributes, and links

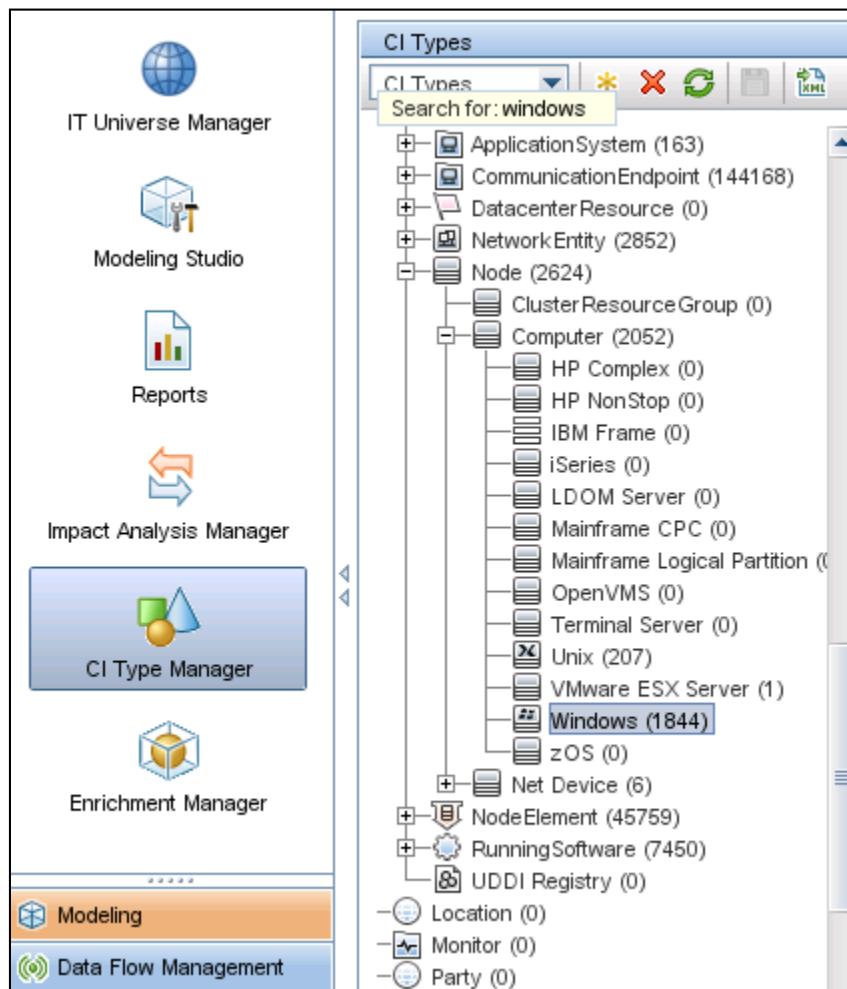
# Exercise 1 – Exploring CITs Using CIT Manager

To explore different functionalities of CI Type Manager to handle CI types and their features in the class model, perform the following steps:

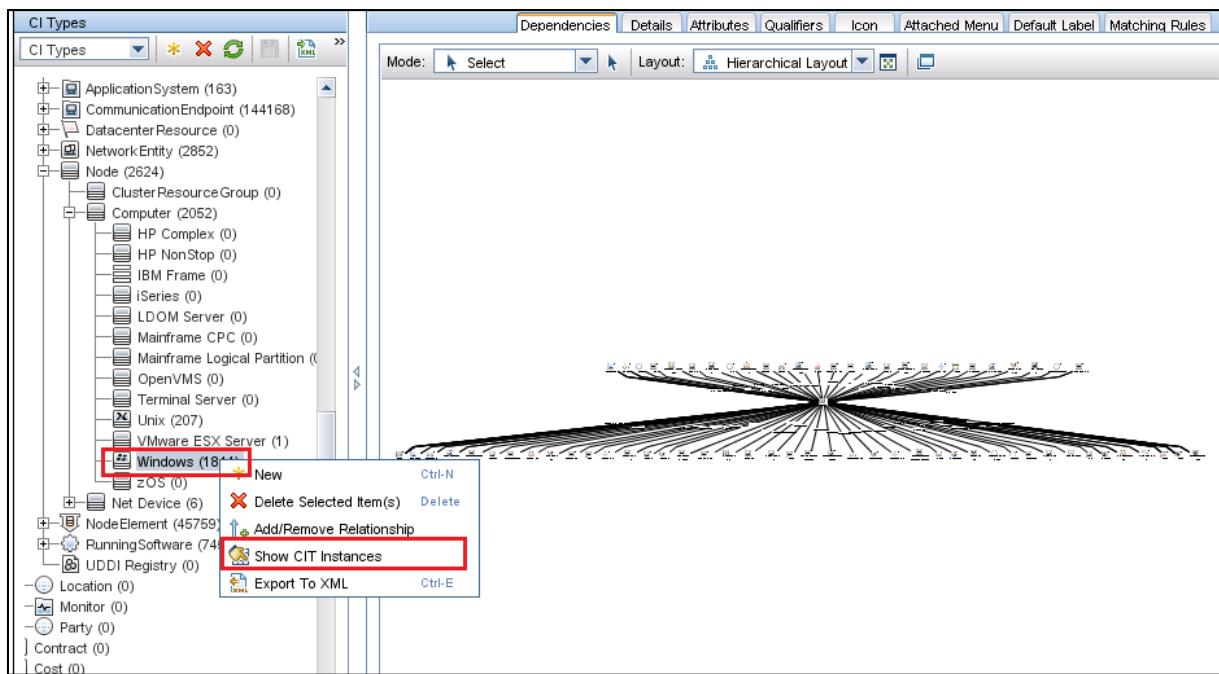
- From Modeling area, select CI Type Manager, as shown in the following screenshot:



2. From the CI Types pane, navigate to Windows CIT, by clicking the root of the CI Type tree, Managed Object and then typing **windows**, as shown in the following screenshot:



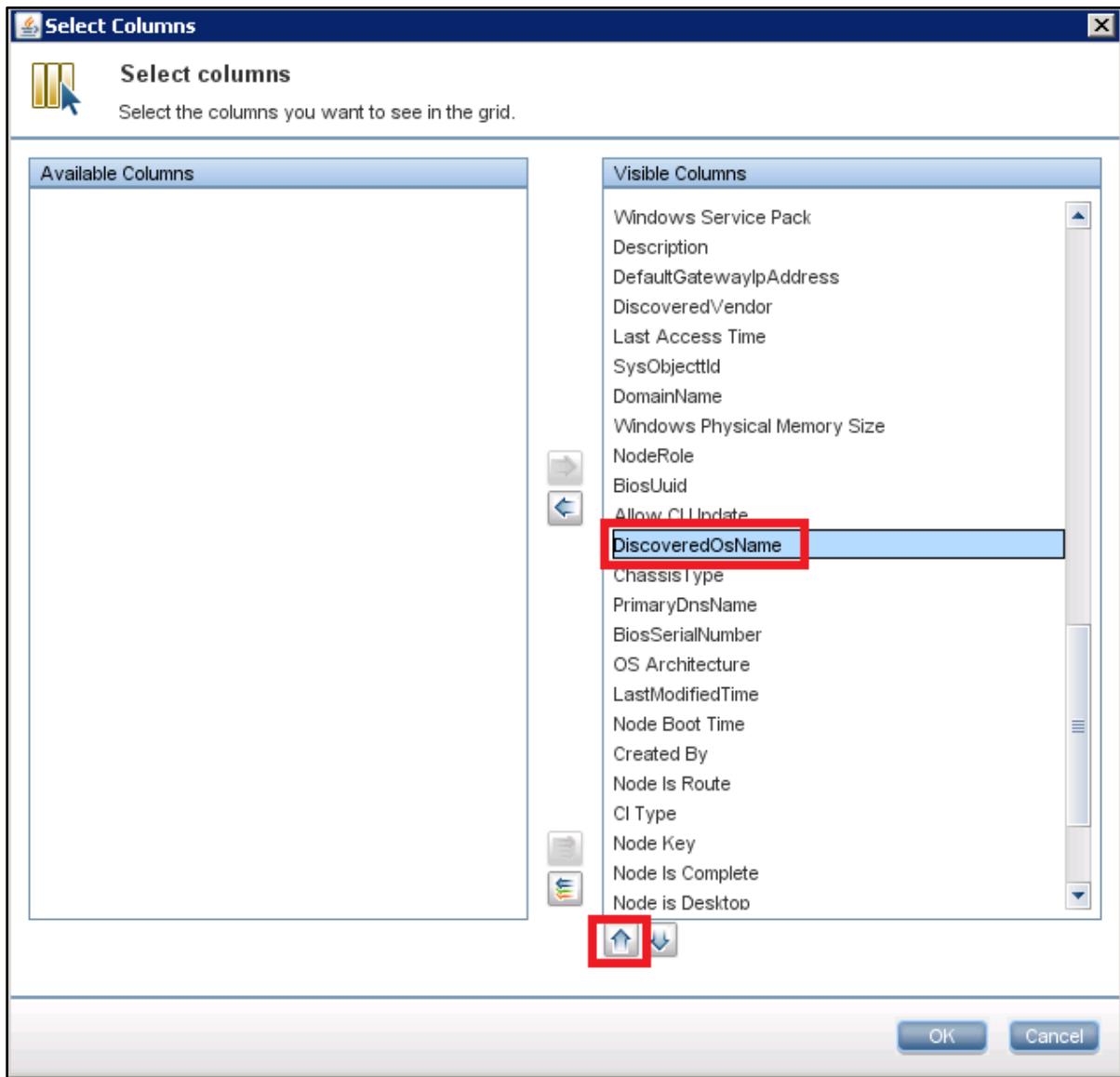
3. Right click Windows CIT and select Show CIT Instances from the context menu, as shown in the following screenshot:



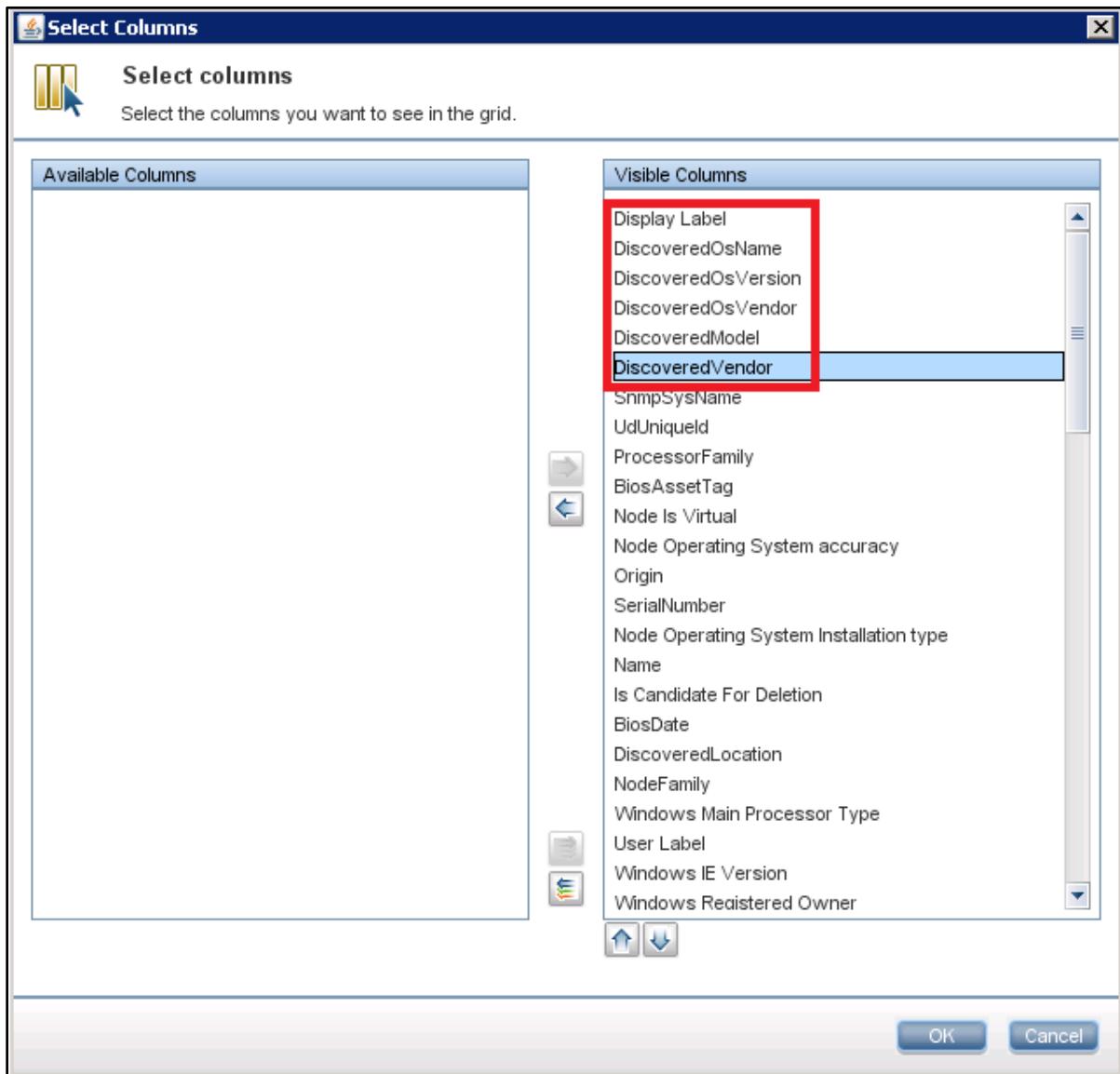
Observe the default columns displayed in the CIT Instances <Windows> window. To select the specific attributes to display, click the Select columns... button on the tool bar, as shown in the following screenshot:

CIT Instances <Windows>						
Here you can see all discovered CI instances						
Show CI instances of: Windows (1844)	X	Import	Export	Print	Help	Select columns...
Display Label	SnmpSysName	DiscoveredOsVendor	BiosAssetTag	Node Operati...	SerialNumt	
10-EN01-6		Microsoft				
16.59.125.152 DefaultDo...		Microsoft				
16.59.62.65 DefaultDomain		Microsoft				
16.59.63.194 DefaultDomain		Microsoft				
aarviv		Microsoft	CZC73237Y9		CZC73237Y9	
AGENTS		Microsoft			J01NKYD126	
beatboxqa3		Microsoft	To Be Filled By O.E...		TO BE FILLED BY O.E.M.	
BELLY		Microsoft			J0FSLGP134	
BLAZER		Microsoft			7J37KYD1G07Z	
BOTTLE		Microsoft			J0DRLGP134	
bsm9-client		Microsoft			VMWARE-56 4D 74 22 D8 9E 4C 5C-	
bsm9-db		Microsoft			VMWARE-56 4D 0D 79 33 8A 81 A1-4	
bsm9-omw		Microsoft			VMWARE-56 4D 09 38 C2 1E 0B 53-4	
bsm9-sis		Microsoft			VMWARE-56 4D 4F 80 02 7E CB D2-	
bsm9-sm		Microsoft			VMWARE-56 4D C5 18 4B 40 2E 3E-	

4. In the Select Columns window that is displayed, click the DiscoveredOsName attribute name on the right side in the Visible Columns box and move it below the Display Label attribute, using the Up arrow at the bottom, as shown in the following screenshot:

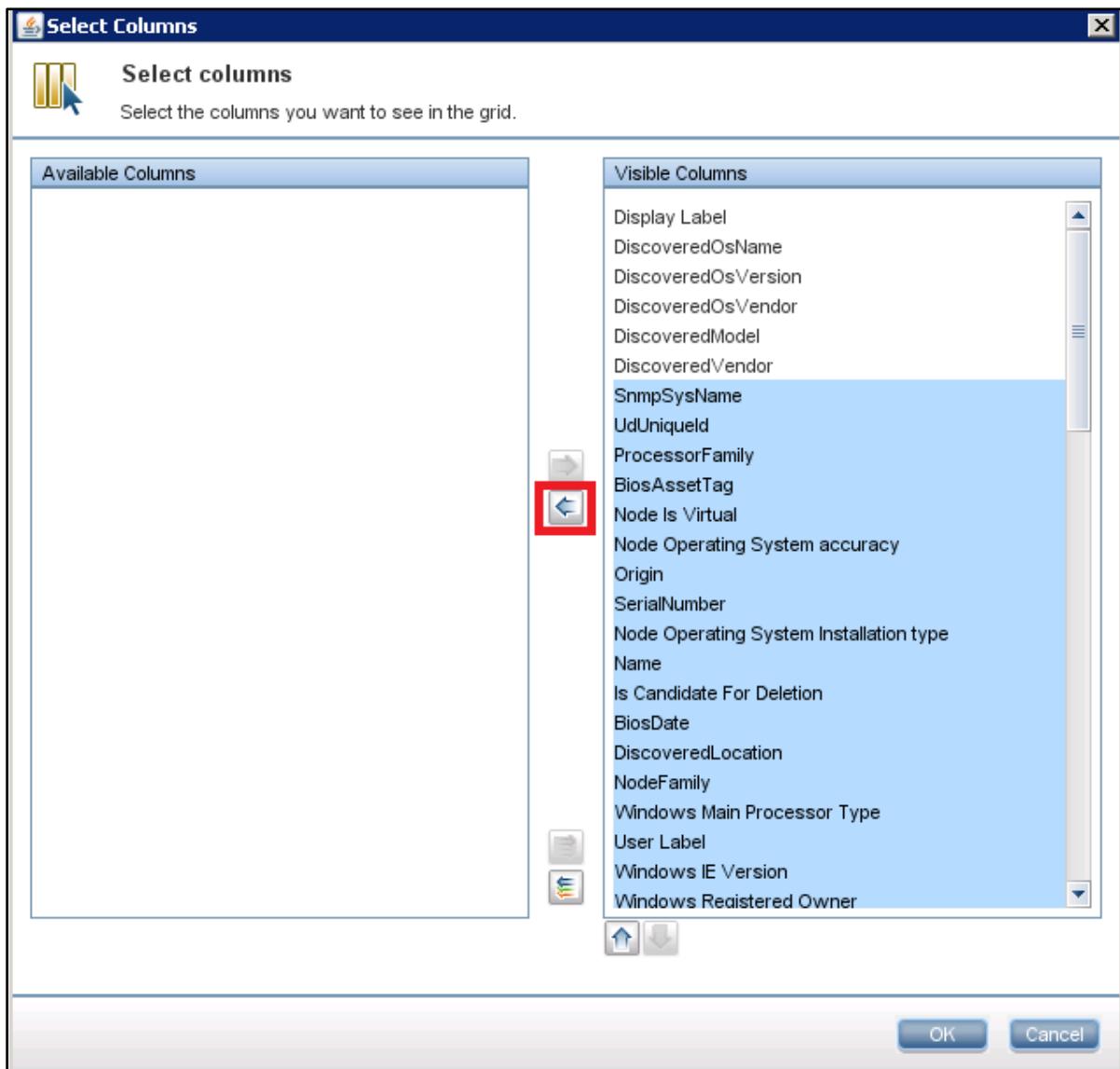


5. Similarly, move the attributes DiscoveredOsVersion, DiscoveredOsVendor, DiscoveredModel, and DiscoveredVendor below to DiscoveredOsName using the Up arrow, as shown in the following screenshot:



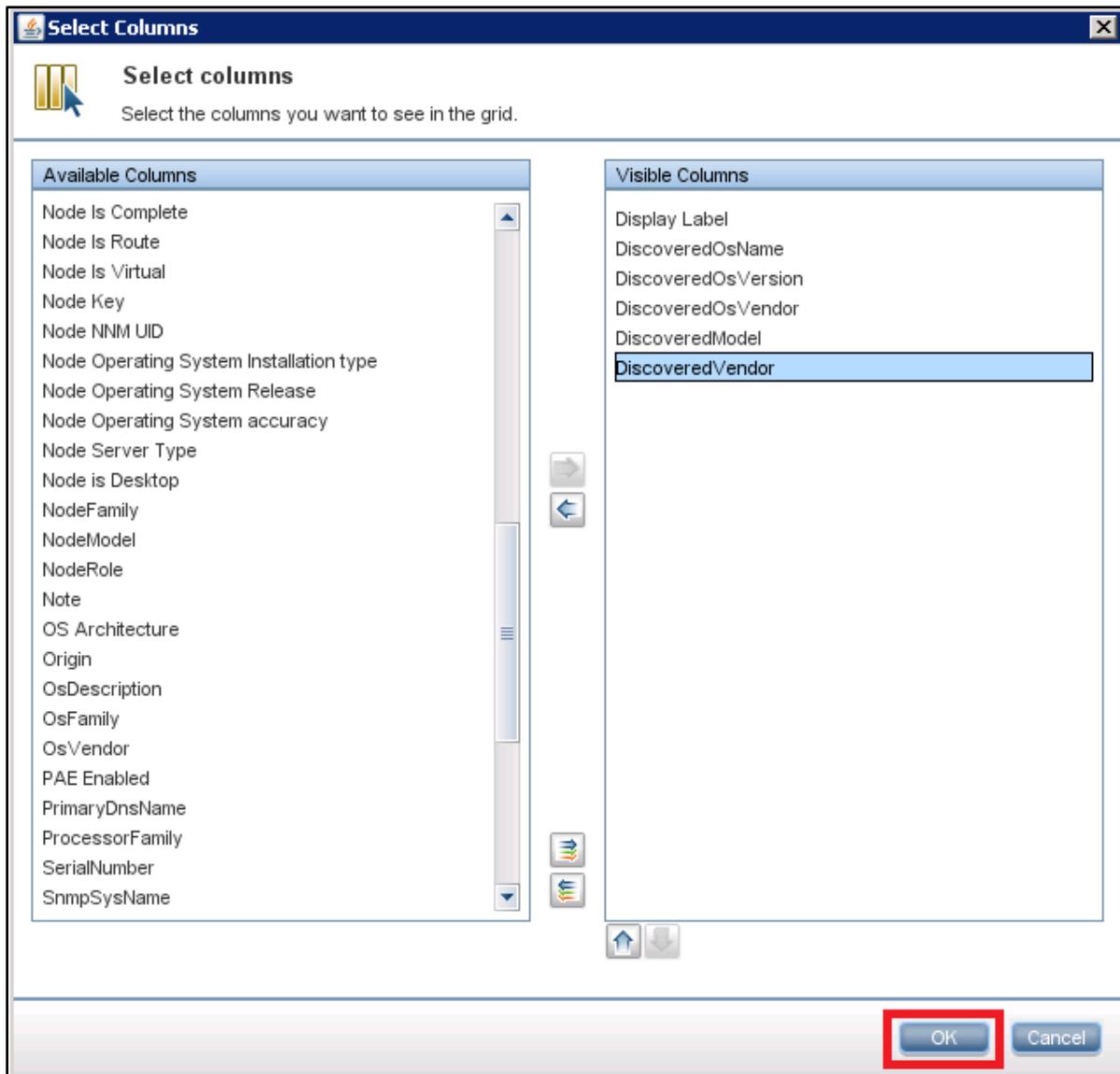
Verify your screen with the above screenshot.

6. Move the rest of the attributes from the Visible Columns back to the left-side Available Columns box using the left arrow, as shown in the following screenshot:



Use the CTRL key for multiple selections.

7. Verify your screen with the following screenshot and then click the OK button to close the window.



8. Observe how the newly arranged attribute names are displayed, as shown in the following screenshot:

DiscoveredOsName	DiscoveredOsVersi...	DiscoveredOsVendor	DiscoveredModel	DiscoveredVendor
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003 R2	5.2.3790	Microsoft	HP Compaq dc7700p Convertible Minitower	Hewlett-Packard
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP
Windows 2008	6.0.6002	Microsoft	S2721-533 Thunder i7501 Pro	TYAN Computer Corp.
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP
Windows 7	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003 R2	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP
Windows 2003	5.2.3790	Microsoft	ProLiant BL490c G6	HP

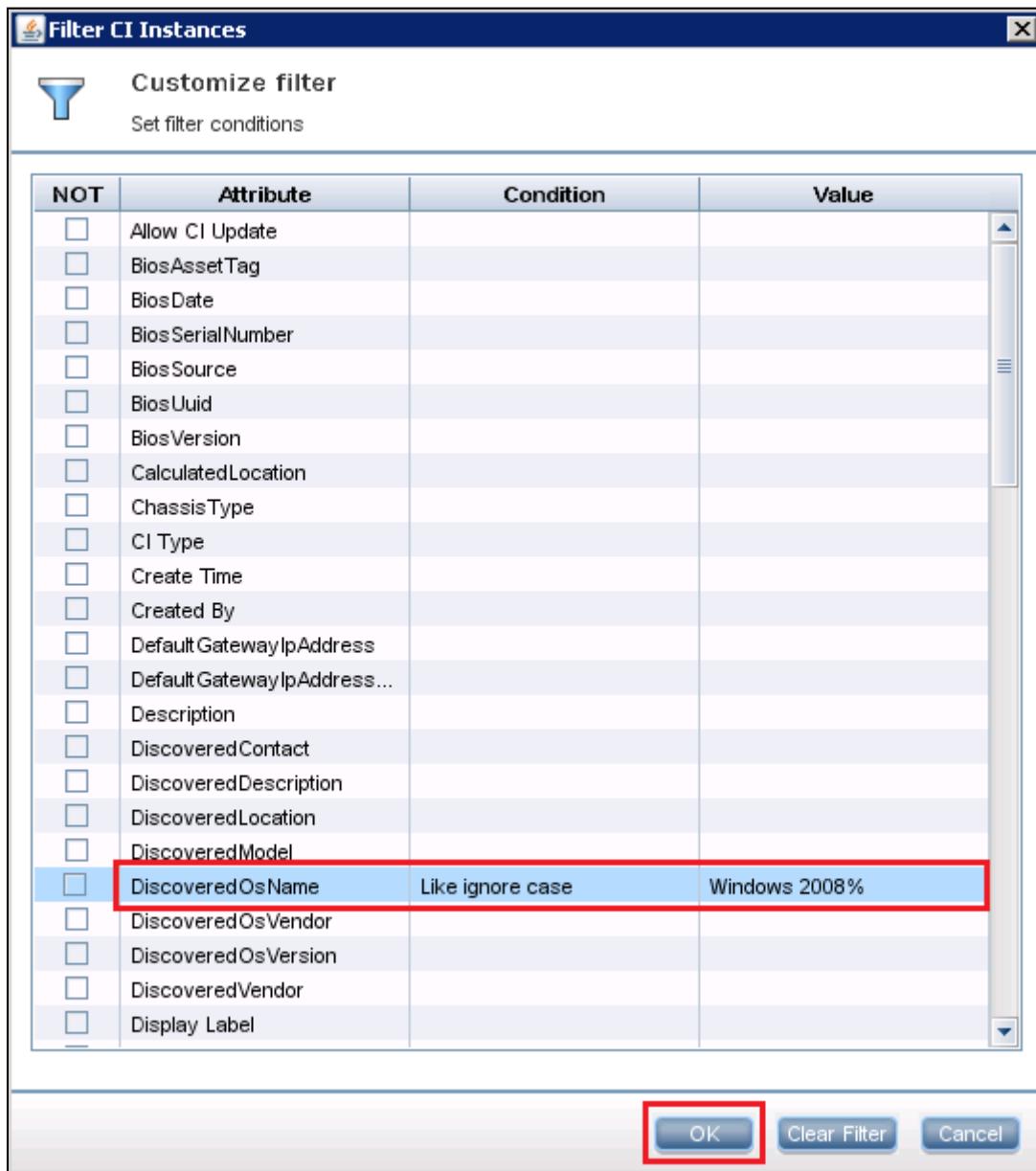
9. To display only the specific CIs, the list can be filtered. For that purpose, click the Set Filter... button from the toolbar of the CIT Instances window, as shown in the following screenshot:

DiscoveredOsName	DiscoveredOsVersi...	DiscoveredOsVendor	DiscoveredModel	DiscoveredVendor
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003	5.2.3790	Microsoft	VMware Virtual Platform	VMware, Inc.
Windows 2003 R2	5.2.3790	Microsoft	HP Compaq dc7700p Convertible Minitower	Hewlett-Packard
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP
Windows 2008	6.0.6002	Microsoft	S2721-533 Thunder i7501 Pro	TYAN Computer Corp.
Windows 2003	5.2.3790	Microsoft	ProLiant DL360 G3	HP

10. In the Filter CI Instances window that is displayed, set the condition for the DiscoveredOsName attribute as below:

- Condition – **Like ignore case**
- Value – **Windows 2008%**

Then click the OK button.



11. Set Rows per page to 500 (a higher number than the number of CIs), so that all the CI instances are displayed in a single page, as shown in the following screenshot:

CIT Instances <Windows>

CIT Instances <Windows>  
Here you can see all discovered CI instances

Show CI instances of: Windows (160) | Filter: DiscoveredOsName Like ignore case [Windows 2008%];

Display Label	DiscoveredOsName	DiscoveredOsVersion	DiscoveredOsVendor	DiscoveredModel	DiscoveredVendor
AGENTS	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
bsm9-db	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-omw	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sis	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
DL140G2	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
dyatom01	Windows 2008 R2	6.1.7600	Microsoft	HP xw4400 Workstation	Hewlett-Packard
LABM1CCM17	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
LABM1I18N15	Windows 2008	6.0.6001	Microsoft	ProLiant DL140 G2	HP
LABM1QC04	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4p	HP
LABM1QC05	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4n	HP

Total rows: 160 Rows per page: 500 | OK | Cancel | Help

12. Select Export Displayed CIs to PDF, as shown in the following screenshot:

CIT Instances <Windows>

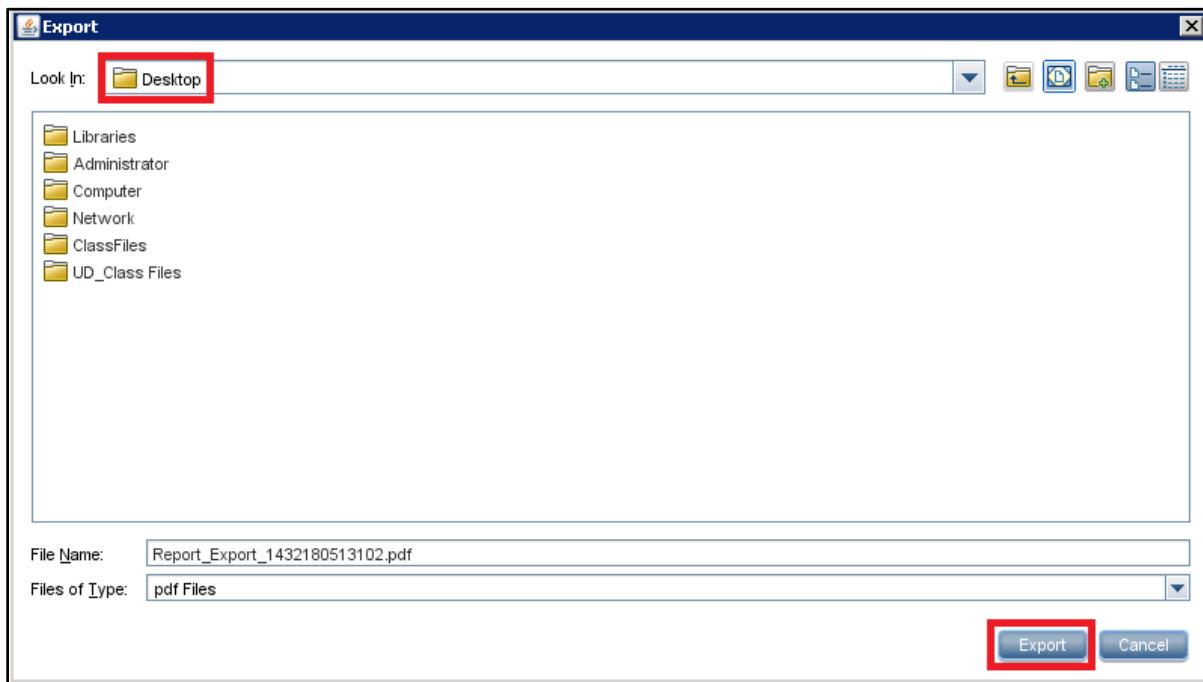
CIT Instances <Windows>  
Here you can see all discovered CI instances

Show CI instances of: Windows (160) | Filter: DiscoveredOsName Like ignore case [Windows 2008%];

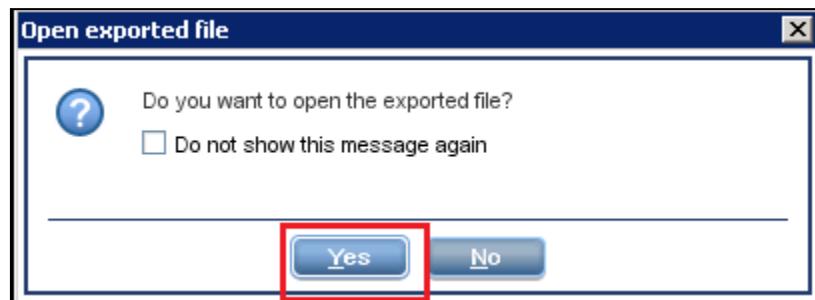
Display Label	DiscoveredOsName	DiscoveredOsVersion	DiscoveredOsVendor	DiscoveredModel	DiscoveredVendor
AGENTS	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
bsm9-db	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-omw	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sis	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware, Inc.
DL140G2	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
dyatom01	Windows 2008 R2	6.1.7600	Microsoft	HP xw4400 Workstation	Hewlett-Packard
LABM1CCM17	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
LABM1I18N15	Windows 2008	6.0.6001	Microsoft	ProLiant DL140 G2	HP
LABM1QC04	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4p	HP
LABM1QC05	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4p	HP
LABM1SA07	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4p	HP
LABM2AM107	Windows 2008	6.0.6001	Microsoft	ProLiant DL140 G2	HP
LABM2AM95	Windows 2008 R2	6.1.7600	Microsoft	ProLiant DL360 G4p	HP
LABM2PCOE11	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
LABM2PCOE14	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
LABM2PCOE16	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
LABM2PCOE19	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
LABM2PCOEDB15	Windows 2008	6.0.6001	Microsoft	ProLiant DL380 G6	HP

Total rows: 160 Rows per page: 500 | OK | Cancel | Help

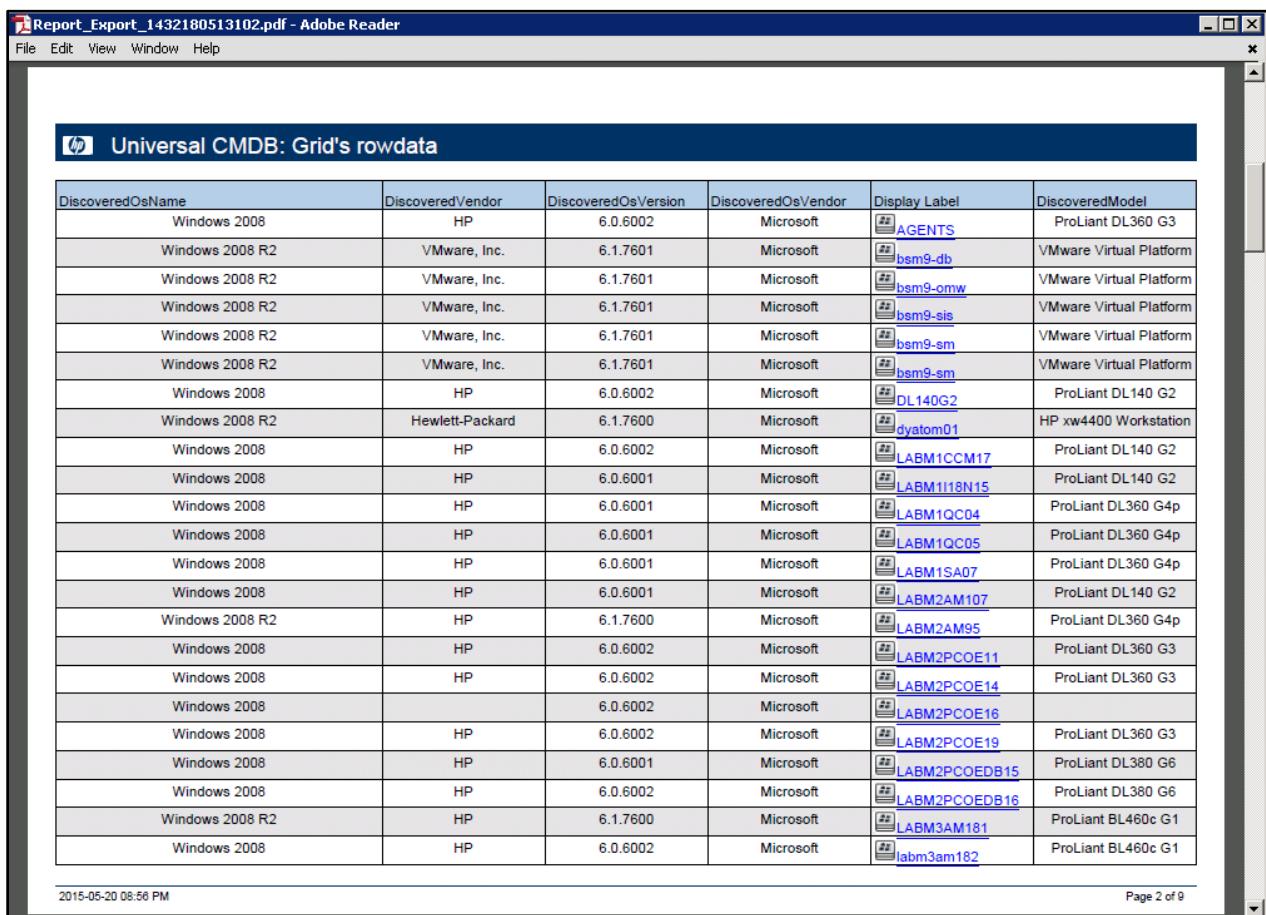
13. Export the PDF file on the desktop, as shown in the following screenshot:



14. View the PDF file by clicking the Yes button in the message box that is displayed, as shown in the following screenshot:



15. Verify your report with the following screenshot and close it.



The screenshot shows a PDF document titled "Report\_Report\_1432180513102.pdf - Adobe Reader". The main content is a grid titled "Universal CMDB: Grid's rowdata". The grid has columns: DiscoveredOsName, DiscoveredVendor, DiscoveredOsVersion, DiscoveredOsVendor, Display Label, and DiscoveredModel. The data consists of approximately 30 rows of asset information, such as various Windows 2008 and VMware entries, each with a unique display label like "AGENTS", "bsm9-db", "bsm9-cmw", etc. The bottom of the grid shows the date "2015-05-20 08:56 PM" and the page number "Page 2 of 9".

DiscoveredOsName	DiscoveredVendor	DiscoveredOsVersion	DiscoveredOsVendor	Display Label	DiscoveredModel
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">AGENTS</a>	ProLiant DL360 G3
Windows 2008 R2	VMware, Inc.	6.1.7601	Microsoft	<a href="#">bsm9-db</a>	VMware Virtual Platform
Windows 2008 R2	VMware, Inc.	6.1.7601	Microsoft	<a href="#">bsm9-cmw</a>	VMware Virtual Platform
Windows 2008 R2	VMware, Inc.	6.1.7601	Microsoft	<a href="#">bsm9-sis</a>	VMware Virtual Platform
Windows 2008 R2	VMware, Inc.	6.1.7601	Microsoft	<a href="#">bsm9-sm</a>	VMware Virtual Platform
Windows 2008 R2	VMware, Inc.	6.1.7601	Microsoft	<a href="#">bsm9-sm</a>	VMware Virtual Platform
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">DL140G2</a>	ProLiant DL140 G2
Windows 2008 R2	Hewlett-Packard	6.1.7600	Microsoft	<a href="#">dyatom01</a>	HP xw4400 Workstation
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">LABM1CCM17</a>	ProLiant DL140 G2
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM1I18N15</a>	ProLiant DL140 G2
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM1QC04</a>	ProLiant DL360 G4p
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM1QC05</a>	ProLiant DL360 G4p
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM1SA07</a>	ProLiant DL360 G4p
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM2AM107</a>	ProLiant DL140 G2
Windows 2008 R2	HP	6.1.7600	Microsoft	<a href="#">LABM2AM95</a>	ProLiant DL360 G4p
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">LABM2PCOE11</a>	ProLiant DL360 G3
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">LABM2PCOE14</a>	ProLiant DL360 G3
Windows 2008		6.0.6002	Microsoft	<a href="#">LABM2PCOE16</a>	
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">LABM2PCOE19</a>	ProLiant DL360 G3
Windows 2008	HP	6.0.6001	Microsoft	<a href="#">LABM2PCOEDB15</a>	ProLiant DL380 G6
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">LABM2PCOEDB16</a>	ProLiant DL380 G6
Windows 2008 R2	HP	6.1.7600	Microsoft	<a href="#">LABM3AM181</a>	ProLiant BL460c G1
Windows 2008	HP	6.0.6002	Microsoft	<a href="#">labm3am182</a>	ProLiant BL460c G1

16. Click the OK button to close the CIT Instances window, as shown in the following screenshot:

**CIT Instances <Windows>**

CIT Instances <Windows>  
Here you can see all discovered CI instances

Show CI instances of: Windows (160) | X | | | | | | | | | |

Filter: DiscoveredOsName Like ignore case [Windows 2008%];

Display Label	DiscoveredOsName	DiscoveredOsVersi...	DiscoveredOsVendor	DiscoveredModel	Discov...
AGENTS	Windows 2008	6.0.6002	Microsoft	ProLiant DL360 G3	HP
bsm9-db	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware,
bsm9-omw	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware,
bsm9-sis	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware,
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware,
bsm9-sm	Windows 2008 R2	6.1.7601	Microsoft	VMware Virtual Platform	VMware,
DL140G2	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
dyatom01	Windows 2008 R2	6.1.7600	Microsoft	HP xw4400 Workstation	Hewlett-P
LABM1 CCM17	Windows 2008	6.0.6002	Microsoft	ProLiant DL140 G2	HP
LABM1I18N15	Windows 2008	6.0.6001	Microsoft	ProLiant DL140 G2	HP
LABM1QC04	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4p	HP
LABM1QC05	Windows 2008	6.0.6001	Microsoft	ProLiant DL360 G4n	HP

Total rows: 160 Rows per page: 500 | | | 1 of 1 | |

**OK** **Cancel** **Help**

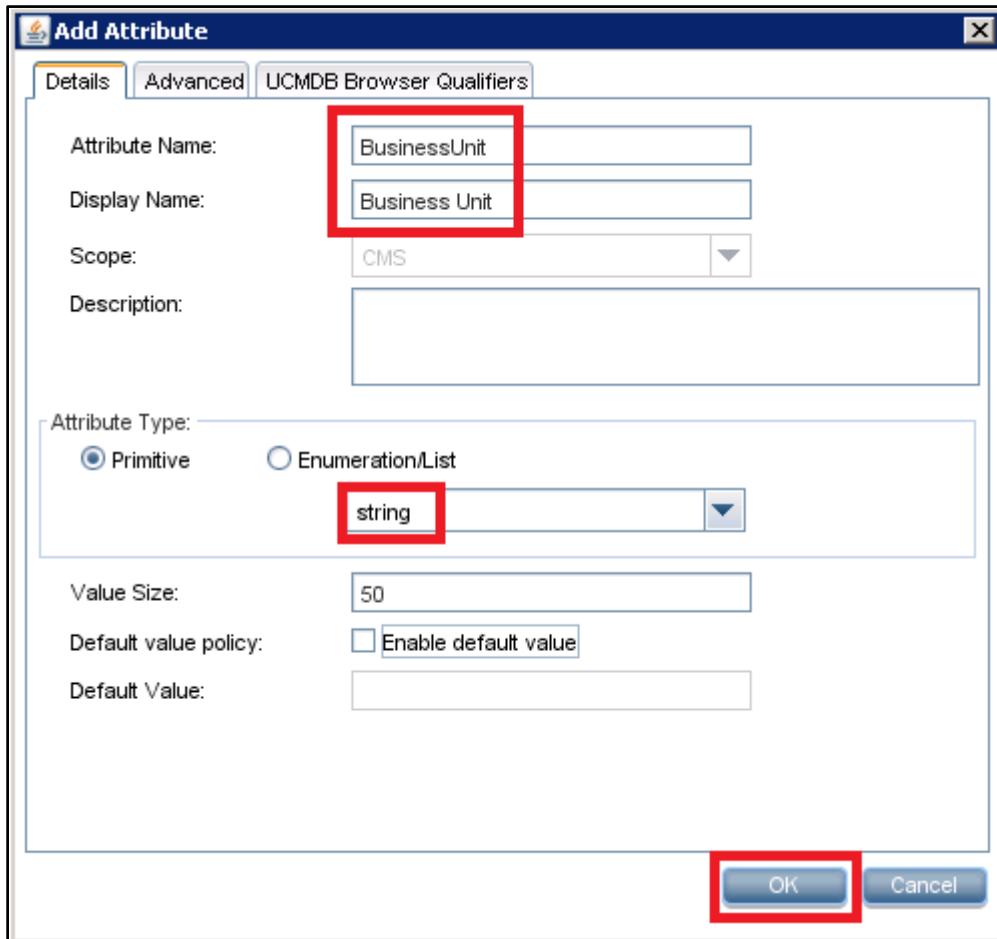
17. To add a new attribute to an existing Computer CIT, navigate to the Computer CIT in the CIT tree by typing **computer** on the root of the CI Types tree. Then select the Attributes tab from the right-side pane, as shown in the following screenshot:

Display Name	Name	Type	Description	Default Value	Visible	Editable
ack_cleared_time	ack_cleared_time	long				✓
ack_id	ack_id	string				✓
Actual Delete Time	root_actualdeletetime	date	When will t...			
Actual Deletion Period	root_actualdeletionp...	integer	What is the...	40	✓	✓
Admin-State	data_adminstate	adminstate...	Admin-State	Managed		
Allow CI Update	data_allow_auto_dis...	boolean	true	✓	✓	
BiosAssetTag	bios_asset_tag	string	Asset tag n...		✓	✓
BiosDate	bios_date	date	The BIOS/...		✓	✓
BiosSerialNumber	bios_serial_number	string	A manufact...		✓	✓
BiosSource	bios_source	string	Shows the ...		✓	✓
BiosUuid	bios_uuid	string	A System ...		✓	✓
BiosVersion	bios_version	string	Shows the ...		✓	✓
BODY_ICON	BODY_ICON	string		host		✓
Calculated ID	calculated_id	bytes	Calculated ...			✓
CalculatedLocation	calculated_location	string			✓	✓
Candidate For Deleti...	root_candidateforde...	date	When will t...			
Change-Corr-State	data_changecorrate...	changestat...	Change St...	No-Change		
Change-Is-New	data_changeisnew	boolean	Change-St...	false		
Change-State	data_changestate	changestat...	Change-St...	No-Change		
ChassisType	chassis_type	chassisotyp...	Specifies t...		✓	✓
CI Type	root_class	string	Class nam...			
City	city	string	City-location			✓
classification	classification	classificati...		infrastructu...	✓	✓
CodePage	codepage	string	System su...		✓	✓

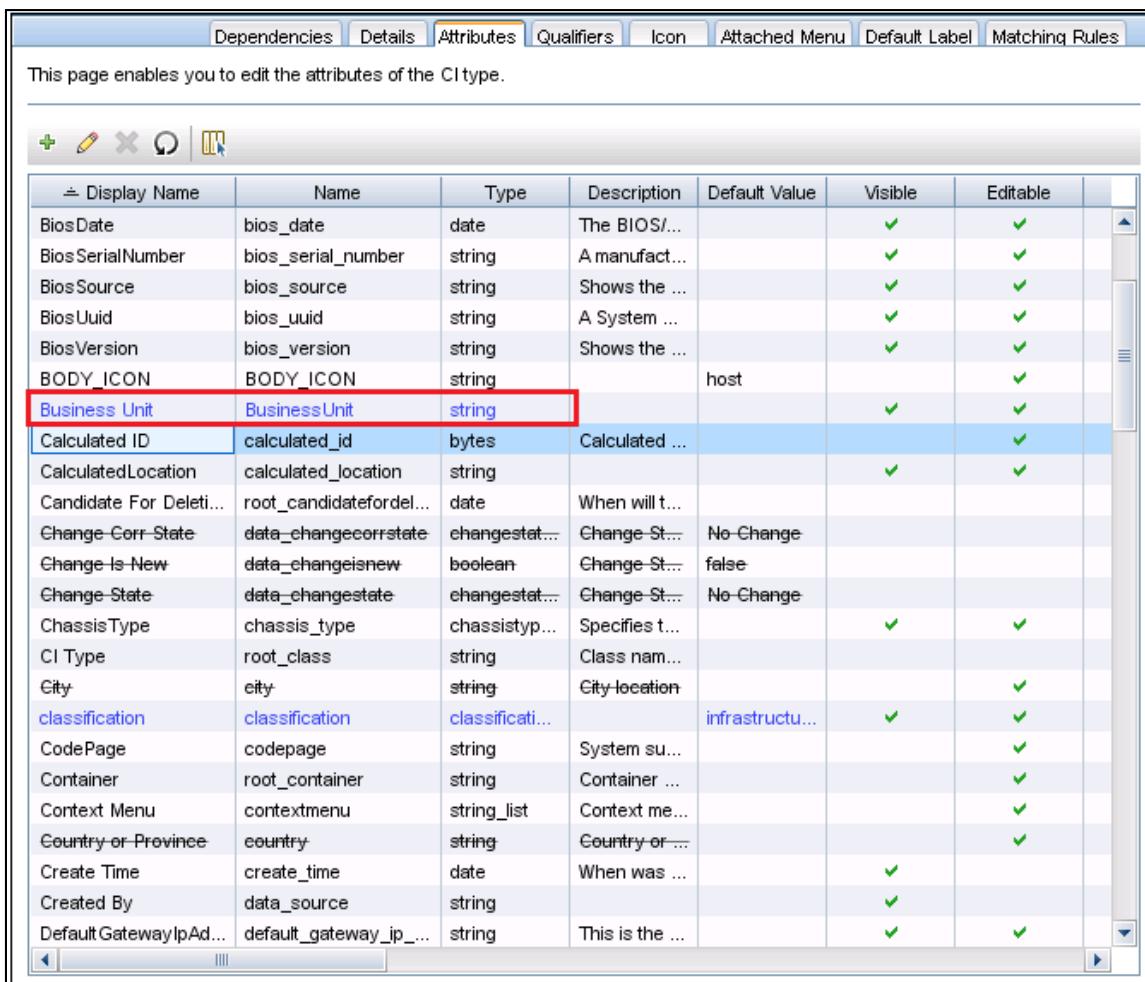
18. From the Attribute tab, click the Add (+) button to add a new attribute, as shown in the following screenshot:

Display Name	Name	Type	Description	Default Value	Visible	Editable
ack_cleared_time	ack_cleared_time	long			✓	
ack_id	ack_id	string			✓	
Actual Delete Time	root_actualdeletetime	date	When will t...			
Actual Deletion Period	root_actualdeletionp...	integer	What is the...	40	✓	✓
Admin-State	data_adminstate	adminstate...	Admin-State	Managed		
Allow CI Update	data_allow_auto_dis...	boolean	true	✓	✓	
BiosAssetTag	bios_asset_tag	string	Asset tag n...		✓	✓
BiosDate	bios_date	date	The BIOS/...		✓	✓
BiosSerialNumber	bios_serial_number	string	A manufact...		✓	✓
BiosSource	bios_source	string	Shows the ...		✓	✓
BiosUuid	bios_uuid	string	A System ...		✓	✓
BiosVersion	bios_version	string	Shows the ...		✓	✓
BODY_ICON	BODY_ICON	string		host		✓

19. In the Add Attribute window, type Attribute Name as **BusinessUnit** and Display Name as **Business Unit**. Select the Attribute Type as string and keep the default value size as 50. Then click the OK button to save it, as shown in the following screenshot:



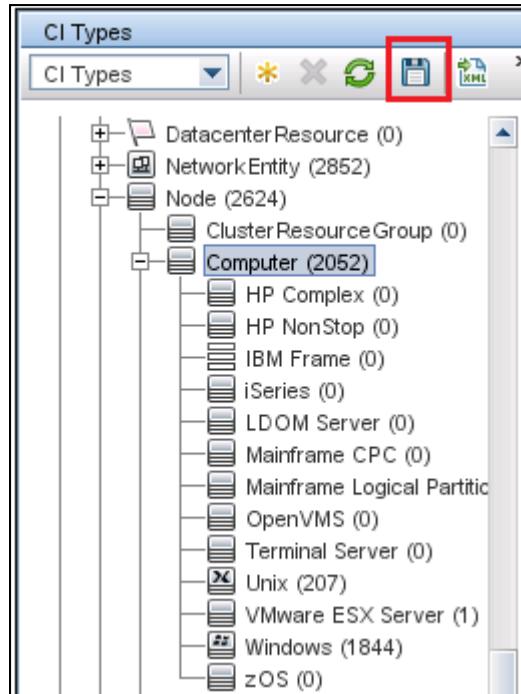
20. Verify that the new attribute BusinessUnit is in blue font because it is a non-inherited specific attribute of this CIT, as shown in the following screenshot:



This screenshot shows the 'Attributes' tab of the CIT Manager interface. The table lists various attributes for a CI type, including their names, types, descriptions, default values, visibility, and editability. The 'Business Unit' attribute is highlighted with a red box, indicating it is a newly added or non-inherited attribute.

Display Name	Name	Type	Description	Default Value	Visible	Editable
BiosDate	bios_date	date	The BIOS/...		✓	✓
BiosSerialNumber	bios_serial_number	string	A manufac...		✓	✓
BiosSource	bios_source	string	Shows the ...		✓	✓
BiosUuid	bios_uuid	string	A System ...		✓	✓
BiosVersion	bios_version	string	Shows the ...		✓	✓
BODY_ICON	BODY_ICON	string		host		✓
Business Unit	BusinessUnit	string			✓	✓
Calculated ID	calculated_id	bytes	Calculated ...		✓	✓
CalculatedLocation	calculated_location	string			✓	✓
Candidate For Deleti...	root_candidateforde...	date	When will t...			
Change-Corr-State	data_changecorrstate	changestat...	Change-St...	No-Change		
Change-Is-New	data_changeisnew	boolean	Change-St...	false		
Change-State	data_changestate	changestat...	Change-St...	No-Change		
ChassisType	chassis_type	chassisTyp...	Specifies t...		✓	✓
CI Type	root_class	string	Class nam...			
City	city	string	City-location			✓
classification	classification	classificati...		infrastructu...	✓	✓
CodePage	codepage	string	System su...			✓
Container	root_container	string	Container ...			✓
Context Menu	contextmenu	string_list	Context me...			✓
Country-or-Province	country	string	Country-or ...			✓
Create Time	create_time	date	When was ...		✓	
Created By	data_source	string			✓	
Default Gateway IP Ad...	default_gateway_ip....	string	This is the ...		✓	✓

21. Click the Save button to save the changes made to the class model, as shown in the following screenshot:



22. In the CI Types tree, navigate back to the Windows CIT and click the Attribute tab on the right side. Find the new attribute, BusinessUnit, and verify that it is highlighted in black because it is inherited now from the parent CIT, Computer, as shown in the following screenshot:

The screenshot shows the 'CI Types' window with the 'CI Types' dropdown set to 'CI Types'. A red box highlights the 'Attributes' tab in the top navigation bar. The tree view on the left shows 'Windows (1844)' selected. On the right, the 'Attributes' tab is active, displaying a table of attributes. The 'Business Unit' attribute is highlighted with a red box, indicating it is a newly inherited attribute from the parent 'Computer' CIT.

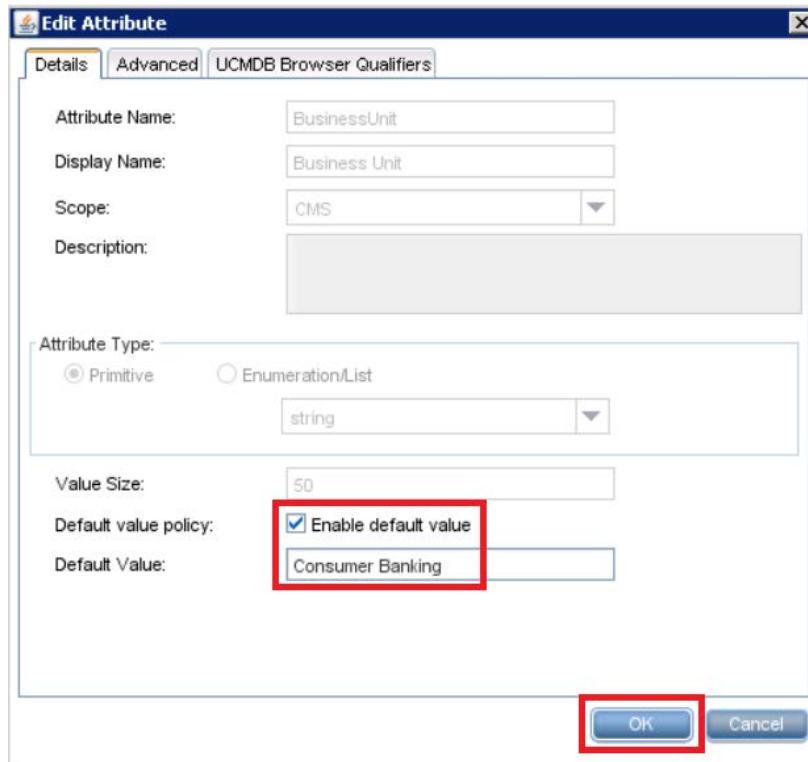
Display Name	Name	Type	Description	Default Value	Visible	Editable
BiosDate	bios_date	date	The BIOS...		✓	✓
BiosSerialNumber	bios_serial_number	string	A manufact...		✓	✓
BiosSource	bios_source	string	Shows the ...		✓	✓
BiosUuid	bios_uuid	string	A System ...		✓	✓
BiosVersion	bios_version	string	Shows the ...		✓	✓
<b>Business Unit</b>	<b>BusinessUnit</b>	<b>string</b>			✓	✓
Calculated ID	calculated_id	bytes	Calculated ...			✓
Calculated Location	calculated_location	string			✓	✓
Candidate For Delete...	root_candidateforde...	date	When will t...			
Change-Corr-State	data_changecorrstate	changestate...	Change St...	No-Change		
Change-Is-New	data_changeisnew	boolean	Change St...	false		
Change-State	data_changestate	changestate...	Change St...	No-Change		
Chassis Type	chassis_type	chassisotyp...	Specifies t...		✓	✓
CI Type	root_class	string	Class nam...			
City	city	string	City-location			✓
Classification	classification	classification	infrastructu...	infrastructu...	✓	✓

23. To set a default value of the new attribute for Windows CIT, click the Edit button by selecting the Business Unit attribute, as shown in the following screenshot:

The screenshot shows two windows side-by-side. On the left is a tree view of 'CI Types' with various categories like Datacenter Resource, Network Entity, and Node. A node labeled 'Windows (1844)' is selected and highlighted with a red box. On the right is a table titled 'Attributes' showing various properties for this CI type. The 'Business Unit' row is selected and highlighted with a red box. The 'Default Value' column for this row contains the placeholder 'nt'. The 'Editable' column for this row also has a red box around it.

Display Name	Name	Type	Description	Default Value	Visible	Editable
BiosDate	bios_date	date	The BIOS/...		✓	✓
BiosSerialNumber	bios_serial_number	string	A manufact...		✓	✓
BiosSource	bios_source	string	Shows the ...		✓	✓
BiosUuid	bios_uuid	string	A System ...		✓	✓
BiosVersion	bios_version	string	Shows the ...		✓	✓
<b>BODY_ICON</b>	<b>BODY_ICON</b>	<b>string</b>		<b>nt</b>		
<b>Business Unit</b>	<b>BusinessUnit</b>	<b>string</b>			<b>✓</b>	<b>✓</b>
Calculated ID	calculated_id	bytes	Calculated ...			✓
CalculatedLocation	calculated_location	string			✓	✓
Candidate For Delet...	root_candidateforde...	date	When will t...			
Change-Corr-State	date_changecorrstate	changestat...	Change St...	No-Change		
Change-Is-New	date_changeisnew	boolean	Change St...	false		
Change-State	date_changestate	changestat...	Change St...	No-Change		
ChassisType	chassis_type	chassisotyp...	Specifies t...		✓	✓
CI Type	root_class	string	Class nam...			
City	city	string	City-location			✓
Classification	classification	classification	classificati...	infrastructu...	✓	✓

24. In the Edit Attribute window, select Enable Default Value, and type the Default Value of the attribute as **Consumer Banking**. Then click the OK button to close the window, as shown in the following screenshot:

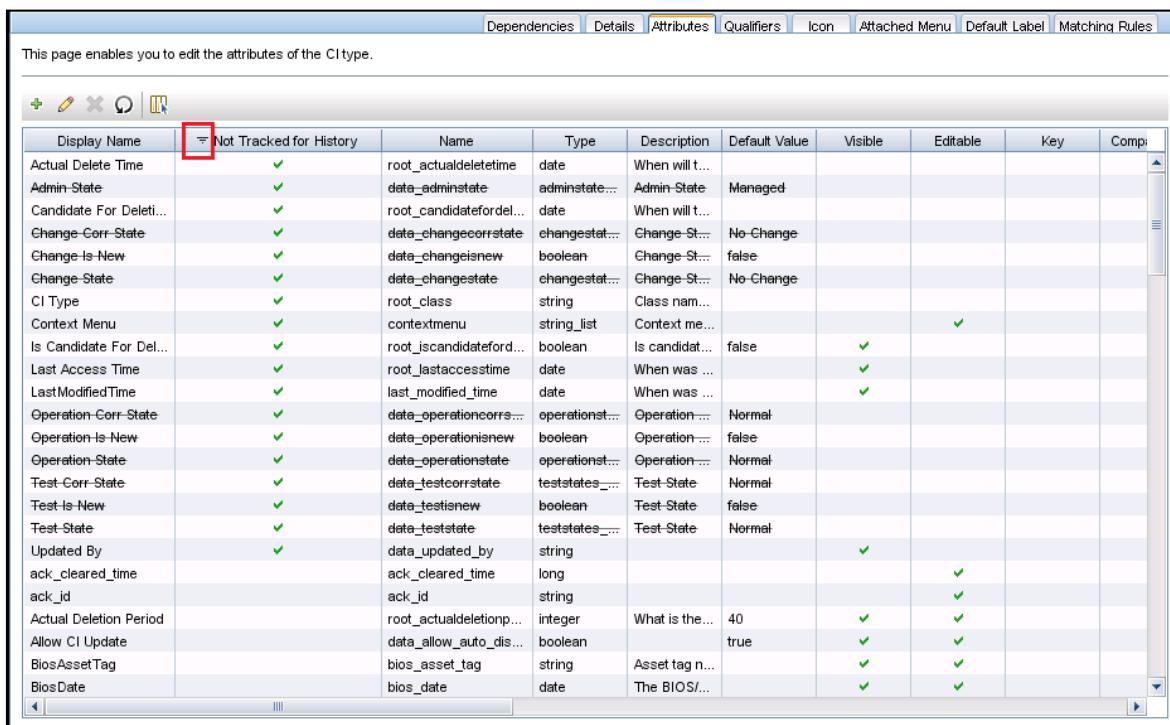


25. Now, in the Attributes tab of the Windows CIT, observe the new color change that happened (light blue) on the Business Unit attribute because it is now a modified/overridden inherited attribute, as shown in the following screenshot:

Edit Attributes							
	Display Name	Name	Type	Description	Default Value	Visible	Editable
BiosDate	bios_date	date	The BIOS/...		✓	✓	
BiosSerialNumber	bios_serial_number	string	A manufact...		✓	✓	
BiosSource	bios_source	string	Shows the ...		✓	✓	
BiosUuid	bios_uuid	string	A System ...		✓	✓	
BiosVersion	bios_version	string	Shows the ...		✓	✓	
BODY_ICON	BODY_ICON	string	nt			✓	
Business Unit	BusinessUnit	string	Consumer ...		✓	✓	
Calculated ID	calculated_id	bytes	Calculated ...			✓	
CalculatedLocation	calculated_location	string			✓	✓	
Candidate For Deleti...	root_candidatefordel...	date	When will t...				
Change_Corr_State	data_changeccorystate	changestate	Change St... No-Change				
Change_Is_New	data_changeisnew	boolean	Change St... false				
Change_State	data_changestate	changestate	Change St... No-Change				
Chassis Type	chassis_type	chassistyp...	Specifies t...		✓	✓	
CI Type	root_class	string	Class nam...				

26. Find the Not Tracked for History column in the Attributes tab and drag-and-drop it side-by-side with the Display Name column, as shown in the following screenshot:

27. When Not Tracked for History is placed next to Display Name, sort by this column so that all attributes with check marks on this column are displayed on the top. To do this, click the column heading, as shown in the following screenshot:



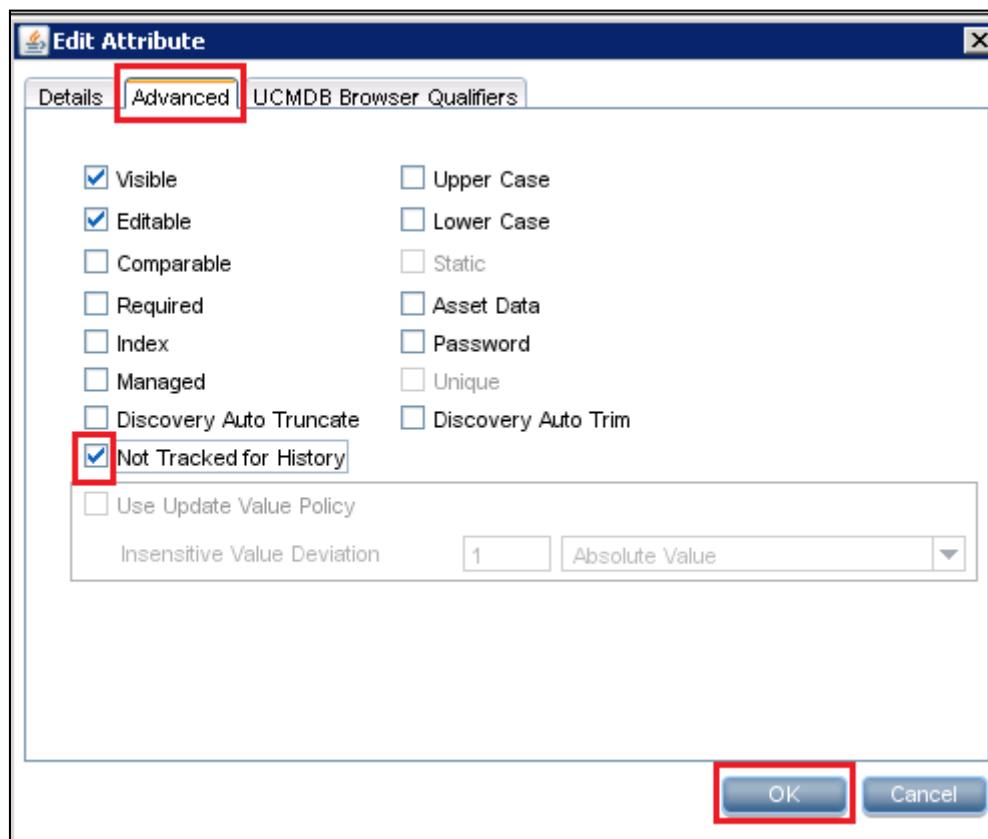
This page enables you to edit the attributes of the CI type.

Display Name	Not Tracked for History	Name	Type	Description	Default Value	Visible	Editable	Key	Com:
Actual Delete Time	✓	root_actualdeletetime	date	When will t...					
Admin-State	✓	data_adminstate	adminstate...	Admin-State	Managed				
Candidate For Deleti...	✓	root_candidatefordele...	date	When will t...					
Change-Corr-State	✓	data_changecorrstate	changestate...	Change-St...	No-Change				
Change-Is-New	✓	data_changeisnew	boolean	Change-St...	false				
Change-State	✓	data_changestate	changestate...	Change-St...	No-Change				
CI Type	✓	root_class	string	Class nam...					
Context Menu	✓	contextmenu	string_list	Context me...			✓		
Is Candidate For Del...	✓	root_iscandidateford...	boolean	Is candidat...	false	✓			
Last Access Time	✓	root_lastaccesstime	date	When was ...		✓			
LastModifiedTime	✓	last_modified_time	date	When was ...		✓			
Operation-Corr-State	✓	data_operationcorr...	operationst...	Operation ...	Normal				
Operation-Is-New	✓	data_operationisnew	boolean	Operation ...	false				
Operation-State	✓	data_operationstate	operationst...	Operation ...	Normal				
Test-Corr-State	✓	data_testcorrstate	teststates_...	Test-State	Normal				
Test-Is-New	✓	data_testisnew	boolean	Test-State	false				
Test-State	✓	data_teststate	teststates_...	Test-State	Normal				
Updated By	✓	data_updated_by	string			✓			
ack_cleared_time		ack_cleared_time	long				✓		
ack_id		ack_id	string				✓		
Actual Deletion Period		root_actualdeletionp...	integer	What is the...	40	✓	✓		
Allow CI Update		data_allow_auto_dis...	boolean	true		✓	✓		
BiosAssetTag		bios_asset_tag	string	Asset tag n...		✓	✓		
BiosDate		bios_date	date	The BIOS/...		✓	✓		

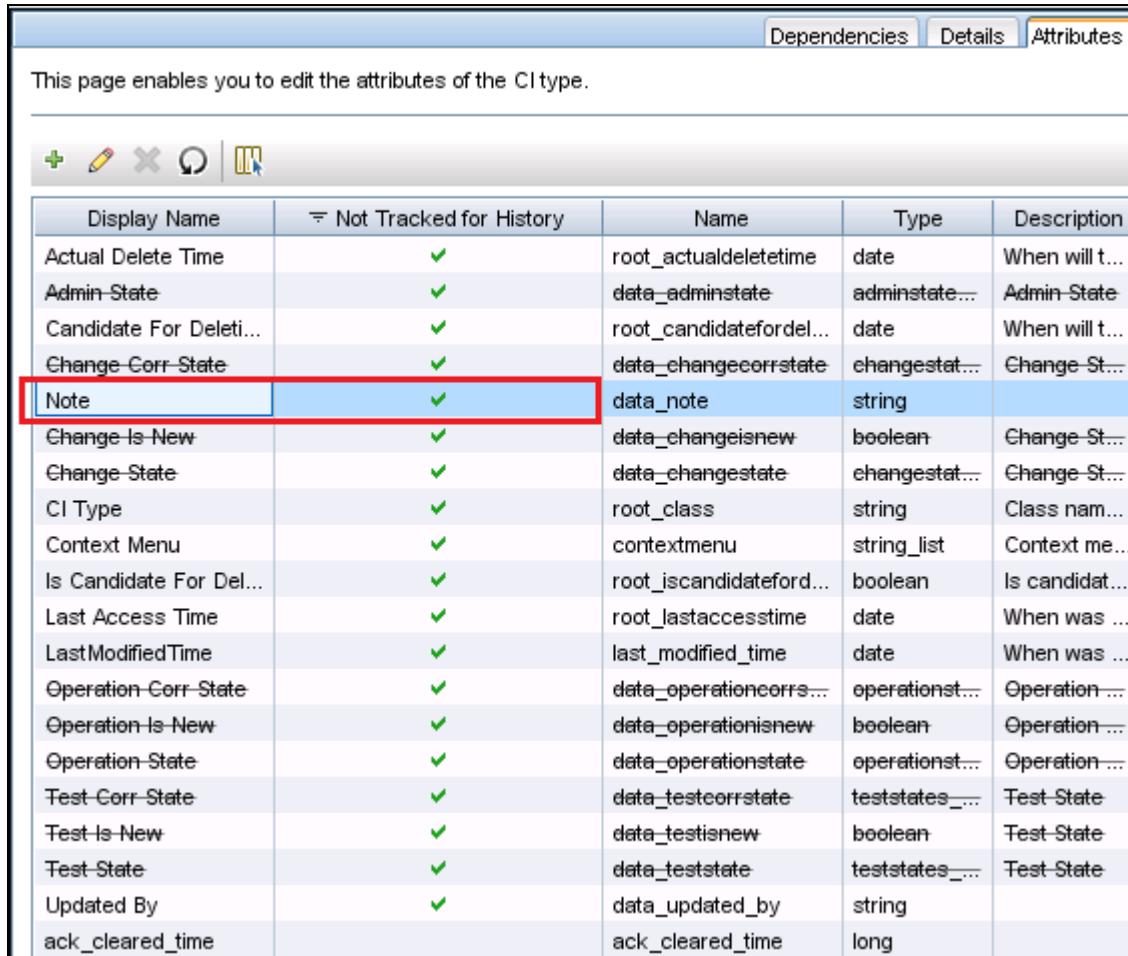
28. Verify that the Note attribute is currently being tracked for History because there is no check symbol in the Not Tracked for History column. To disable being tracked for History, select the Note attribute and click the Edit button, as shown in the following screenshot:

This page enables you to edit the attributes of the CI type.				
Display Name	Not Tracked for History	Name	Type	Description
Name		name	string	
NetBiosName		net_bios_name	string	The NetBio...
Node Boot Time		host_last_boot_time	date	Node last b...
Node Is Complete		host_iscomplete	boolean	True value ...
Node is Desktop		host_isdesktop	boolean	Is this nod...
Node Is Route		host_isroute	boolean	True value ...
Node Is Virtual		host_isvirtual	boolean	True value ...
Node Key		host_key	string	Unique stri...
Node NNM UID		host_nnm_uid	string	UID of the ...
Node Operating Sys...		host_osaccuracy	string	Operating ...
Node Operating Sys...		host_osinstalltype	string	Node Oper...
Node Operating Sys...		host_osrelease	string	Operating ...
Node Server Type		host_servertype	string	Describe t...
NodeFamily		node_family	string	This is a fa...
NodeModel		node_model	string	This attribu...
NodeOsDescription		node_os_description	string	Internal us...
NodeRole		node_role	string_list	This descri...
Note		data_note	string	
Origin		data_origin	string	
OS Architecture		os_architecture	OS_Archit...	Designates...

29. In the Edit Attribute window, select the Advanced tab. Then check the Not Tracked for History check box. Click the OK button to save the changes, as shown in the following screenshot:



30. Verify that in the Attributes tab of Windows CIT, the Note attribute now has a check mark under the Not Tracked for History column, as shown in the following screenshot:



The screenshot shows the 'Attributes' tab of the Windows CIT Manager. The table lists various attributes with their display names, internal names, types, and descriptions. The 'Note' attribute is highlighted with a red border around its entire row. In the 'Not Tracked for History' column, there is a checked checkbox next to the 'Note' entry.

Display Name	Not Tracked for History	Name	Type	Description
Actual Delete Time	✓	root_actualdeletetime	date	When will t...
Admin-State	✓	data_adminstate	adminstate...	Admin-State
Candidate For Deleti...	✓	root_candidatefordel...	date	When will t...
Change-Corr-State	✓	data_changecorrstate	changestat...	Change St...
Note	✓	data_note	string	
Change-Is-New	✓	data_changeisnew	boolean	Change St...
Change-State	✓	data_changestate	changestat...	Change St...
CI Type	✓	root_class	string	Class nam...
Context Menu	✓	contextmenu	string_list	Context me...
Is Candidate For Del...	✓	root_iscandidateford...	boolean	Is candidat...
Last Access Time	✓	root_lastaccesstime	date	When was ...
LastModifiedTime	✓	last_modified_time	date	When was ...
Operation-Corr-State	✓	data_operationcorr...	operationst...	Operation...
Operation-Is-New	✓	data_operationisnew	boolean	Operation...
Operation-State	✓	data_operationstate	operationst...	Operation...
Test-Corr-State	✓	data_testcorrstate	teststates_...	Test State
Test-Is-New	✓	data_testisnew	boolean	Test State
Test-State	✓	data_teststate	teststates_...	Test State
Updated By	✓	data_updated_by	string	
ack_cleared_time		ack_cleared_time	long	

Click the Save button in the CI Types pane to save the changes made on the Windows CIT, as shown in the following screenshot:

Display Name	Not Tracked for History
Actual Delete Time	✓
Admin-State	✓
Candidate For Delet...	✓
Change-Corr-State	✓
Note	✓
Change-Is-New	✓
Change-State	✓
CI Type	✓
Context Menu	✓
Is Candidate For Del...	✓
Last Access Time	✓
LastModifiedTime	✓
Operation-Corr-State	✓
Operation-Is-New	✓
Operation-State	✓
Test-Corr-State	✓
Test-Is-New	✓

Now the change impacts all instances of the Windows CIT.

## Exercise 2 – Defining New CI Types, Attributes, and Links

The UCMDB class model contains many classes and relationships. Out-of-the-box (OOTB), the system contains most of the commonly used applications and types, together with their underlying architecture/topology. Many organizations have customized topologies and applications, as well as home-grown applications, so the class model must be flexible to adapt to the organization's environment. The CI Type Manager enables you to achieve this, and constitutes the interface to the class model.

This exercise involves four tasks:

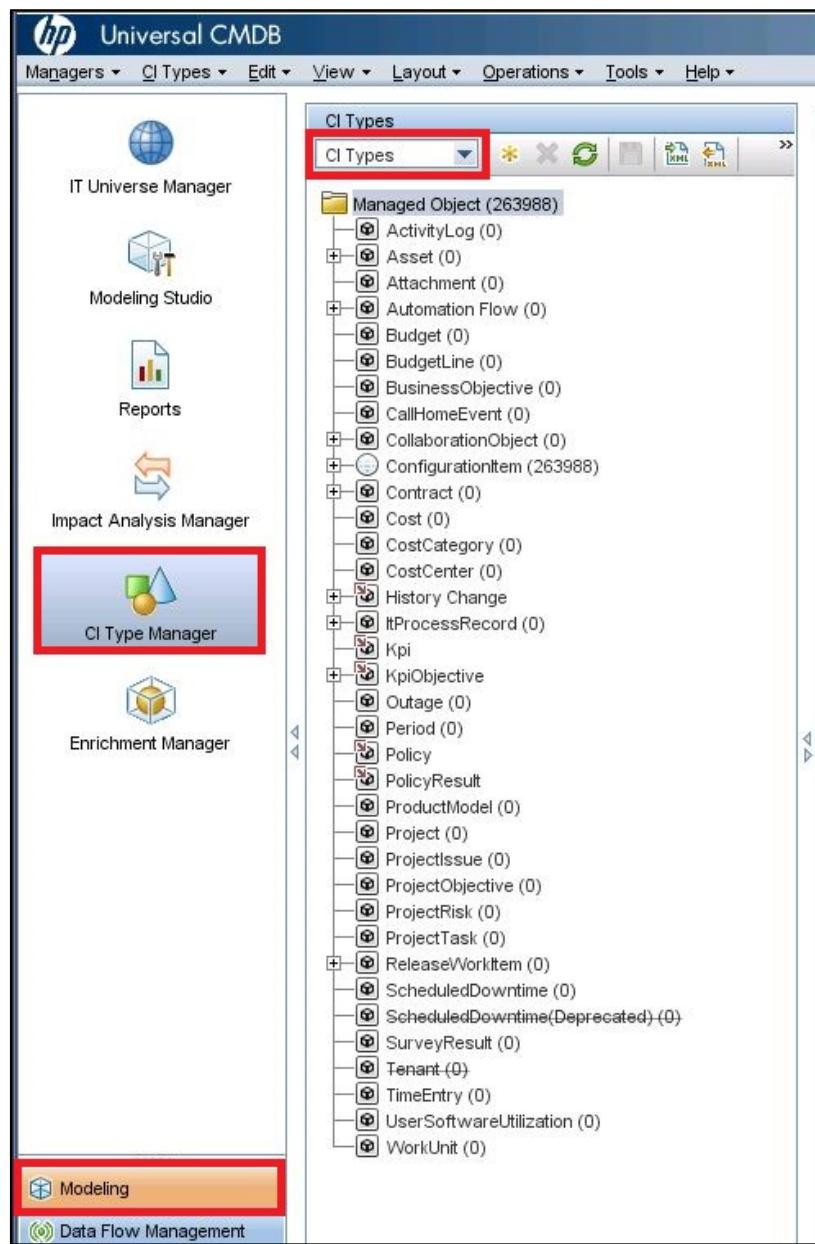
- Task 1 – Create a new CI Type
- Task 2 – Create a new Relationship CI Type
- Task 3 – Define a valid link
- Task 4 – Modify a CI Type

## Task 1 – Creating a New CI Type

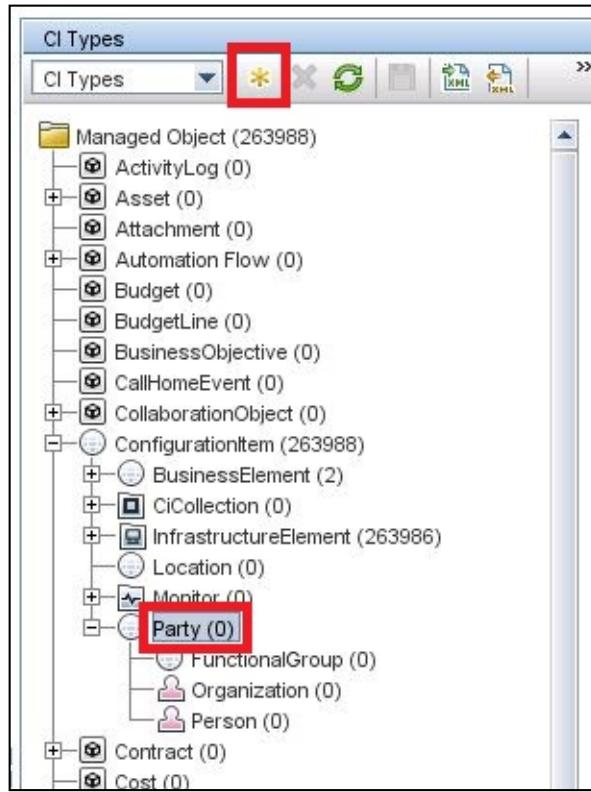
Ashley, the head of the application support team, would like to add contact information for the administrator of a server to the UCMDB. This allows her team to contact a CI's administrator in an efficient manner as and when needed. As a member of Ashley's team, you have been asked to perform the necessary tasks. Your first task is to create a CI Type to hold the new information.

To create a new CI Type, perform the following steps:

1. Go to CI Type Manager in the Modeling context.
2. Make sure the CI Type Manager is in the CI Types mode.



3. Select the Party CI Type because this represents people or groups of people and, therefore, will be your base type. Then click the New button, as shown in the following screenshot. The Create Configuration Item Type – Details dialog is displayed.



4. In the General Details section, enter the following values in the respective fields:

- Name: **server\_admin**
- Display Name: **Server Admin**
- Description: **Represents the administrator of one or more servers**

A screenshot of the 'Create Configuration Item Type - Details' dialog. The 'General Details' tab is selected. The form contains the following fields:

- Name: **server\_admin**
- Display Name: **Server Admin**
- Scope: **CMS**
- Created By: (empty field)
- Description: **Represents the administrator of one or more servers**

5. In the Identification section, ensure that Party is selected as the Base CI Type and then select By key attributes as the identification method, as shown in the following screenshot:

**Identification**

Select an identification method. In all methods, a CMDB ID and a global\_id are also assigned.

Identification: **By key attributes**

CIs with matching key attributes are considered to be identical and are merged.

**Available Attributes**

- ack\_cleared\_time
- ack\_id
- Actual Delete Time
- Admin State
- Allow CI Update
- Candidate For Deletion Time
- Change Corr State
- Change Is New

**Selected Attributes**

**Base CI Type:**

```

graph TD
    Root[ ] --> Party((Party))
    Party --> FG[FunctionalGroup]
    Party --> Org[Organization]
    Party --> Person[Person]
    Party --> Contract[Contract]
    Party --> Cost[Cost]
  
```

6. From the Available Attributes, select the Name attribute and move it to the right panel by clicking the icon, as shown in the following screenshot:

**Available Attributes**

- External ID
- Global Id
- Is Candidate For Deletion
- Last Access Time
- LastModifiedTime
- Name**
- Note
- Operation Corr State

**Selected Attributes**

7. Verify that your screen looks like this:

**Create Configuration Item Type - Details**

**General Details**

Name: server\_admin  
Display Name: Server Admin  
Scope: CMS  
Created By:  
Description: Represents the administrator of one or more servers

**Identification**

Select an identification method. In all methods, a CMDB ID and a global\_id are also assigned.

Identification: By key attributes

CIs with matching key attributes are considered to be identical and are merged.

**Available Attributes**

- External ID
- Global Id
- Is Candidate For Deletion
- Last Access Time
- LastModifiedTime
- Note
- Operation Corr State
- Operation Is New

**Selected Attributes**

Name

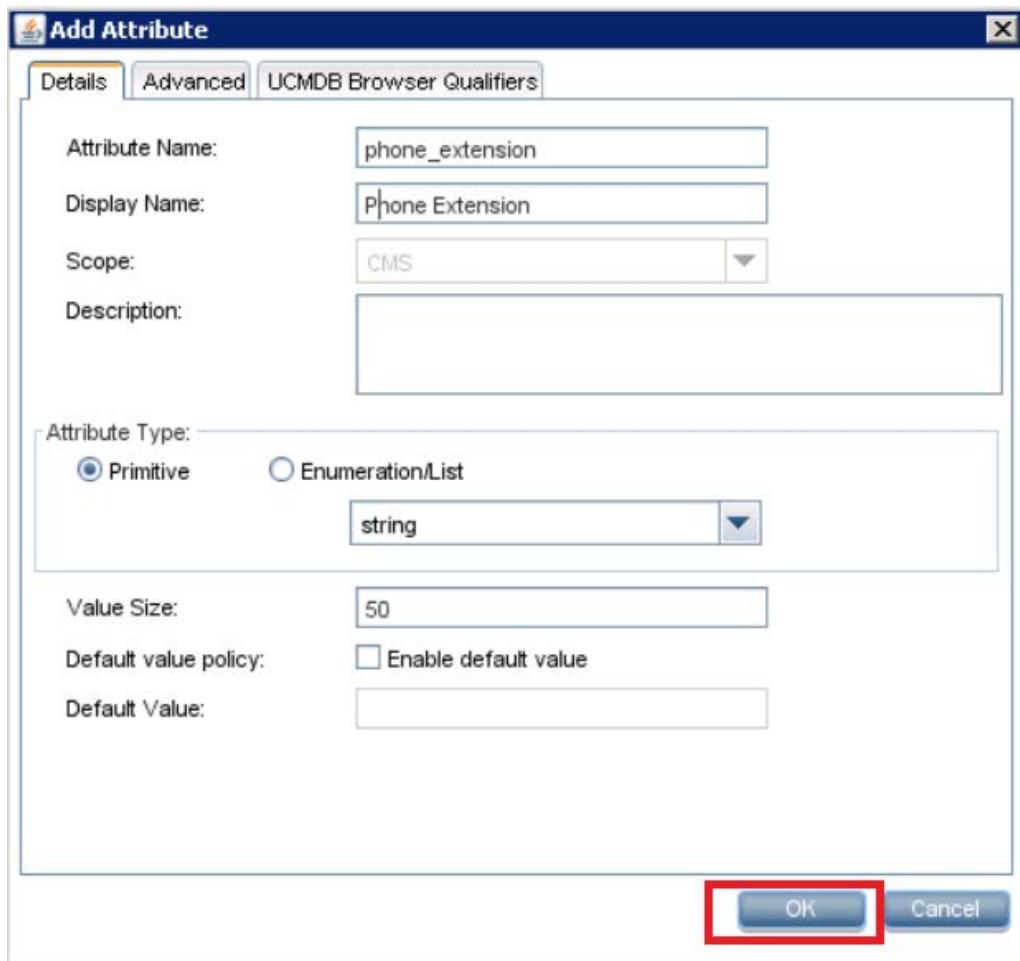
**Base CI Type:**

- Party (0)
  - FunctionalGroup (0)
  - Organization (0)
  - Person (0)
- Contract (0)
- Cost (0)

< Back    Next >    Finish    Cancel

8. Click the Next button.

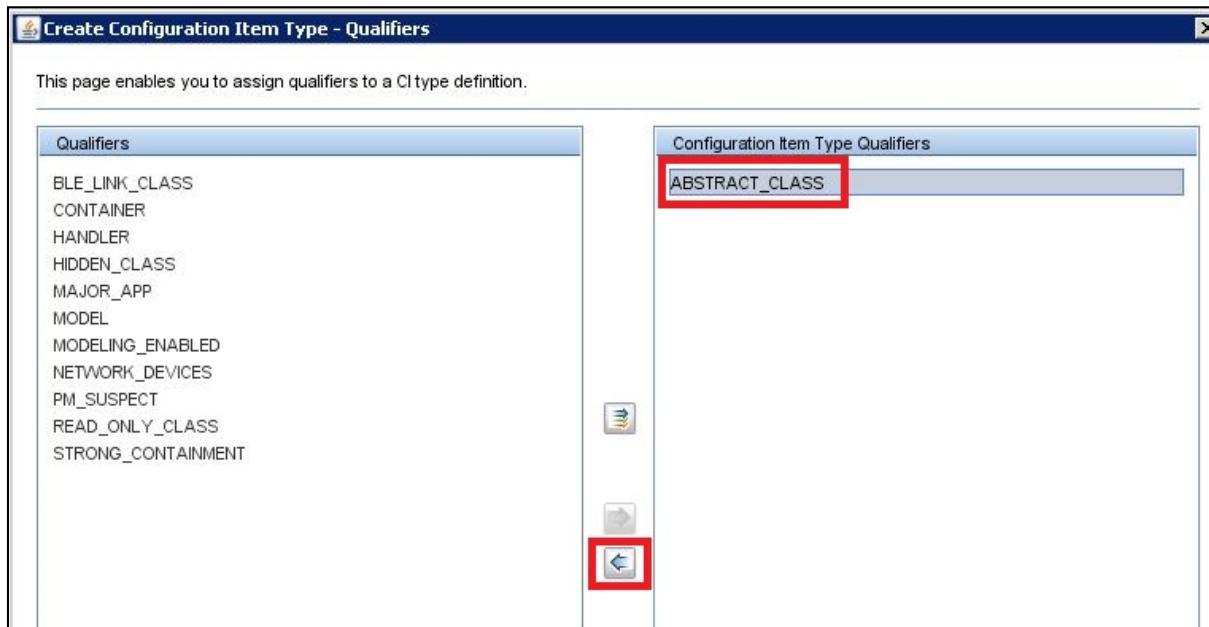
9. Click the Add  button. The Add Attribute dialog is displayed
10. Enter the following in the respective fields:
  - Attribute Name: **phone\_extension**
  - Display Name: **Phone Extension**
11. Leave the Attribute Type as string and the Value Size as 50. Click the OK button, as shown in the following screenshot:



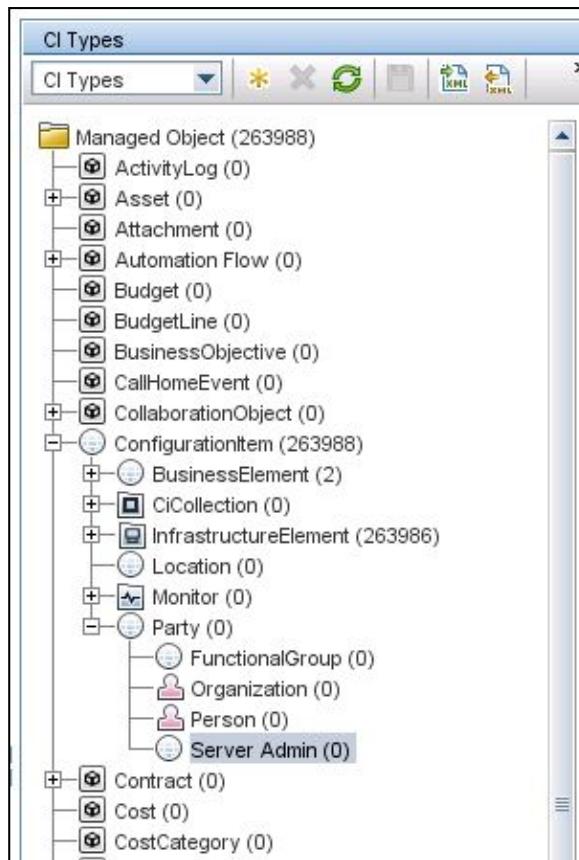
12. Click the Next button.

13. The Party CI Type is an Abstract Class; that is, it cannot be instantiated. Our new type inherits this. If you don't change it, you won't be able to create any Server Admin Cls.

Remove the ABSTRACT\_CLASS qualifier from the Configuration Item Type Qualifiers list using the Move to Qualifiers  button, as shown in the following screenshot:



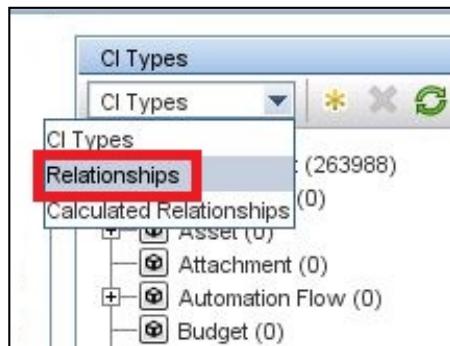
14. Click the Finish button. The Server Admin CIT is displayed in the list of CI Types, as shown in the following screenshot:



## Task 2 – Creating a New Relationship CI Type

To relate the new Server Admin CI Type to Node CIs, you create a new Relationship Type. To create a new relationship type, perform the following steps:

1. Switch CI Type Manager to Relationships mode, as shown in the following screenshot:



2. Click the New button, as shown in the following screenshot:



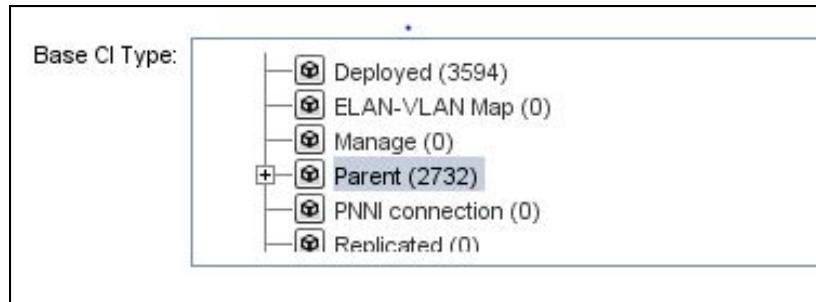
3. In the General Details section, enter the following values in the respective fields:

- Name: **administrator**
- Display Name: **Administrator**

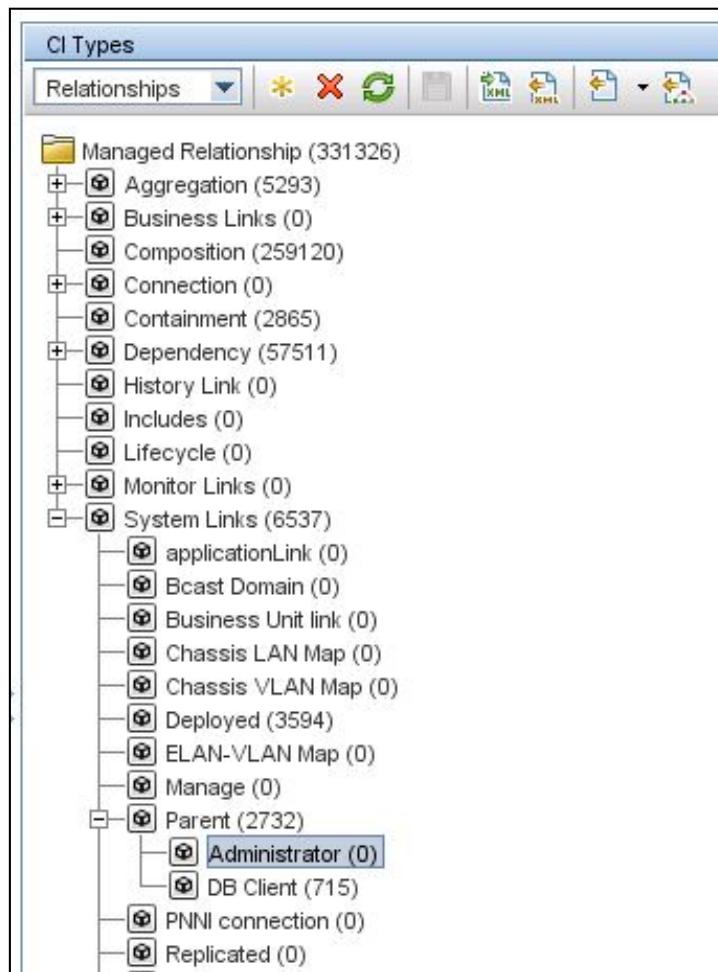
A screenshot of the 'Create Relationship - Details' dialog. The title bar says 'Create Relationship - Details'. The main section is titled 'General Details'. It contains five input fields:

- Name:
- Display Name:
- Scope:
- Created By:
- Description:

4. In Base CI Type, click the top CIT in the list and type **parent**. Make sure that the Parent CIT type is selected as the Base CI Type as shown:



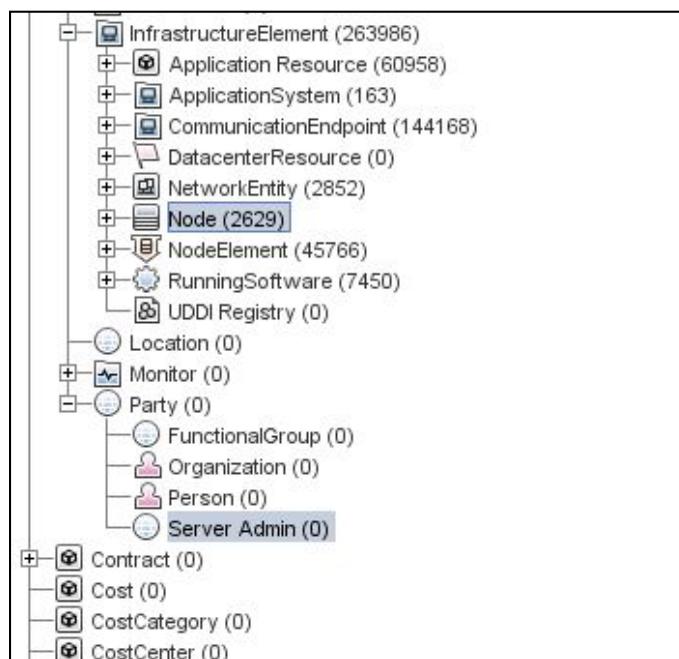
5. Click the Next button and then the Finish button to close the dialog. The Administrator relationship appears in the list, as shown in the following screenshot.



## Task 3 – Defining a Valid Link

To use the new Administrator relationship to connect Server Admin CIs with nodes, a valid link must be defined between the two CI Types. To define a valid link, perform the following steps:

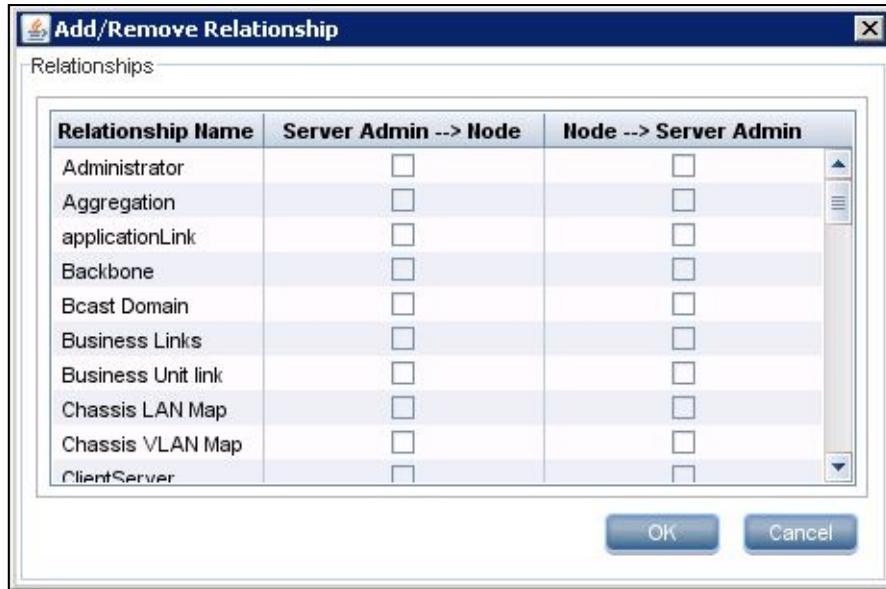
1. Switch back to CI Types mode.
2. Locate Server Admin CIT by clicking one of the CITs and typing **server admin**.
3. Locate Node CIT under Managed Object → ConfigurationItem → InfrastructureElement.
4. Click the Node CIT, press the CTRL key, and hold it.
5. Click the Server Admin CIT while holding the CTRL button, as shown in the following screenshot:



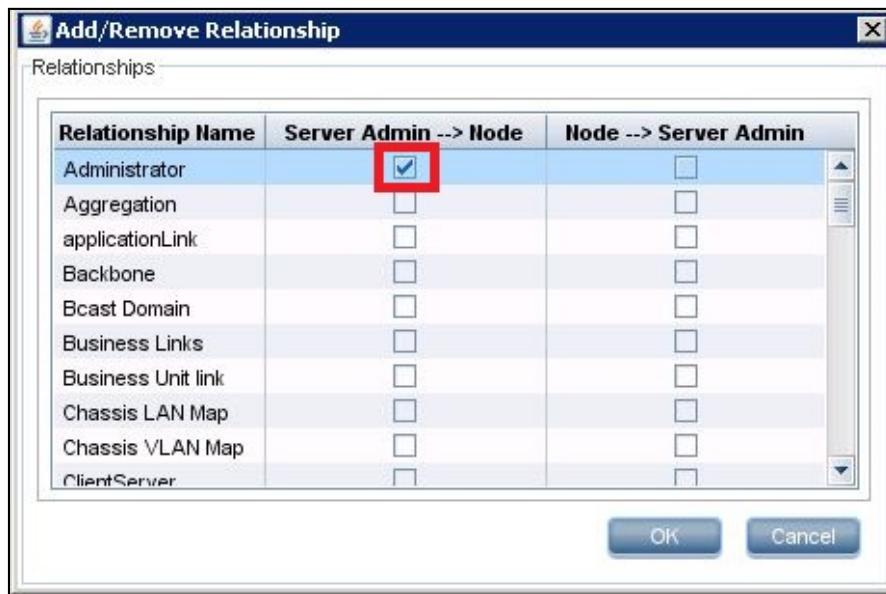
6. Right-click Node CIT and choose Add/Remove Relationship from the menu.



7. The Add/Remove Relationship dialog is displayed, as shown in the following screenshot:



8. Check the Server Admin → Node checkbox on the line with the Administrator link, as shown in the following screenshot:

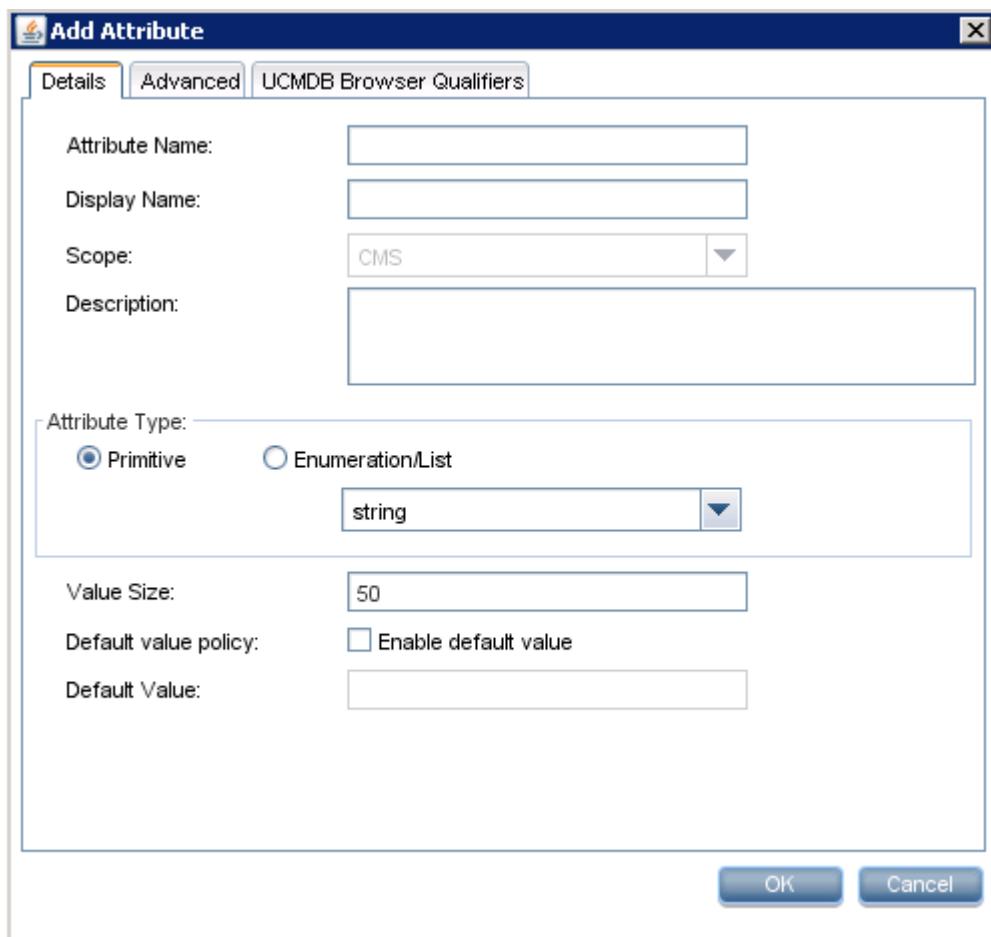


9. Click the OK button to close the dialog.

## Task 4 – Modifying a CI Type

Ashley has also tasked you with adding an asset valuation attribute to the Node CI Type to integrate with the company's financial systems. To modify a CI Type, perform the following steps:

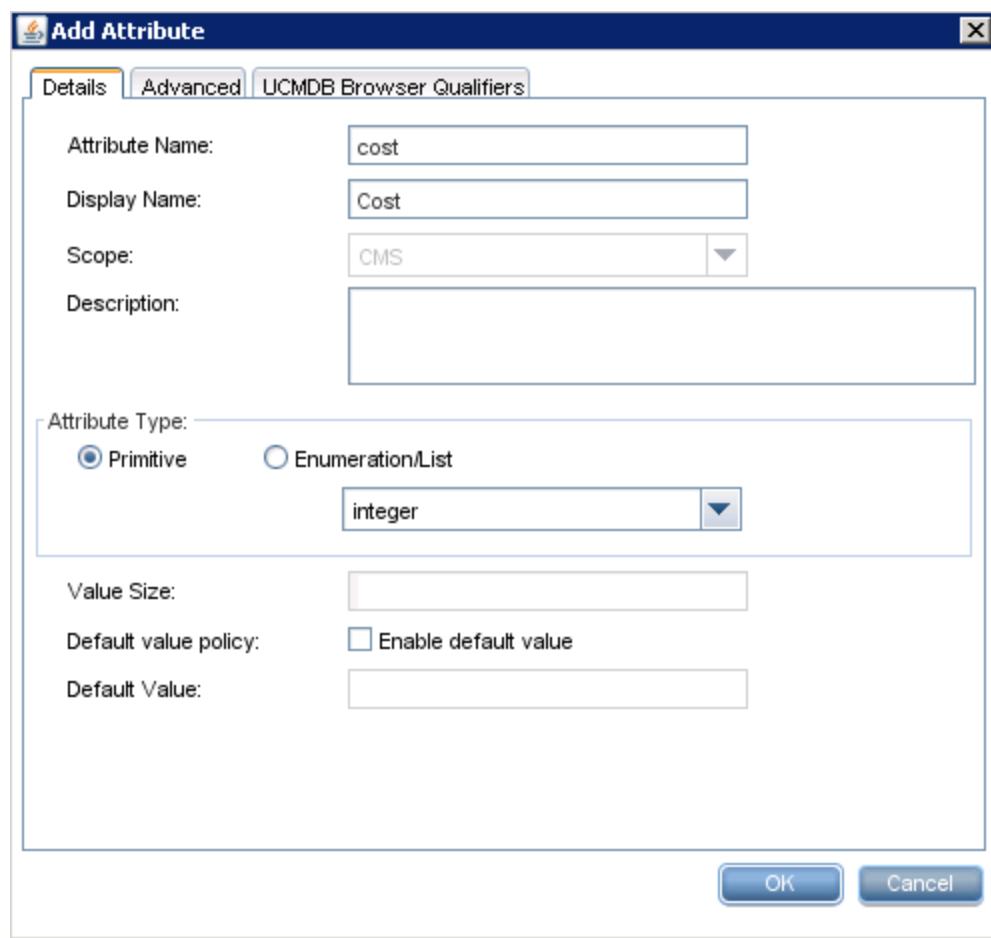
1. Select the Node CIT in the CIT hierarchy.
2. Select the Attributes tab.
3. Click the Add button. The Add Attribute dialog is displayed, as shown in the following screenshot.



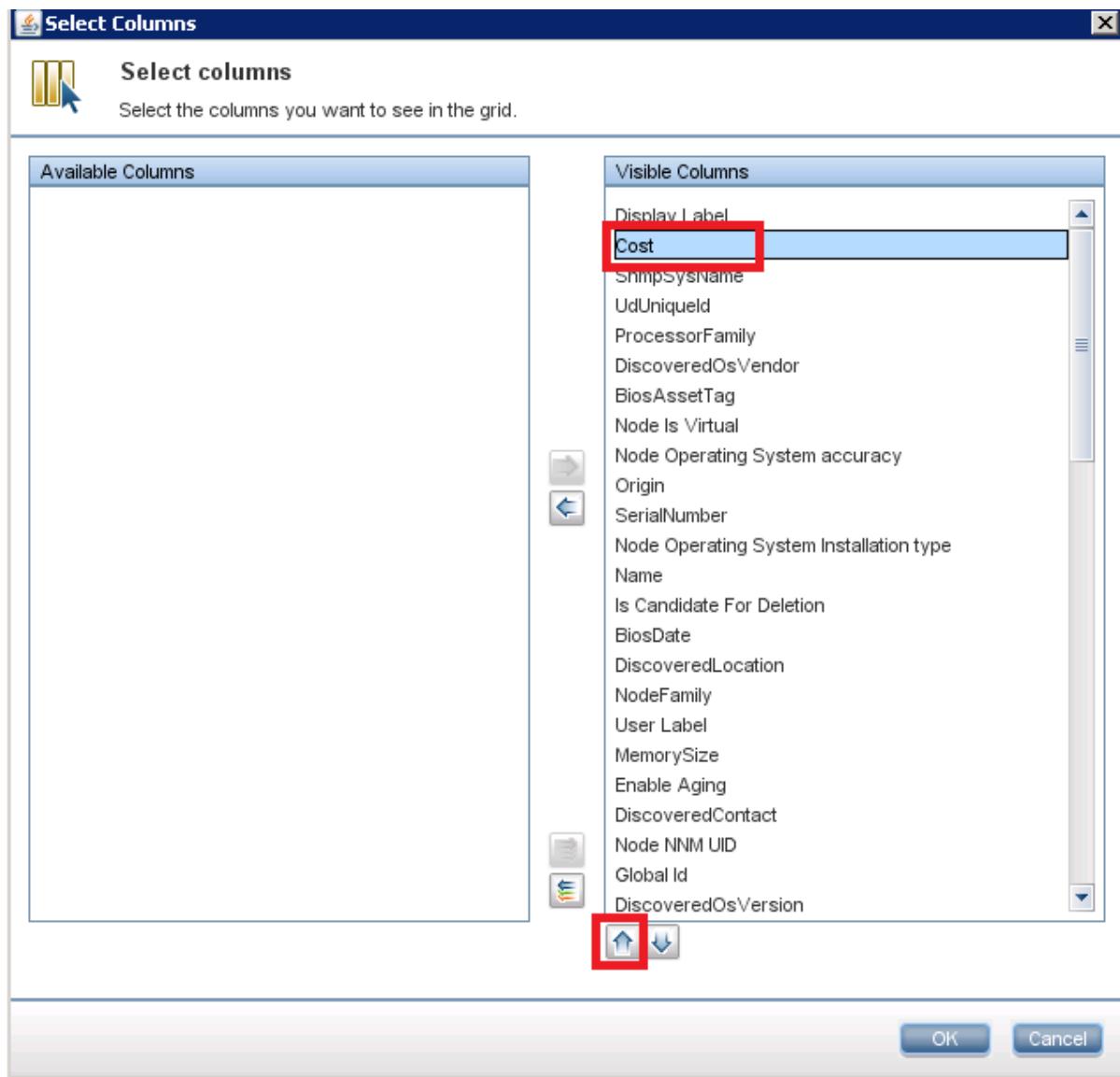
4. Enter the following values in their respective fields:

- Attribute Name: **cost**
- Display Name: **Cost**
- Attribute Type: **integer**

Your dialog should look similar to the following:



5. Click the OK button to close the dialog. The Cost attribute appears in the list of attributes.
6. Click the Save button in the CI Types pane.
7. Right-click the Node CIT in the CIT list.
8. Choose Show CIT Instances in the menu.
9. In the CIT Instances dialog, click the Select Columns button.



10. In the visible columns list, locate the Cost attribute.
11. Move it up using the Up button on the dialog until it is listed just after Display Label.
12. Click the OK button to close the Select Columns dialog box

13. Make sure the Cost column is displayed, as shown in the following screenshot. (You might need to expand the column width to see it properly.)

The screenshot shows a software interface titled "CIT Instances <Node>". At the top, there is a toolbar with icons for search, refresh, and other functions. Below the toolbar, a message says "Here you can see all discovered CI instances". A dropdown menu labeled "Show CI instances of: Node (2629)" is open. The main area is a table with the following columns: "Display Label", "Cost", "...", and "DiscoveredOsVend". The table contains the following data:

Display Label	Cost	...	DiscoveredOsVend
10-EN01-6			Microsoft
10.60.1.8 DefaultDomain			
134.44.96.10 DefaultDomain			
134.44.96.112 DefaultDomain			
134.44.96.114 DefaultDomain			
134.44.96.115 DefaultDomain			

14. Click the OK button.

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# Lab 6 – Introduction to Modeling Studio and TQL

## Objectives

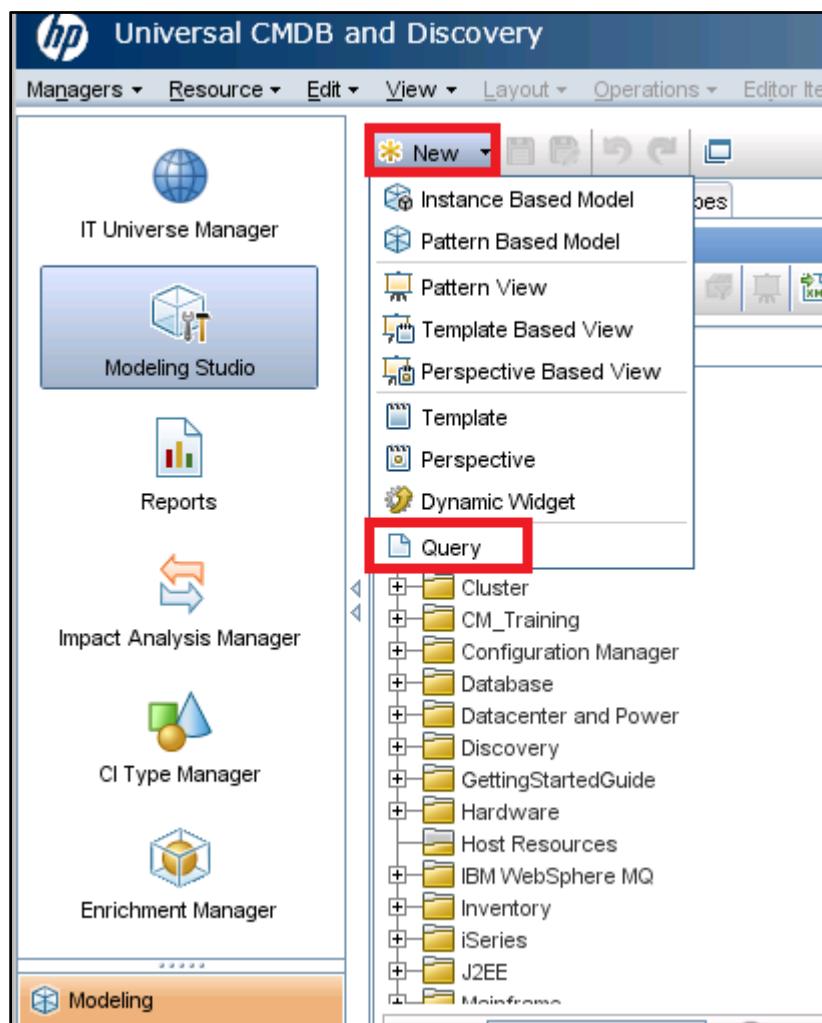
After completing this lab, you should be able to:

- Define a Topology Query Language (TQL) query with an attribute condition
- Define a query for database topology using the Add Related Query Node wizard
- Create a query with Attribute, Identity, and Cardinality conditions

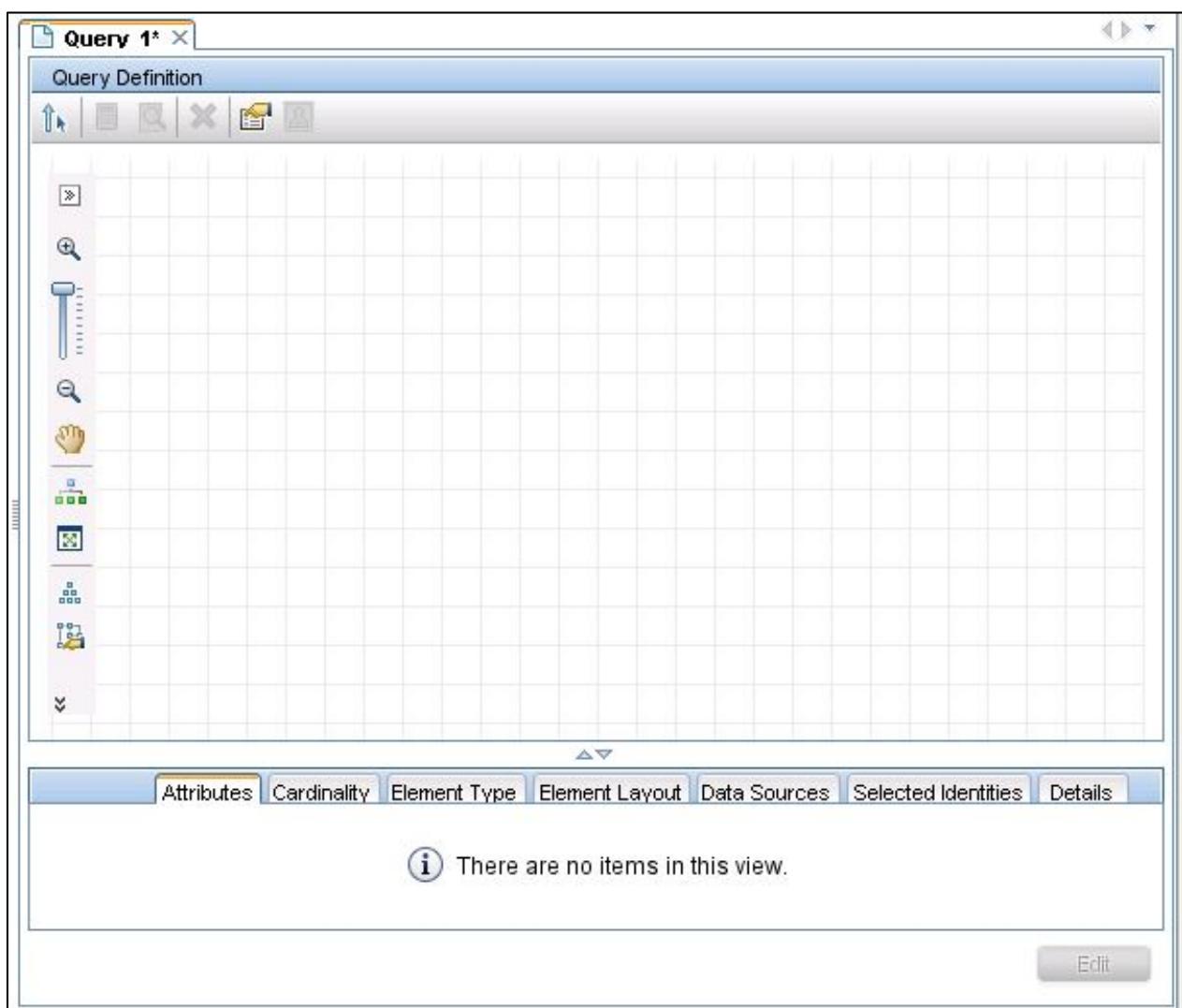
# Exercise 1 – Creating a Topology Query Language (TQL) Query with an Attribute Condition

In this task, you create a TQL query named OBA Servers TQL. The TQL will include all computers that belong to the network (IpSubnet) 192.168.0.0 together with their CPUs. To create this query, perform the following steps:

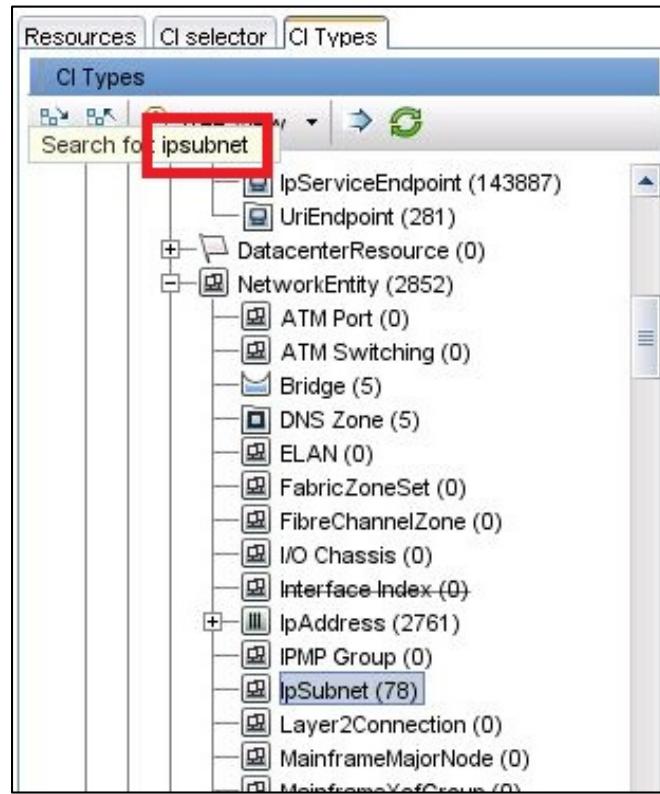
1. Go to Modeling Studio in the Modeling context.
2. Click the New button and select Query from the drop-down menu, as shown in the following screenshot:



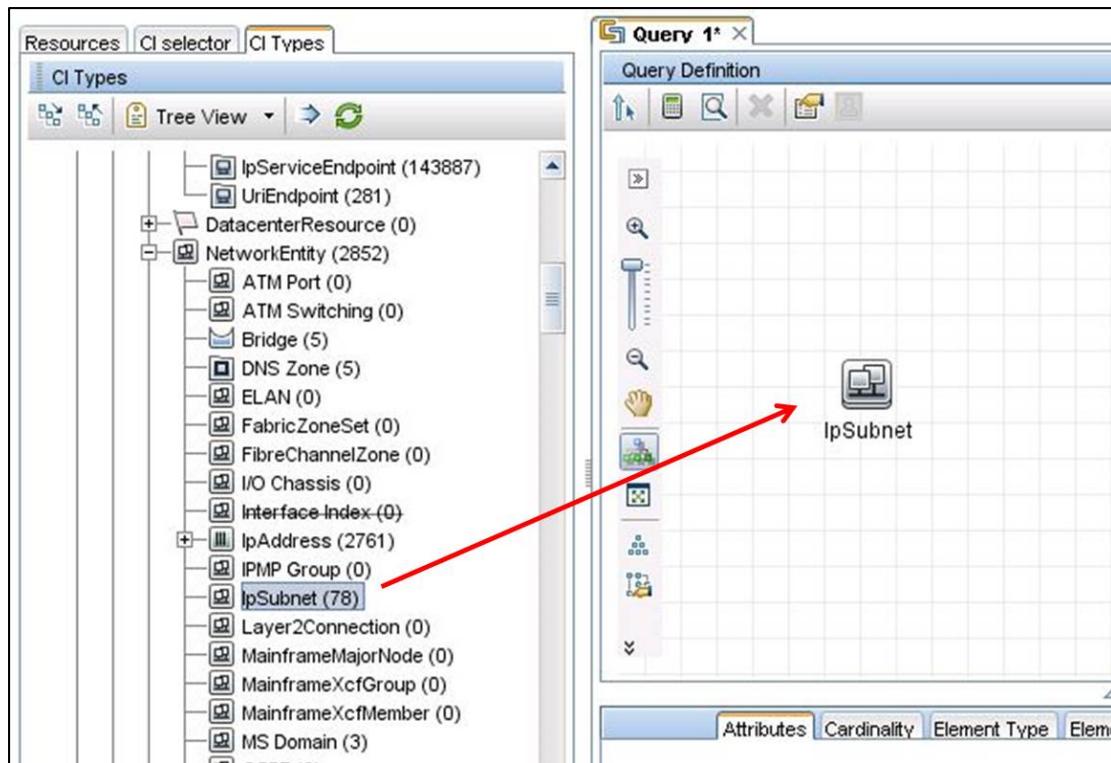
3. The Query Definition pane opens on the right side, as shown in the following screenshot:



4. From the left pane CI Types panel, locate the IpSubnet CIT in the CI Type tree by clicking the top Managed Object CIT and typing **ipsubnet**, as shown in the following screenshot:

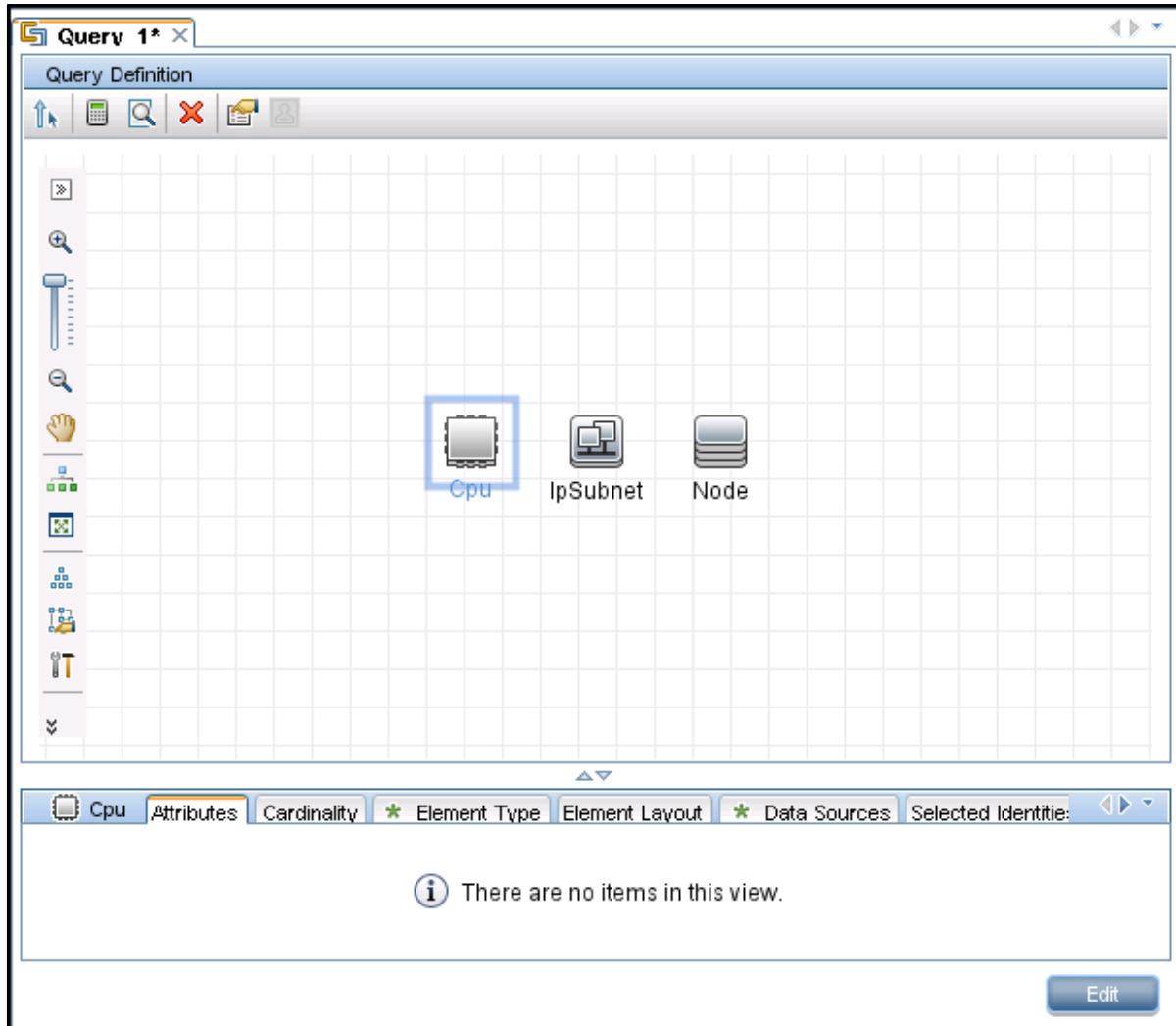


5. Drag and drop the IpSubnet CIT into the Query Definition pane, as shown in the following screenshot:

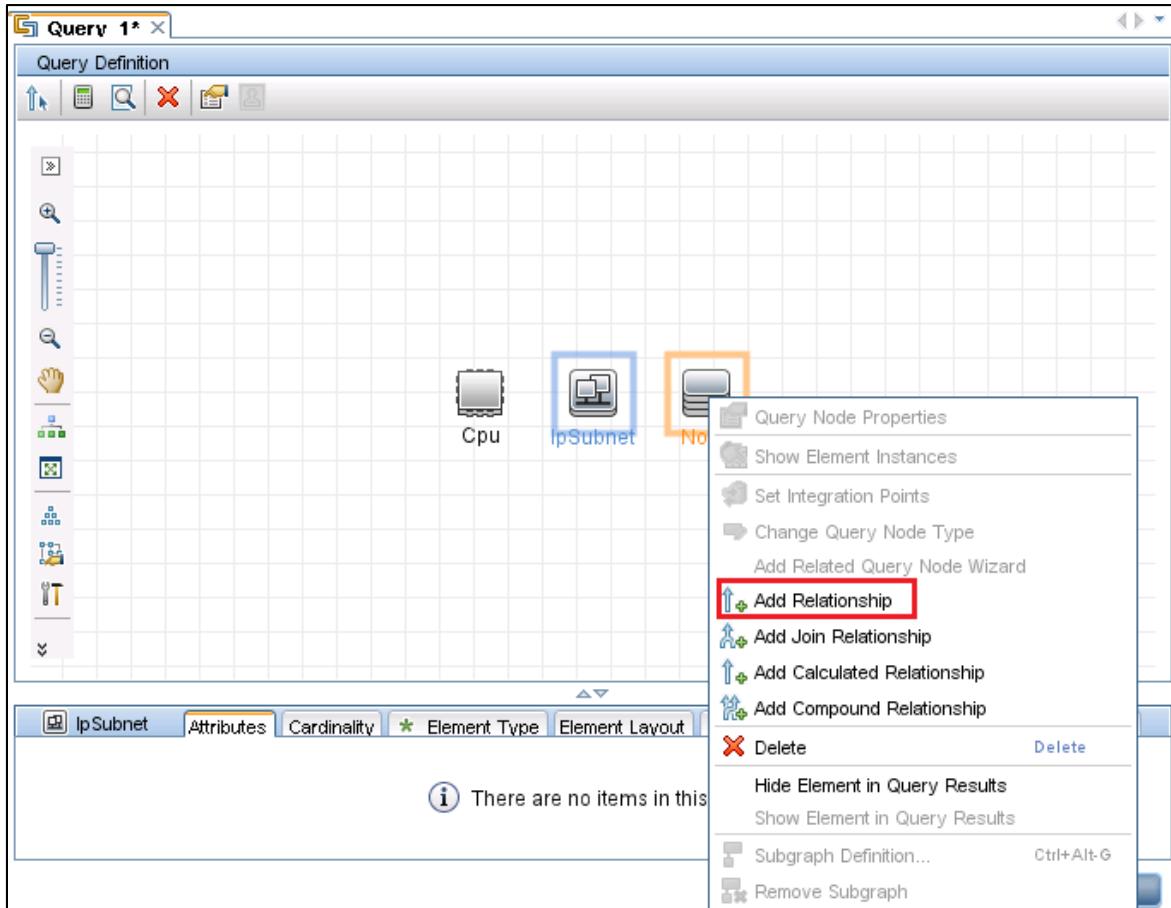


6. Locate Node in the CIT list by clicking the top CIT of the tree and typing **node**.
7. Drag Node to the Topology pane.
8. Locate CPU in the CIT list by clicking the top CIT and typing **CPU**.

9. Drag CPU to the Topology pane. All CITs are displayed on the TQL canvas, as shown in the following screenshot:



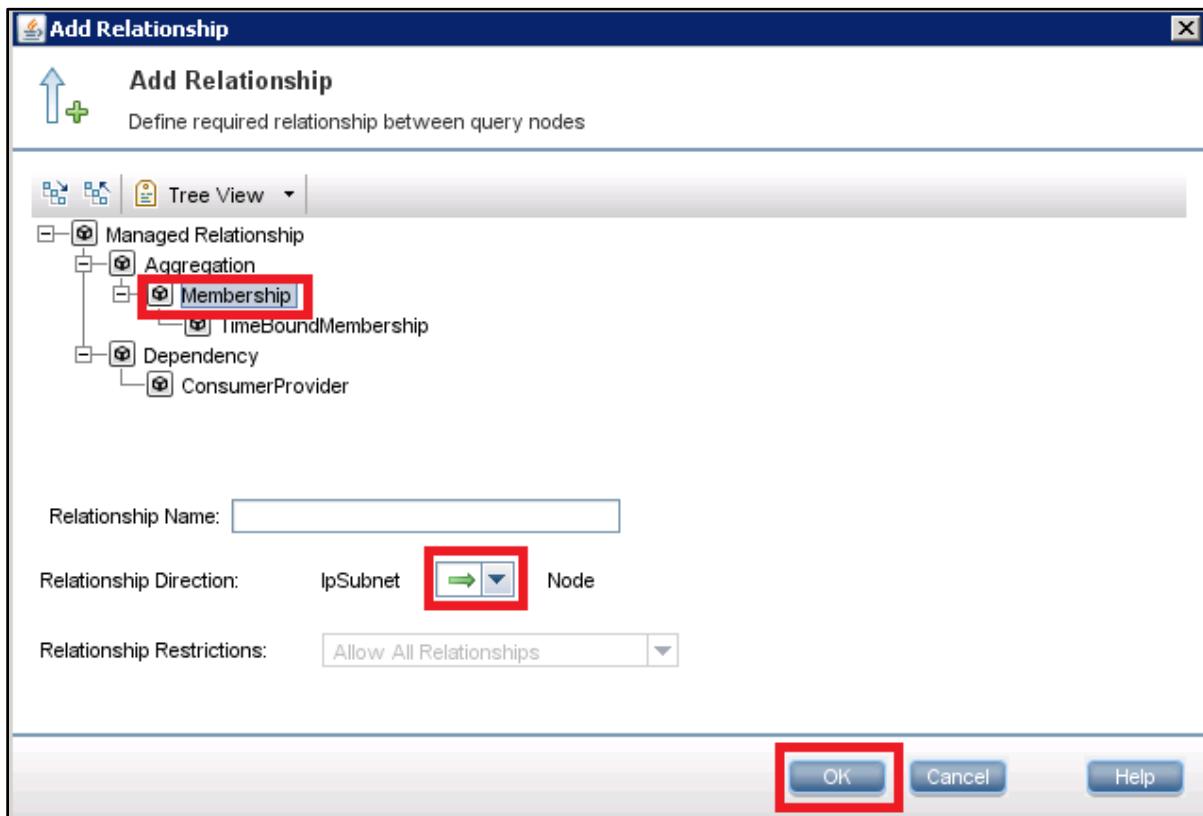
10. Select IpSubnet and then hold down the CRTL key and select Node. Then right-click Node and select Add Relationship from the context menu, as shown in the following screenshot:



11. The Add Relationship dialog box is displayed. Make sure the Relationship Direction appears as IpSubnet → Node.

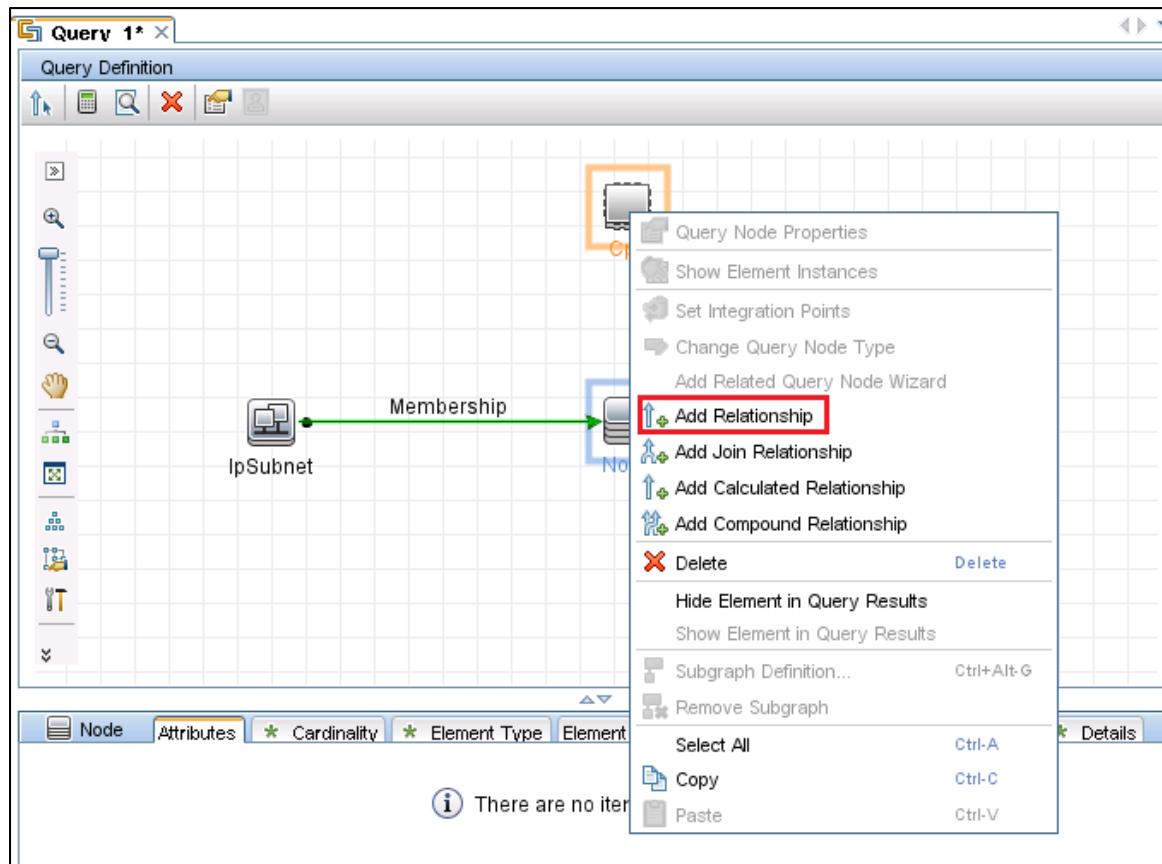
12. Select the Membership link.

13. Click the OK button to close the dialog box, as shown in the following screenshot:



14. Select Node and CPU in the Topology pane and right-click one of them.

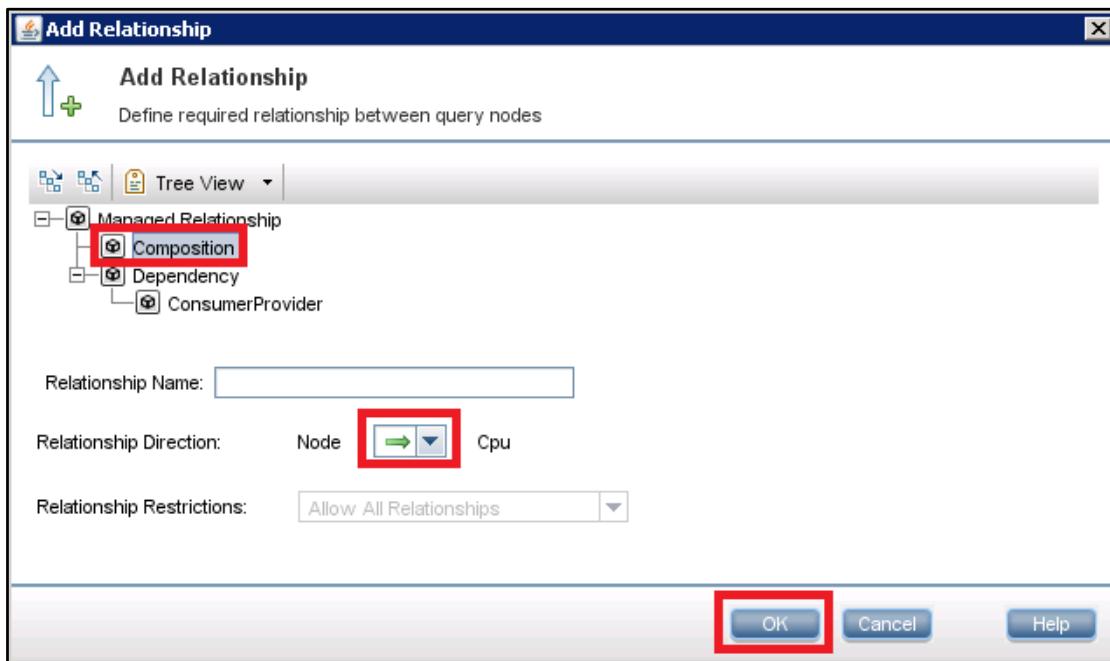
15. Select Add Relationship from the context menu that is displayed, as shown in the following screenshot:



16. The Add Relationship dialog box is displayed. Make sure the Relationship Direction appears as Node → CPU.

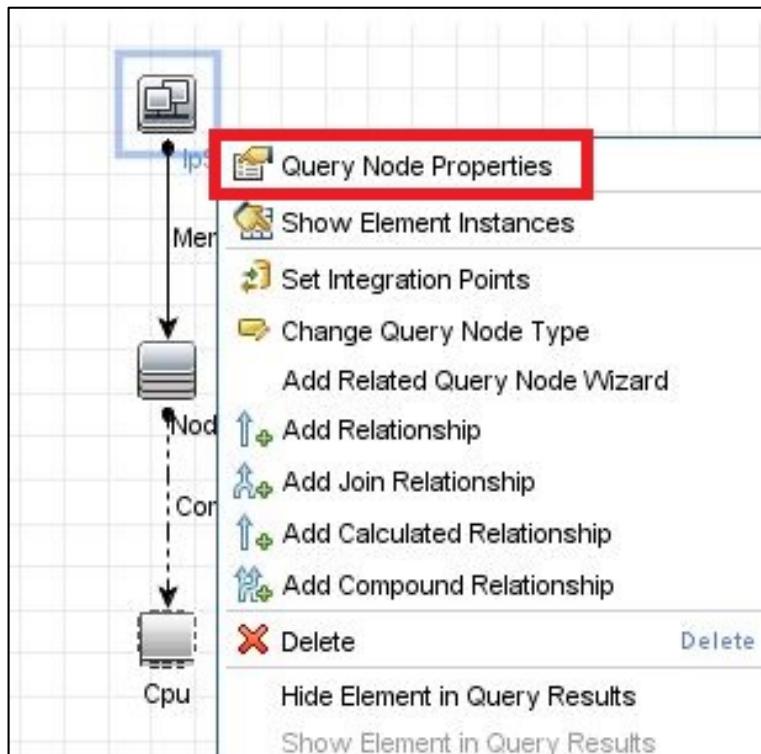
17. Select Composition.

18. Click the OK button to close the dialog box, as shown in the following screenshot:

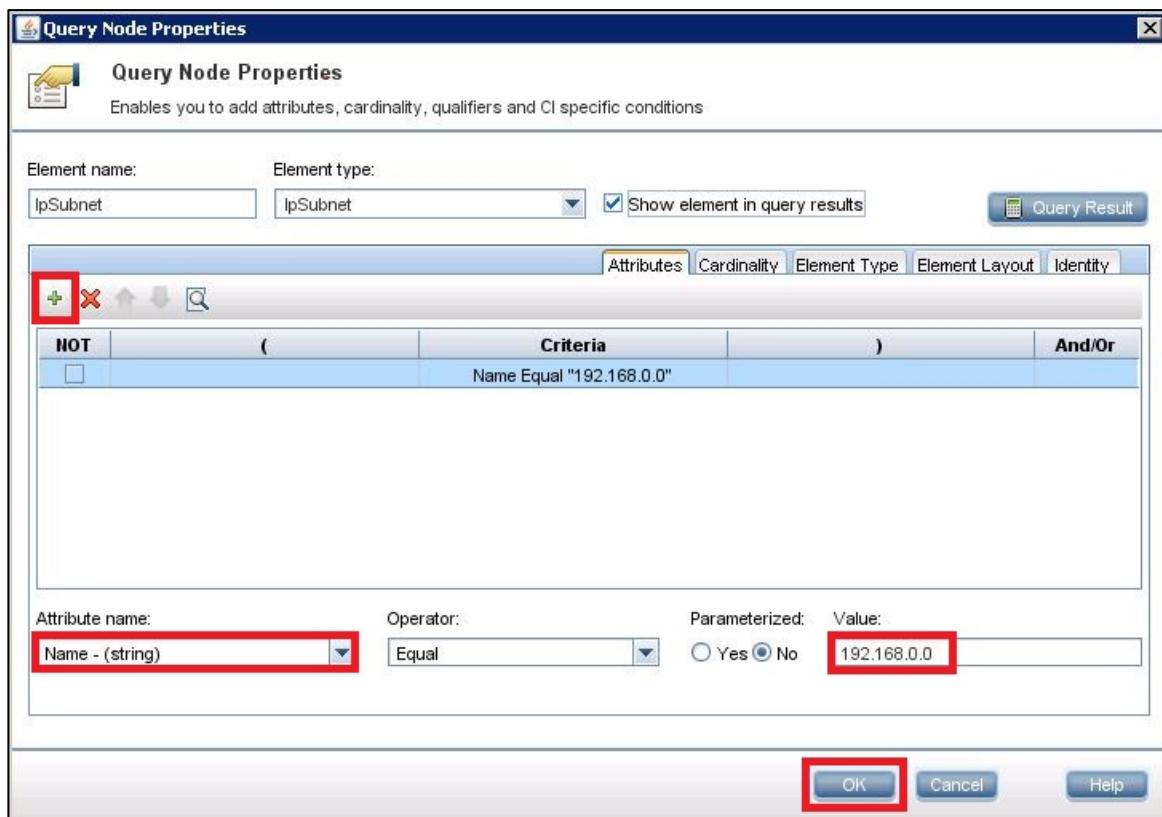


19. Right-click the IpSubnet CIT in the Query Definition pane.

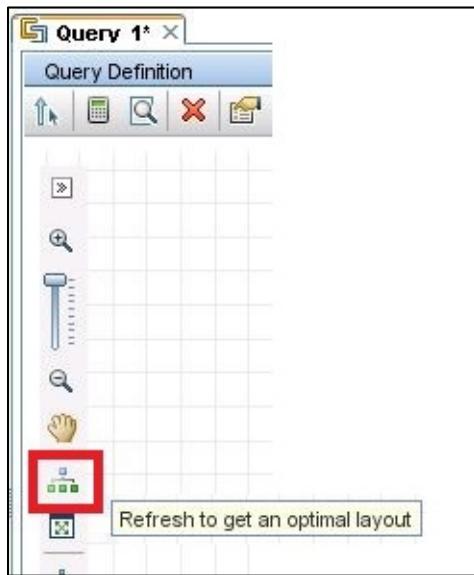
20. Select Query Node Properties from the context menu, as shown in the following screenshot. The Query Node Properties dialog box is displayed.



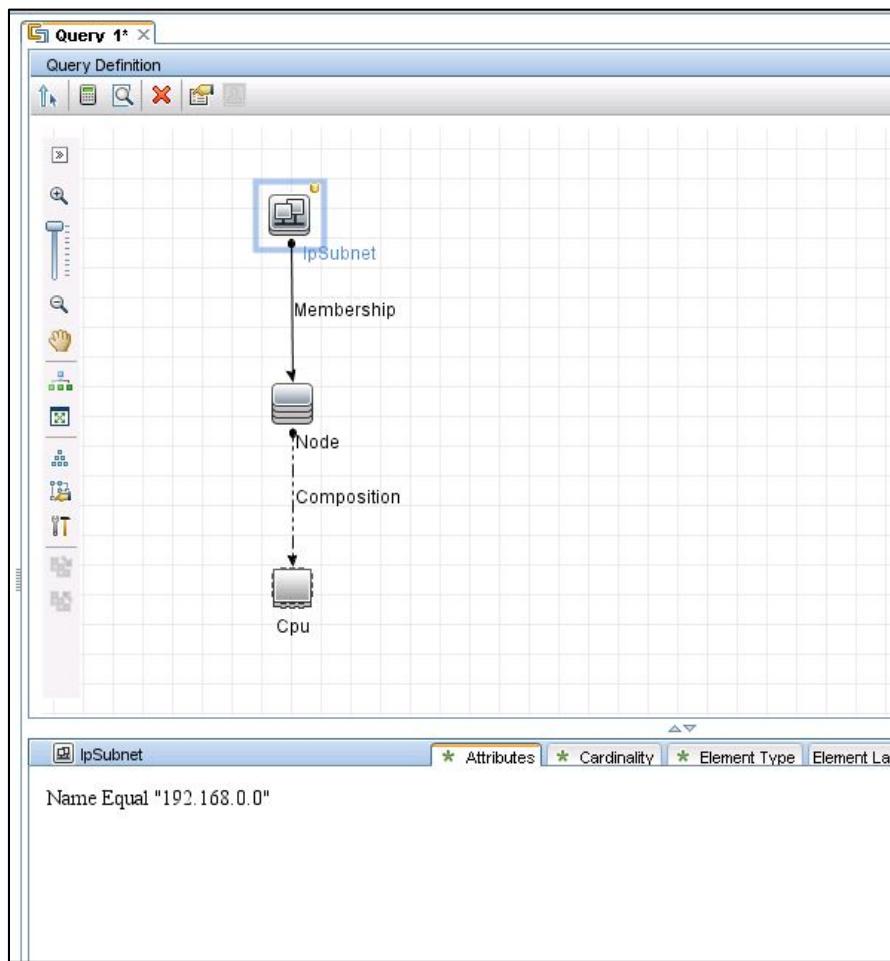
21. In the Query Node Properties dialog box, click the Add (+) button.
22. In the Attribute name field, select Name.
23. Retain the Operator as Equal and in the Value field, type 192.168.0.0.
24. Click the OK button to close the dialog box, as shown in the following screenshot:



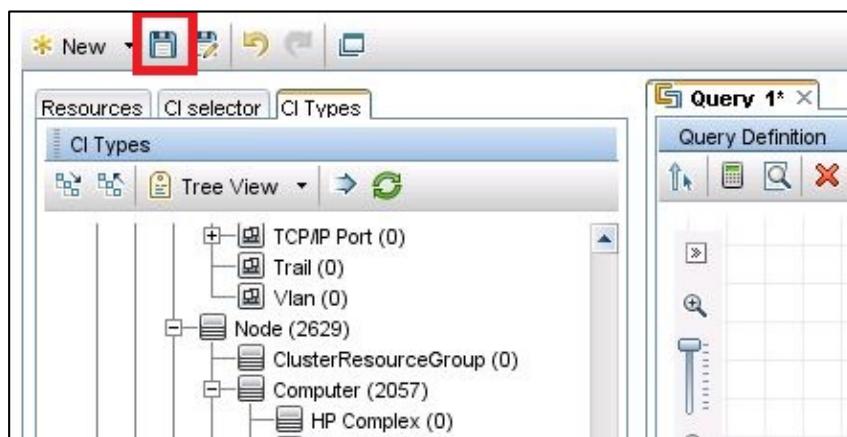
25. Press the Refresh to get an Optimal Layout button as shown in the following screenshot:



26. Ensure that the TQL looks as shown in the following screenshot:

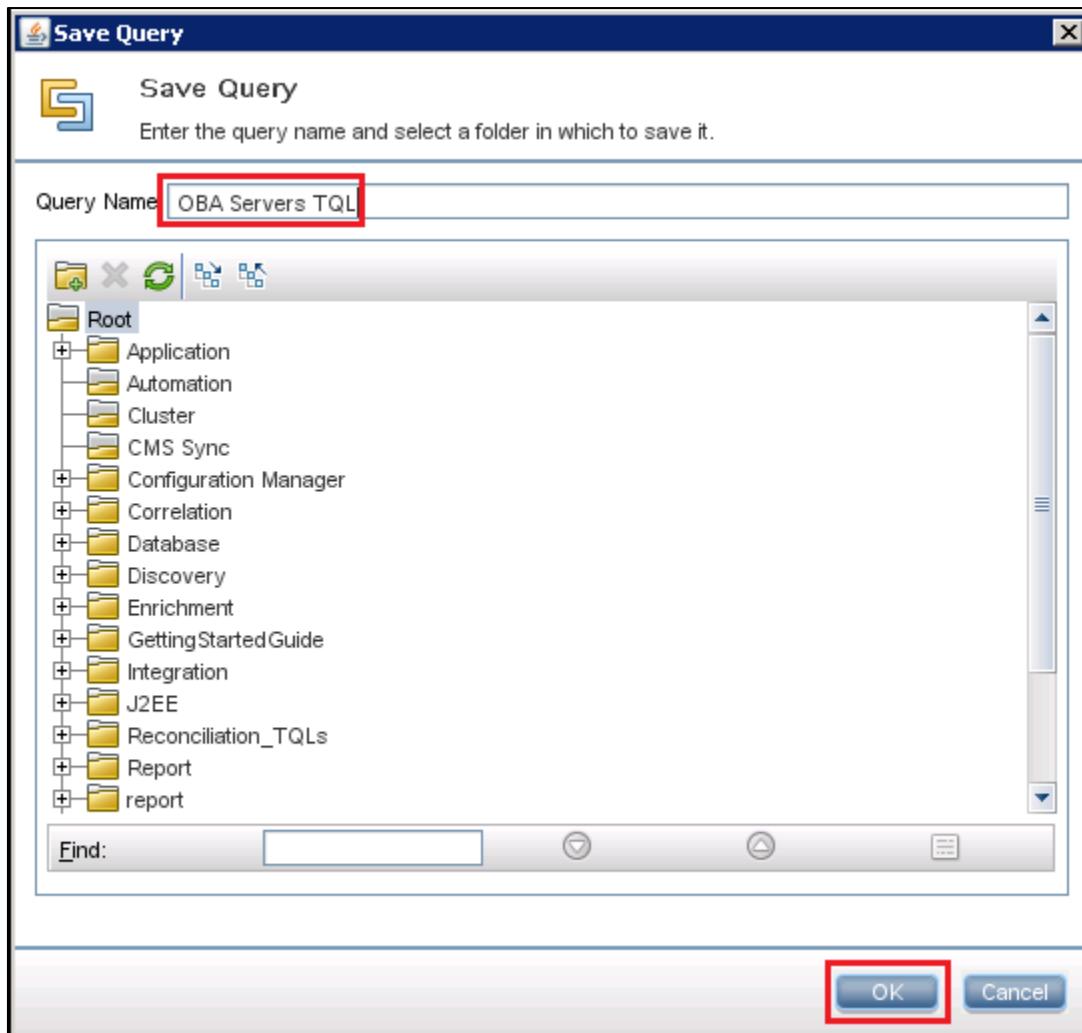


27. In Modeling Studio, click the Save button, as shown in the following screenshot:



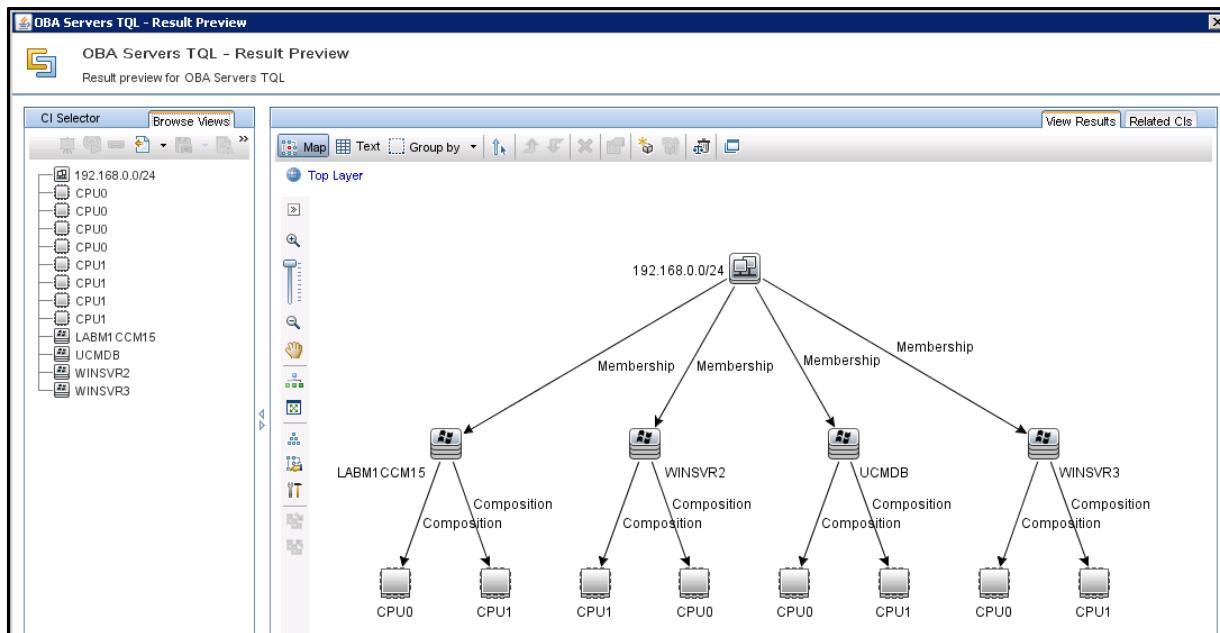
28. The Save Query dialog box is displayed. In the Query Name field type **OBA Servers TQL**.

29. Click the OK button to save the changes and close the dialog box, as shown in the following screenshot:

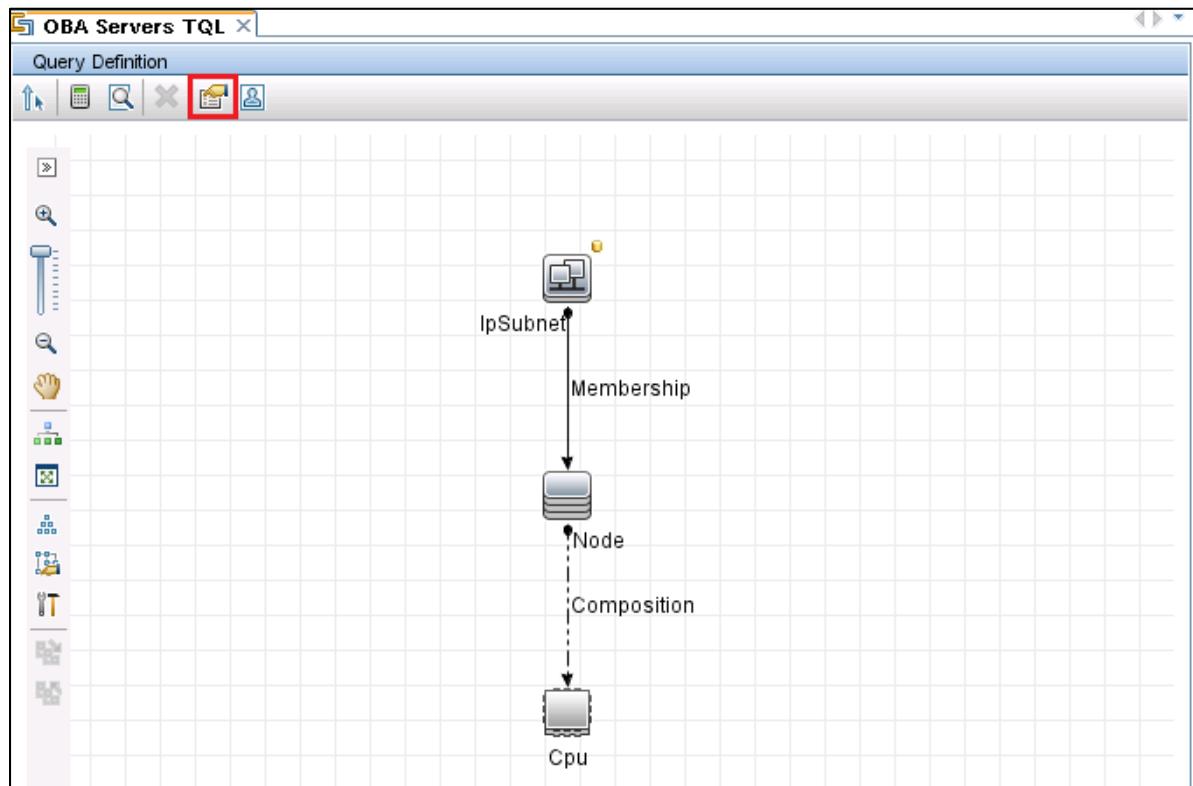


30. Click the Preview  button to see the view results.

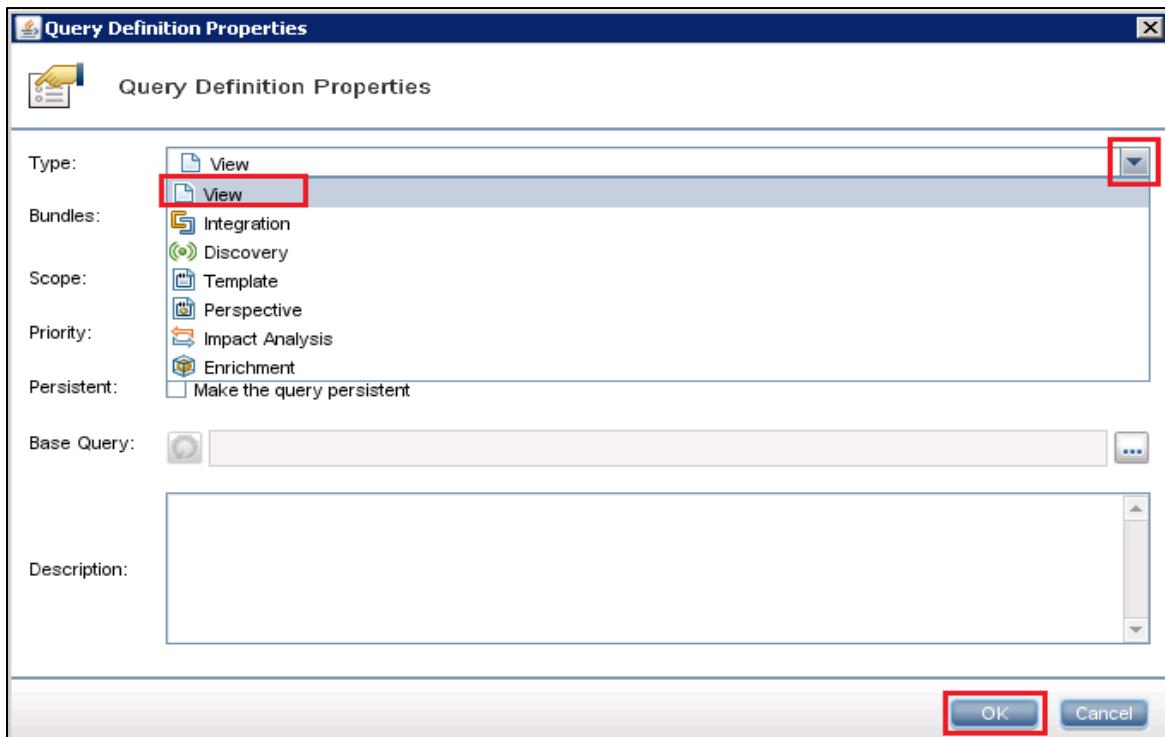
31. The Result Preview screen is displayed, as shown in the following screenshot. Close the Preview screen after verification.



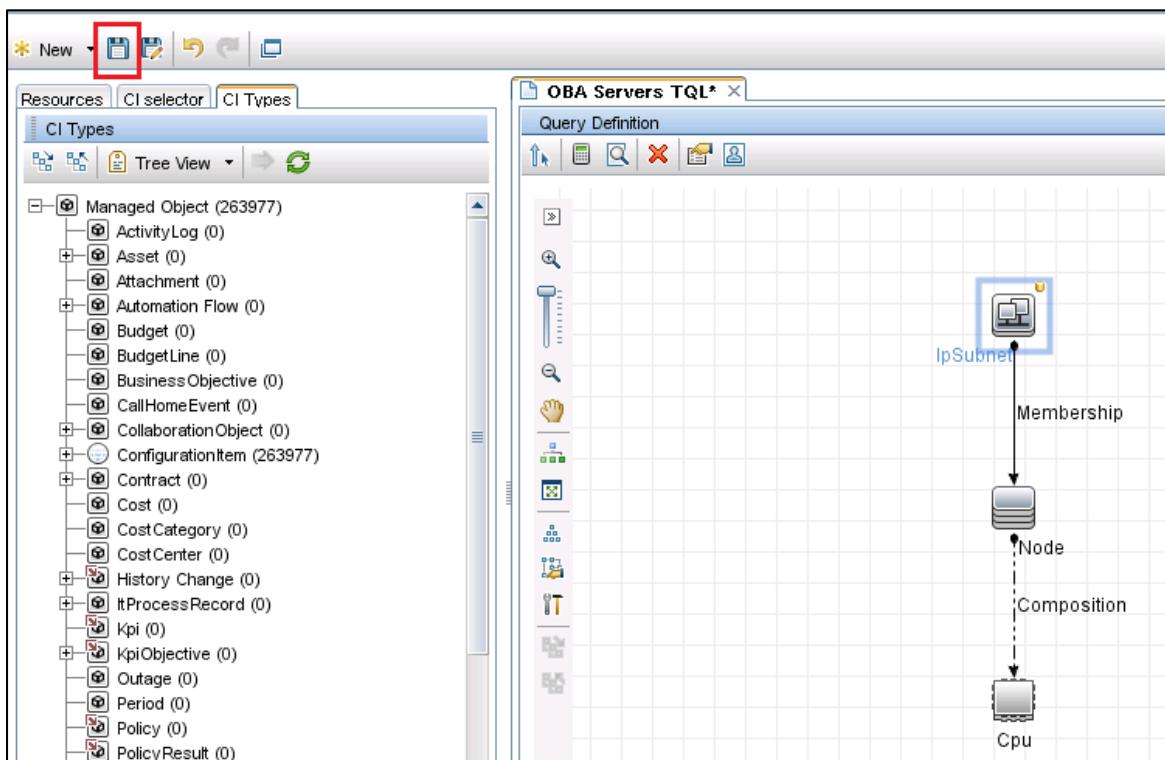
32. To set the properties of the TQL, click the Query Definition Properties button on the toolbar of the Query Definition pane.



33. In the Query Definition Properties window, change the Type to View and click the OK button to close the dialog box, as shown in the following screenshot:



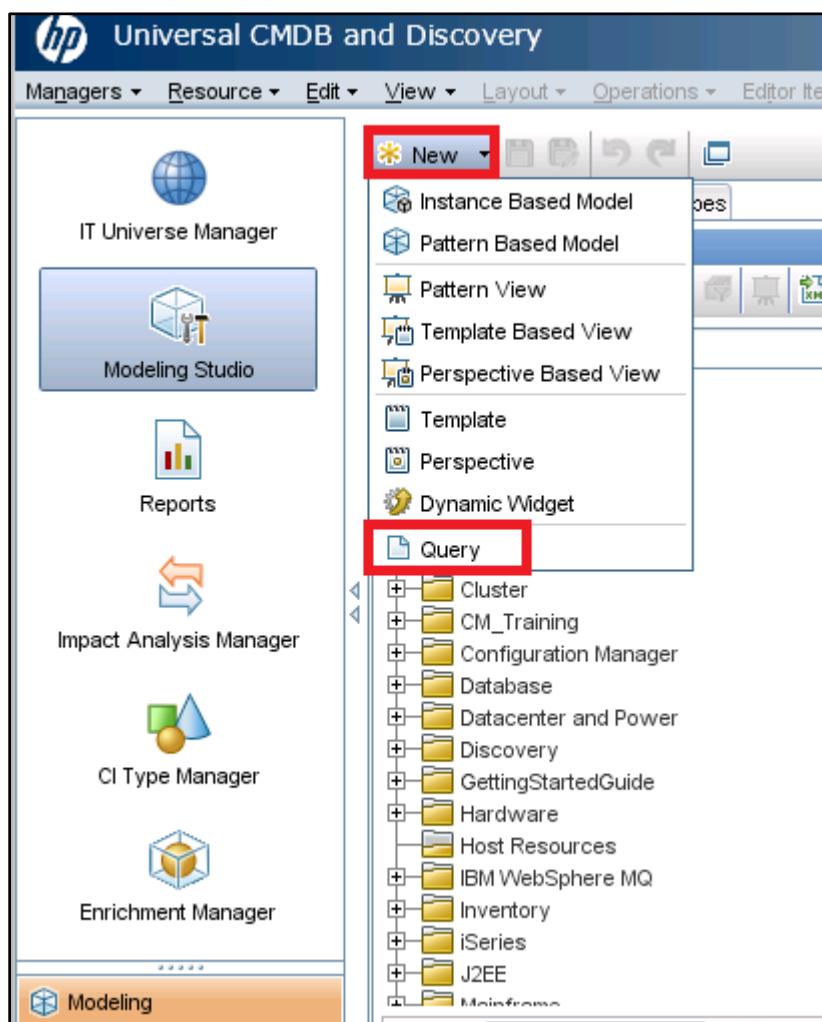
34. Save the query for the changes made, as shown in the following screenshot:



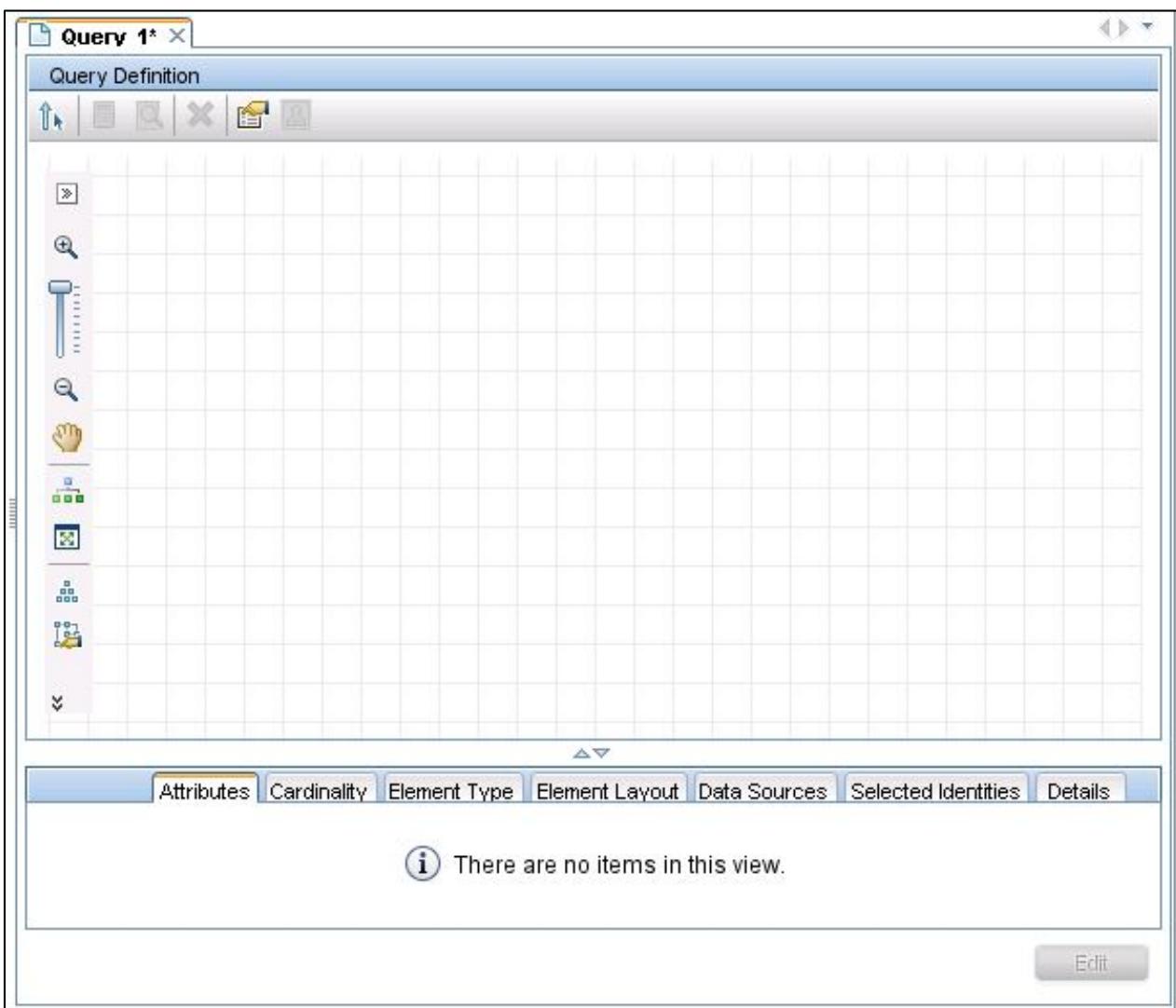
## Exercise 2 – Defining a Query for Database Topology Using the Add Related Query Node Wizard

In this task, you create a TQL query named My Database Topology Query. The TQL includes all computers that belong to the network (IpSubnet) 172.16.0.0/16 together with their databases and all database resources connected to them. Here, to identify and link database Cls and database resource Cls, you make use of the Add Related Query Node wizard. To create the TQL, perform the following steps:

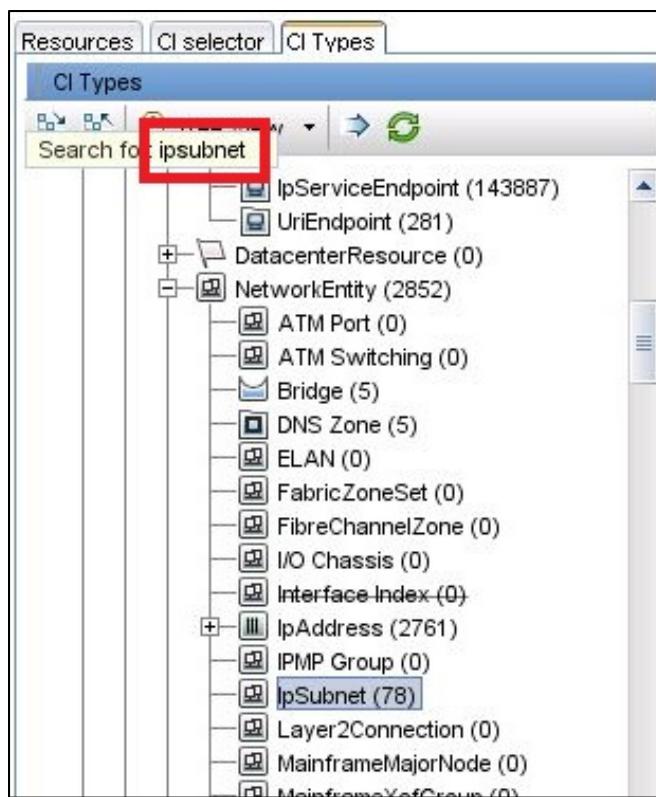
1. Go to Modeling Studio in the Modeling area.
2. Click the New button and select Query from the drop-down menu, as shown in the following screenshot:



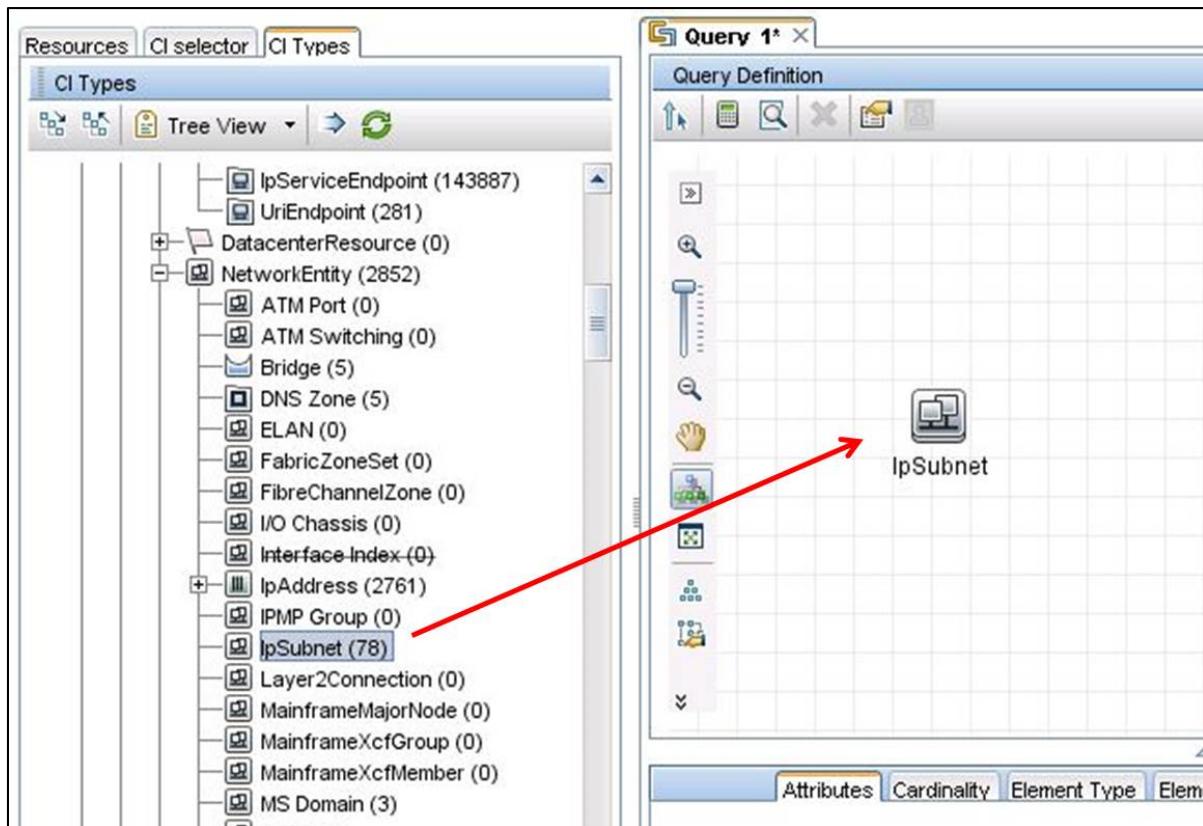
3. The Query Definition pane opens on the right side, as shown in the following screenshot:



4. From the left-side CI Types panel, locate the IpSubnet CIT in the CI Type tree by clicking the top root CIT and typing **IpSubnet**, as shown in the following screenshot:

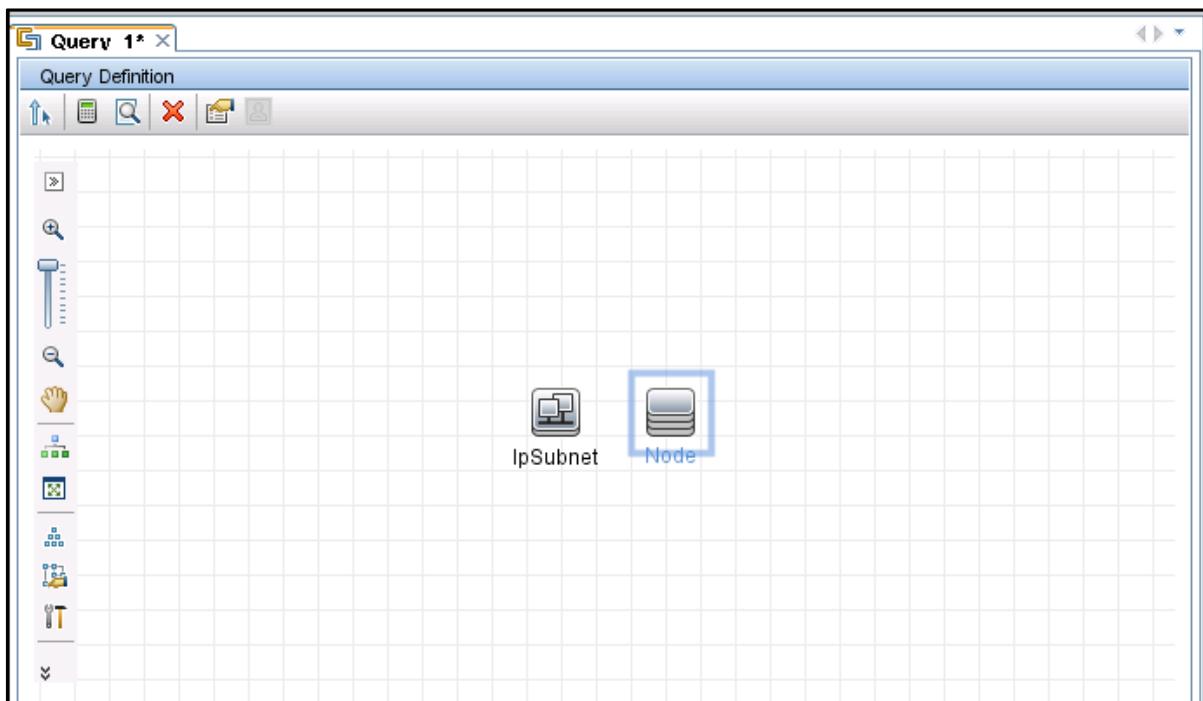


5. Drag and drop the IpSubnet CIT to the Topology pane, as shown in the following screenshot:

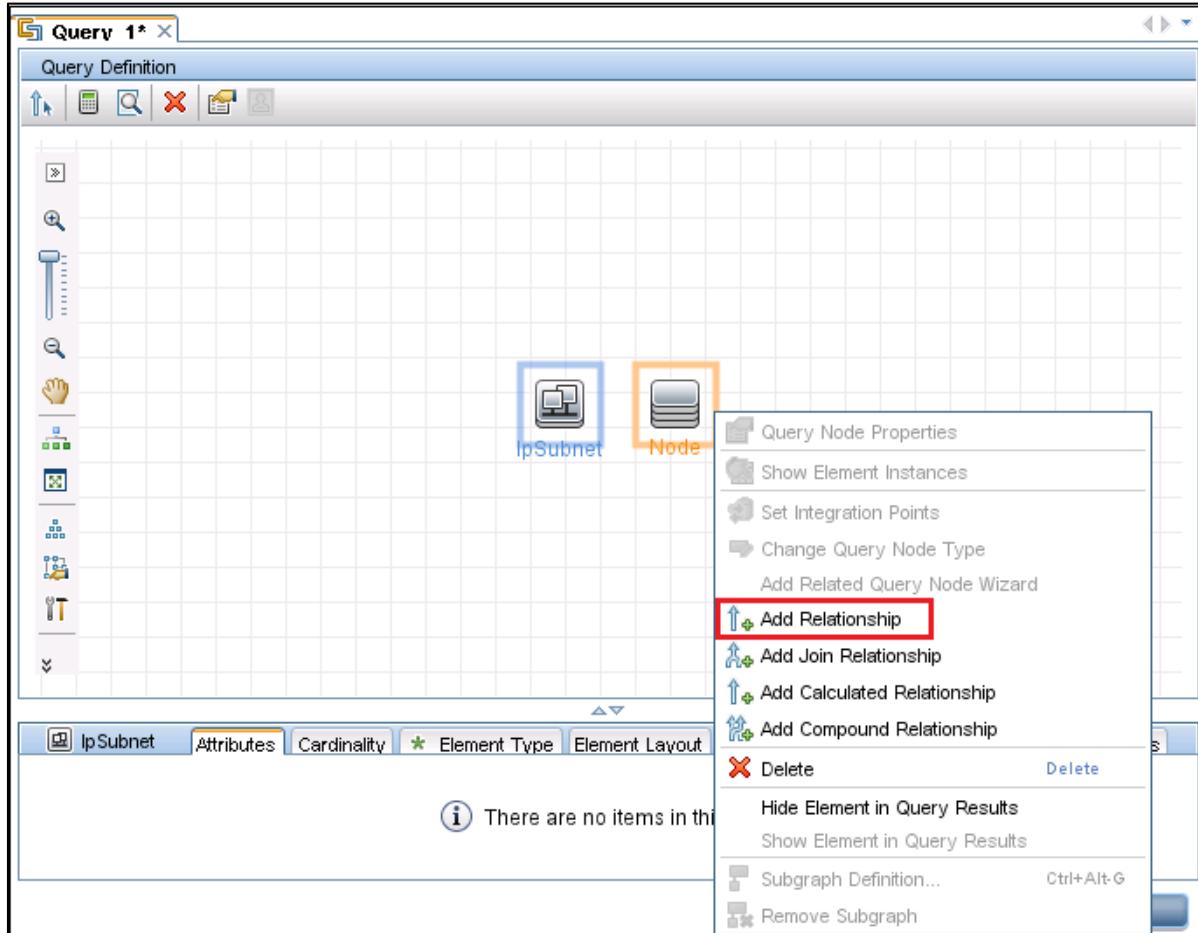


6. Locate Node in the CI Type list by clicking the top CIT of the tree and typing `node`.
7. Drag Node to the Topology pane.

8. All CITs appear on the TQL canvas, as shown in the following screenshot:



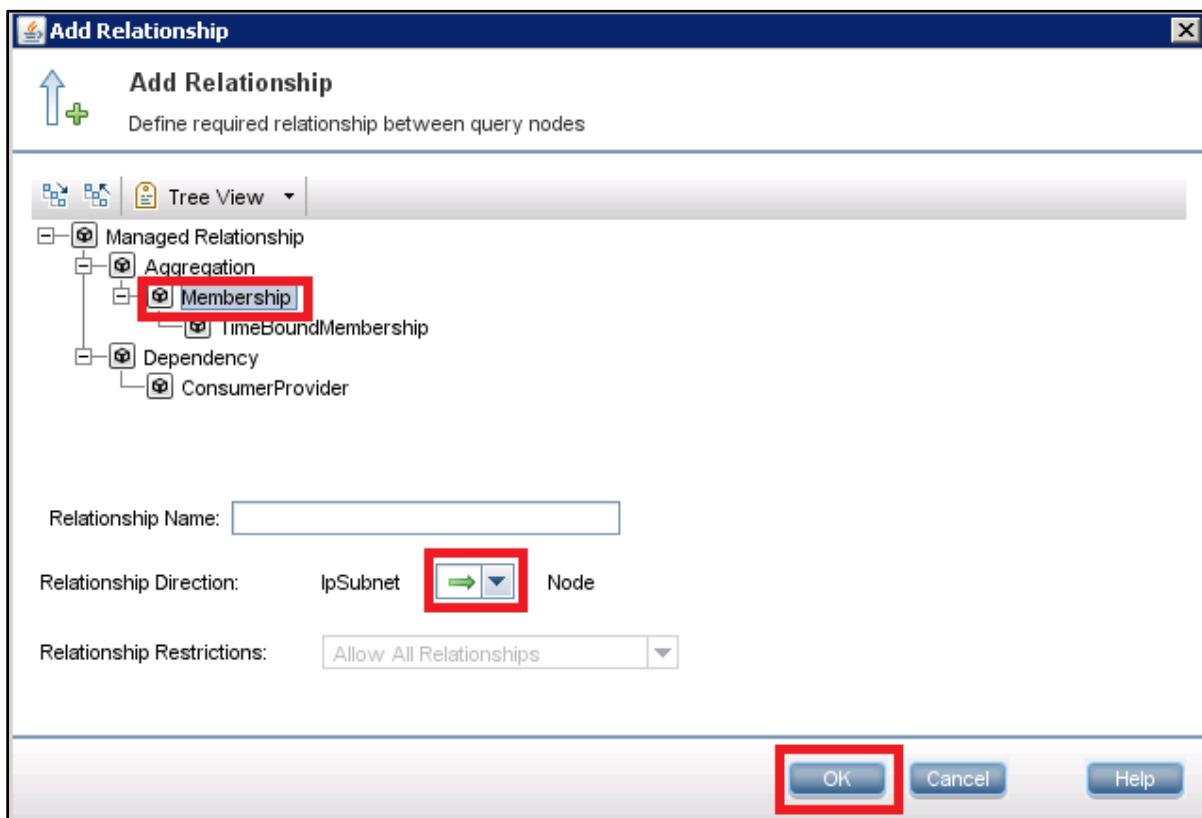
9. Select IpSubnet and Node in the Topology pane by pressing and holding the CTRL key. Then right-click the Node CIT. Select Add Relationship from the context menu which is displayed, as shown in the following screenshot:



10. The Add Relationship dialog box is displayed. Make sure the Relationship Direction appears as IpSubnet → Node.

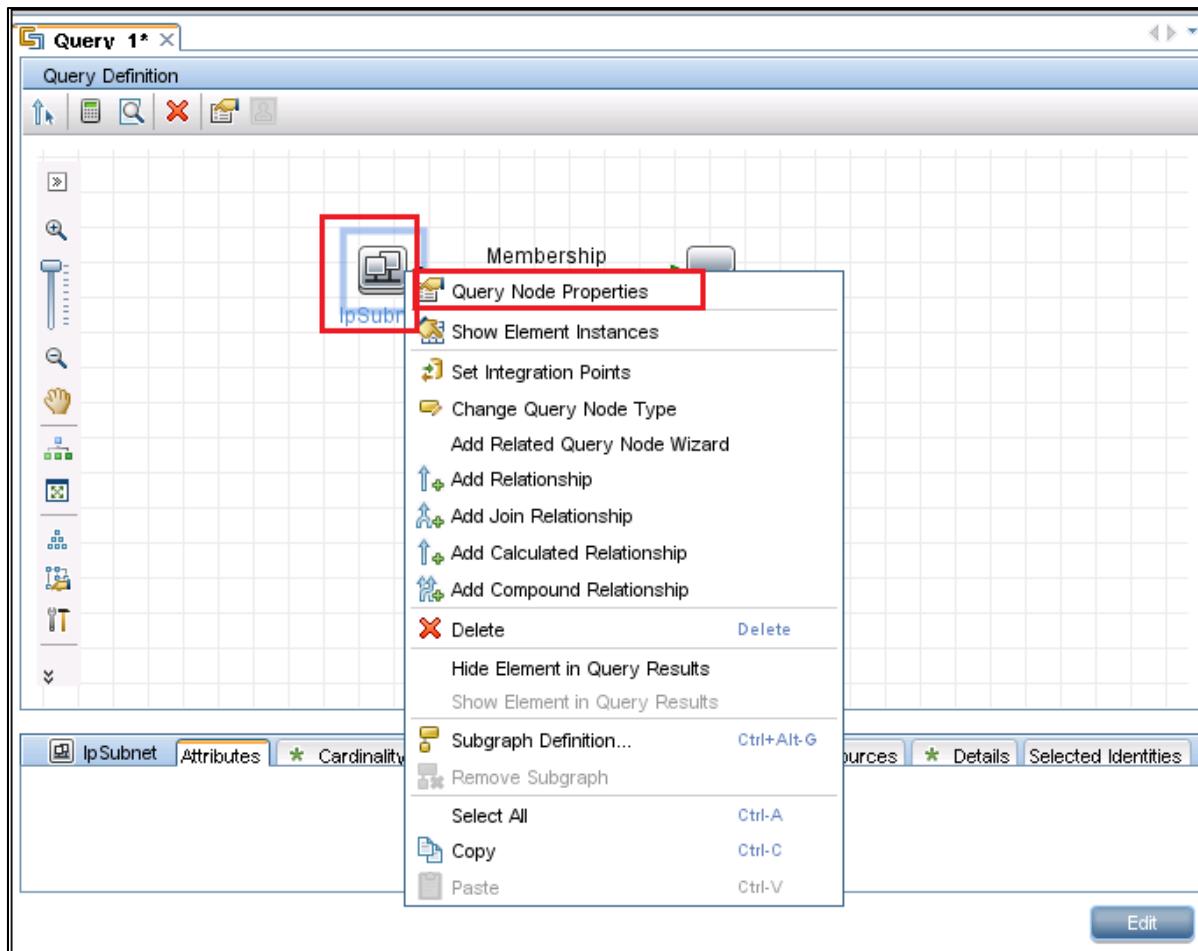
11. Select the Membership link.

12. Click the OK button to close the dialog box, as shown in the following screenshot:



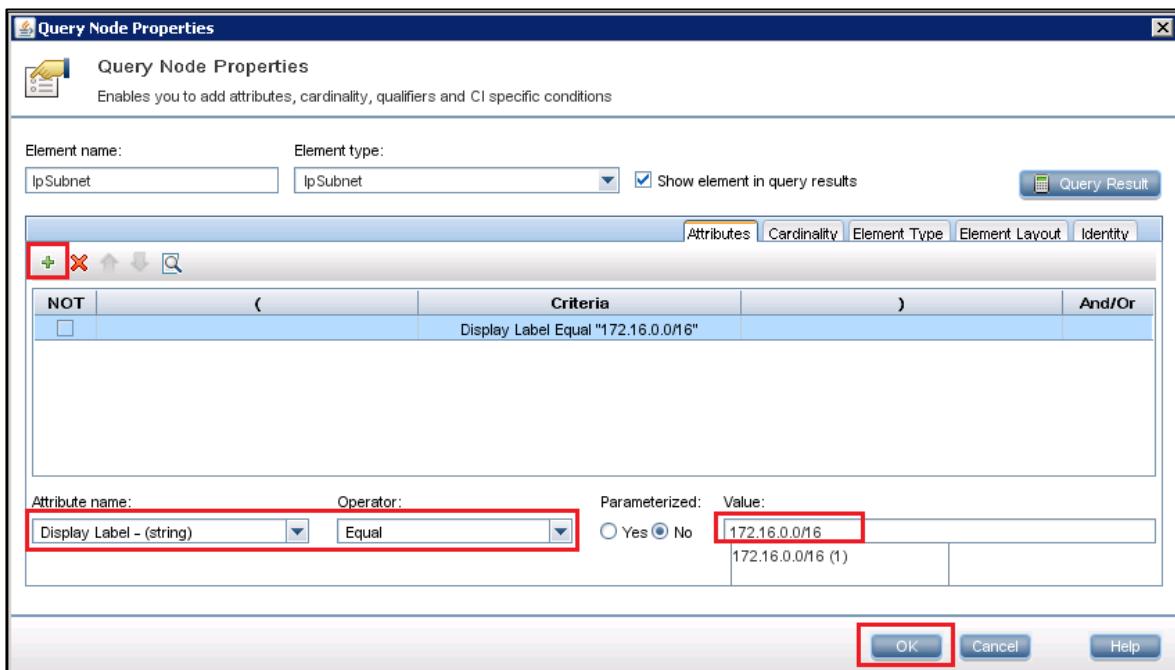
13. Right-click the IpSubnet CIT in Topology view.

14. Select Query Node Properties from the context menu, as shown in the following screenshot. The Query Node Properties dialog box is displayed.

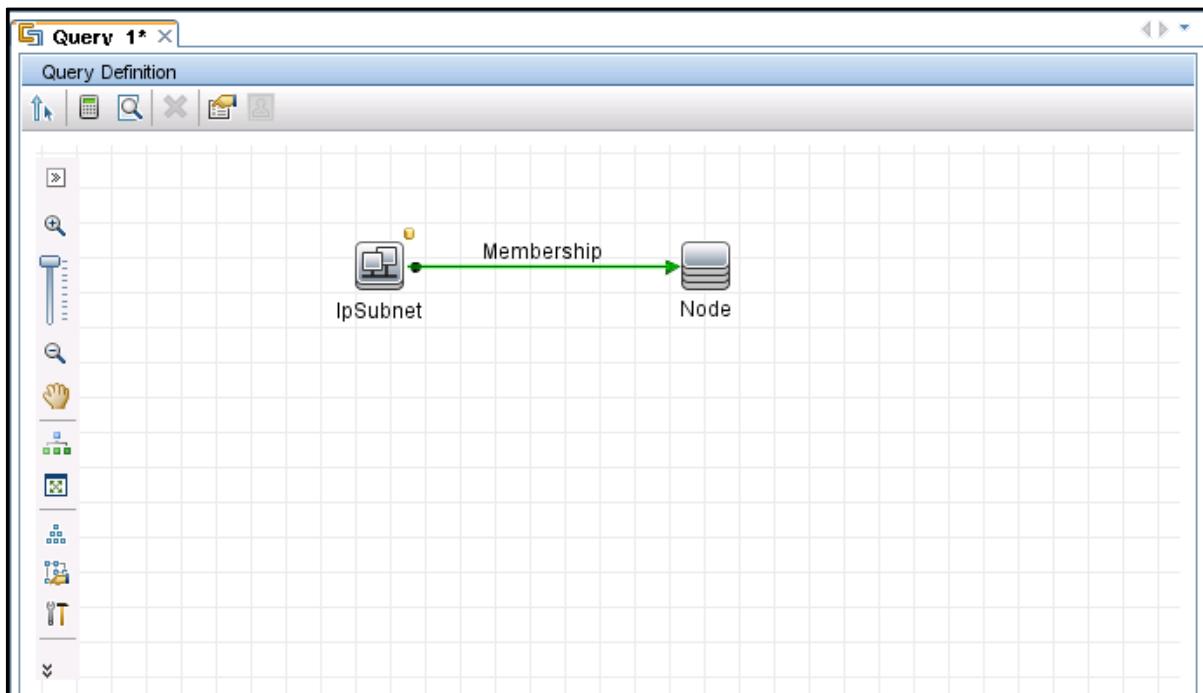


15. In the Query Node Properties dialog box, click the Add (+) button.  
16. In the Attribute Name field, select Display Label.  
17. Retain the Operator as Equal and in the Value field, type **172.16.0.0/16**.

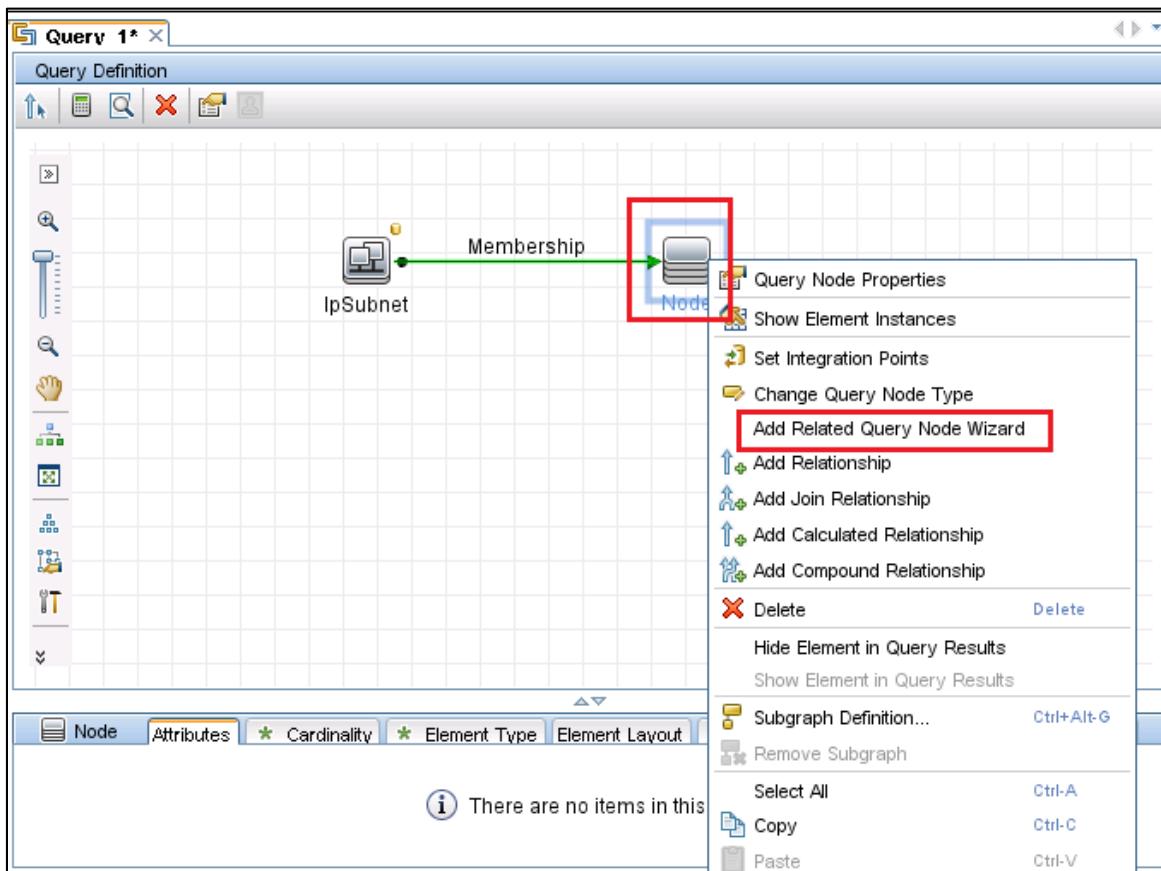
18. Click the OK button to close the dialog box, as shown in the following screenshot:



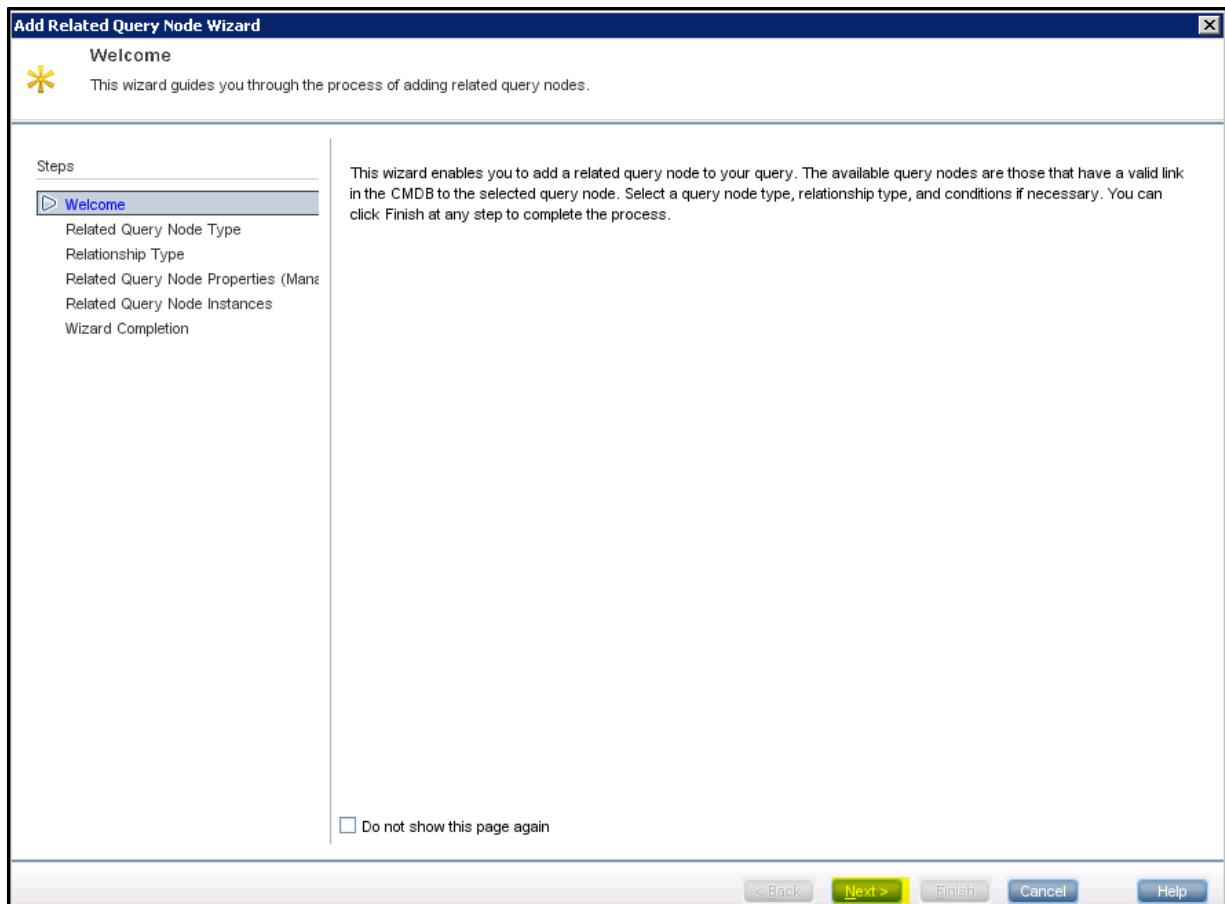
19. The TQL should look similar to the following screenshot:



20. To add and link the Database CIT to the Node CIT, right click Node and select Add Related Query Node Wizard from the context menu, as shown in the following screenshot:

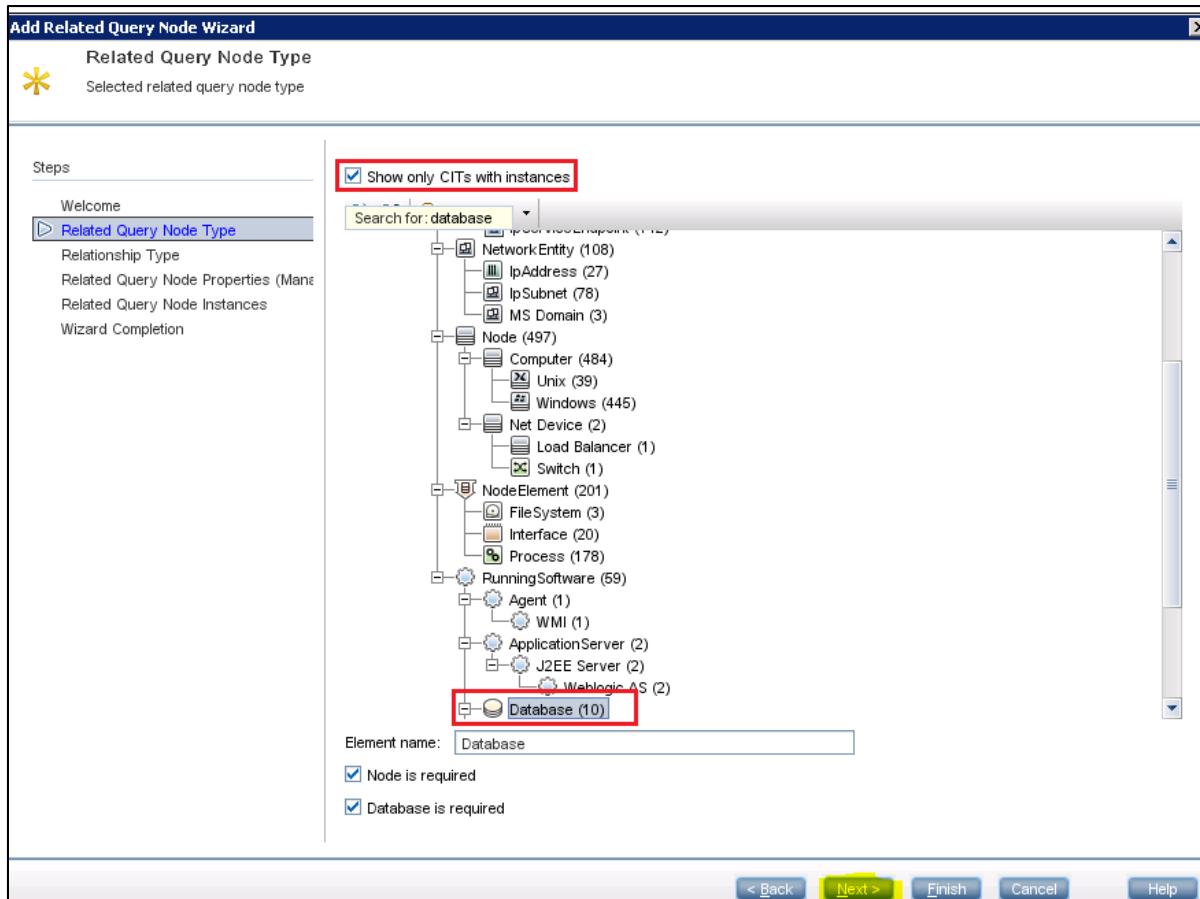


21. The Add Related Query Node Wizard screen is displayed. Click the Next button to go to the next screen of the wizard, as shown in the following screenshot:

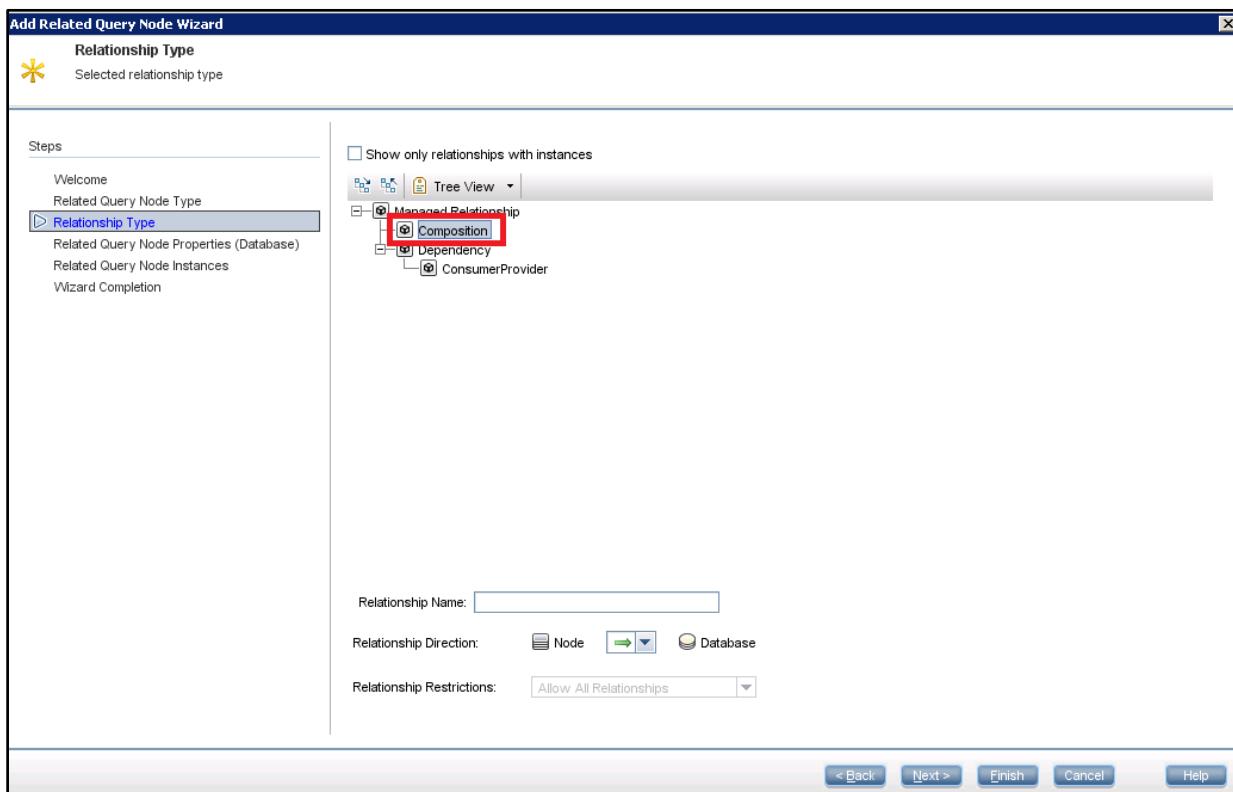


22. Select the Show only CITs with Instances check box.

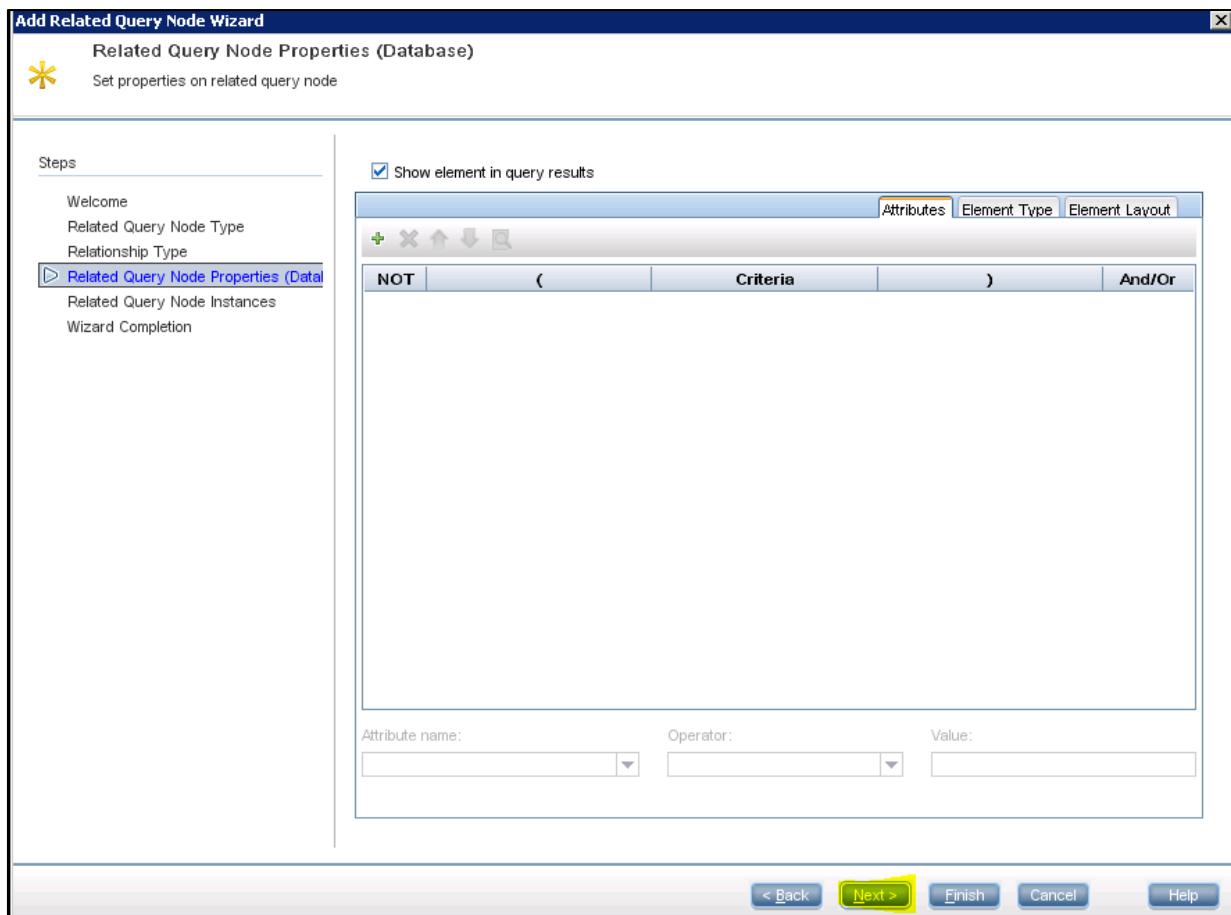
23. Click the root of the CIT tree and type **database** to locate the Database CIT. Select it and click the Next button to proceed, as shown in the following screenshot:



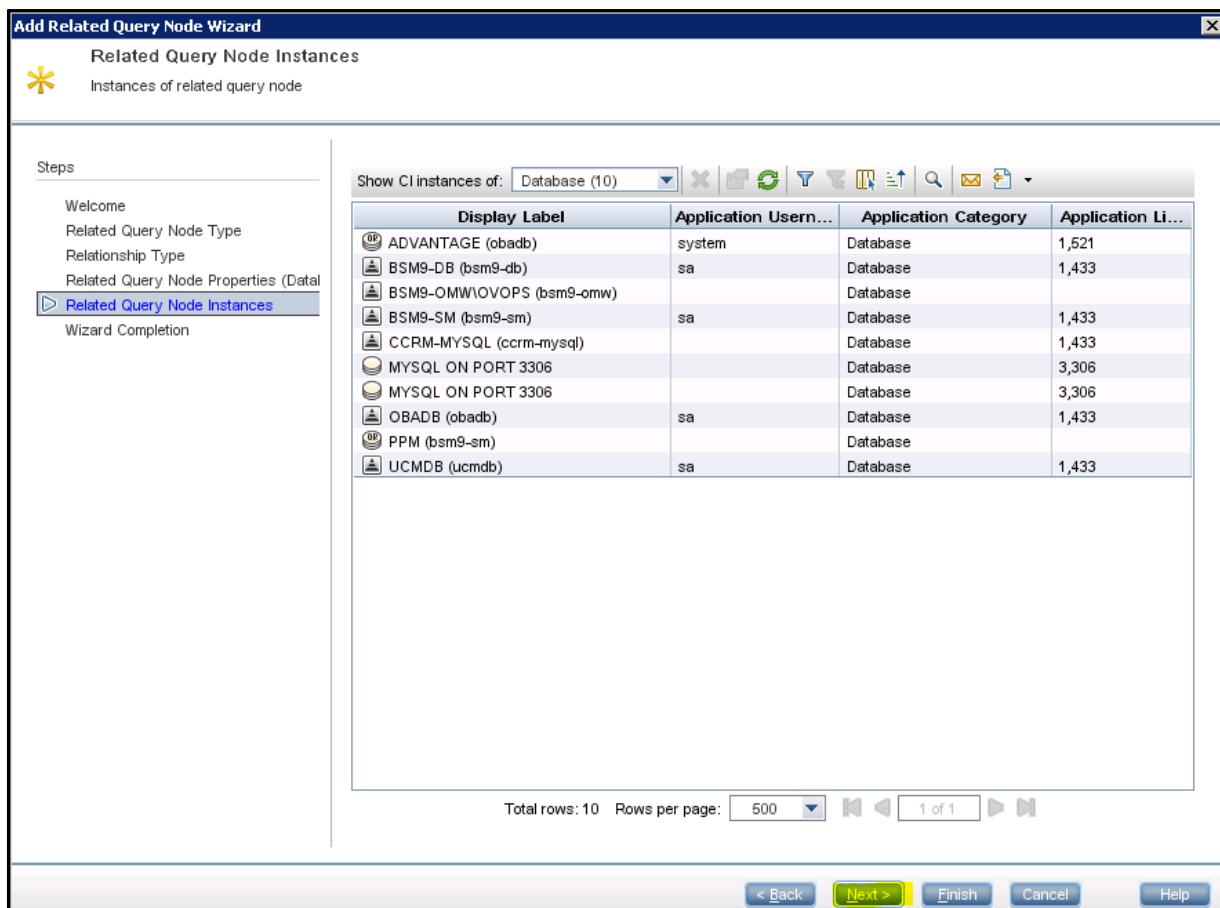
24. To link the (composition) Database CIT to the Node CIT, in the Relationship screen of the wizard, select Composition relationship and click the Next button to proceed, as shown in the following screenshot:



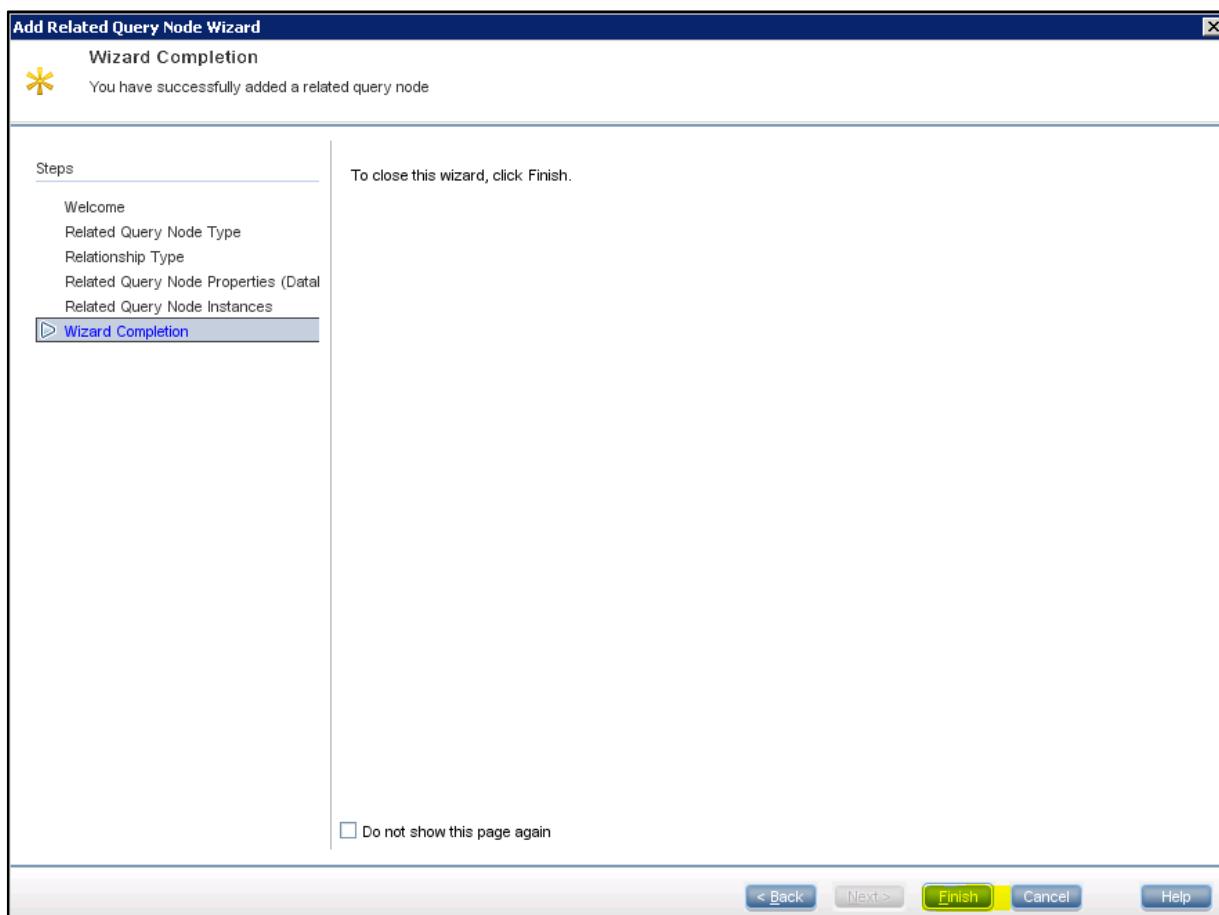
25. Click the Next button in the Related Query Node Properties screen, as shown in the following screenshot:



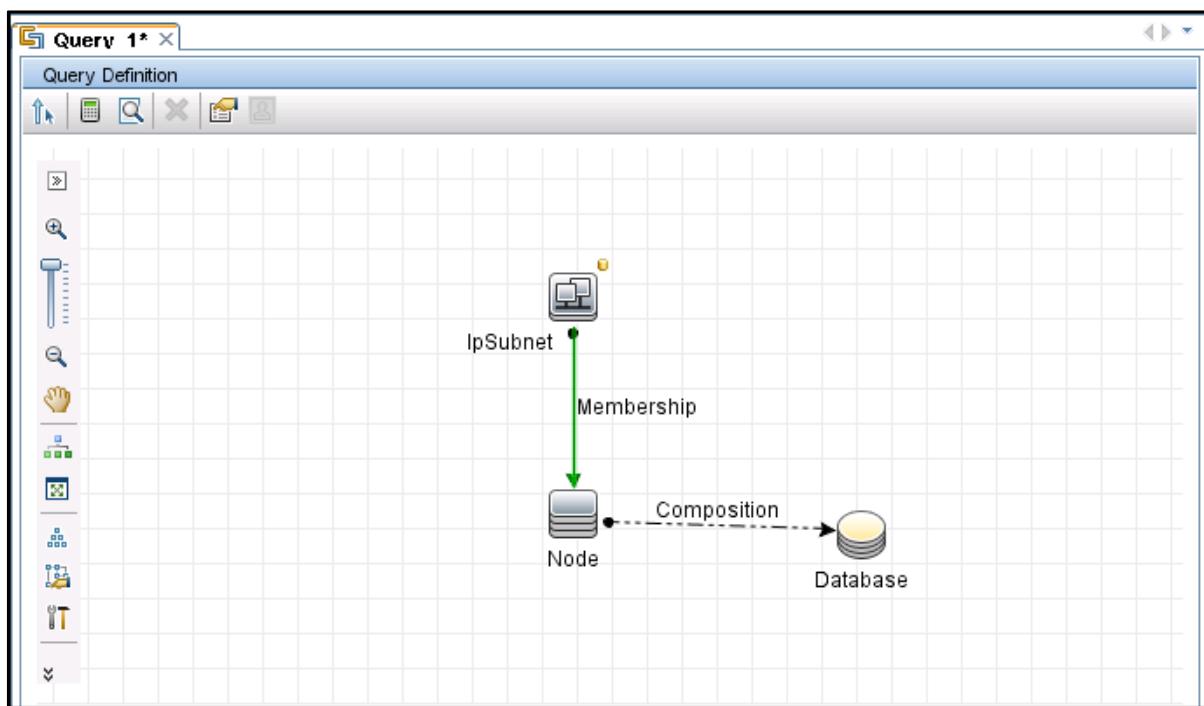
26. Click the Next button in the Related Query Node Instances screen in the wizard to proceed, as shown in the following screenshot:



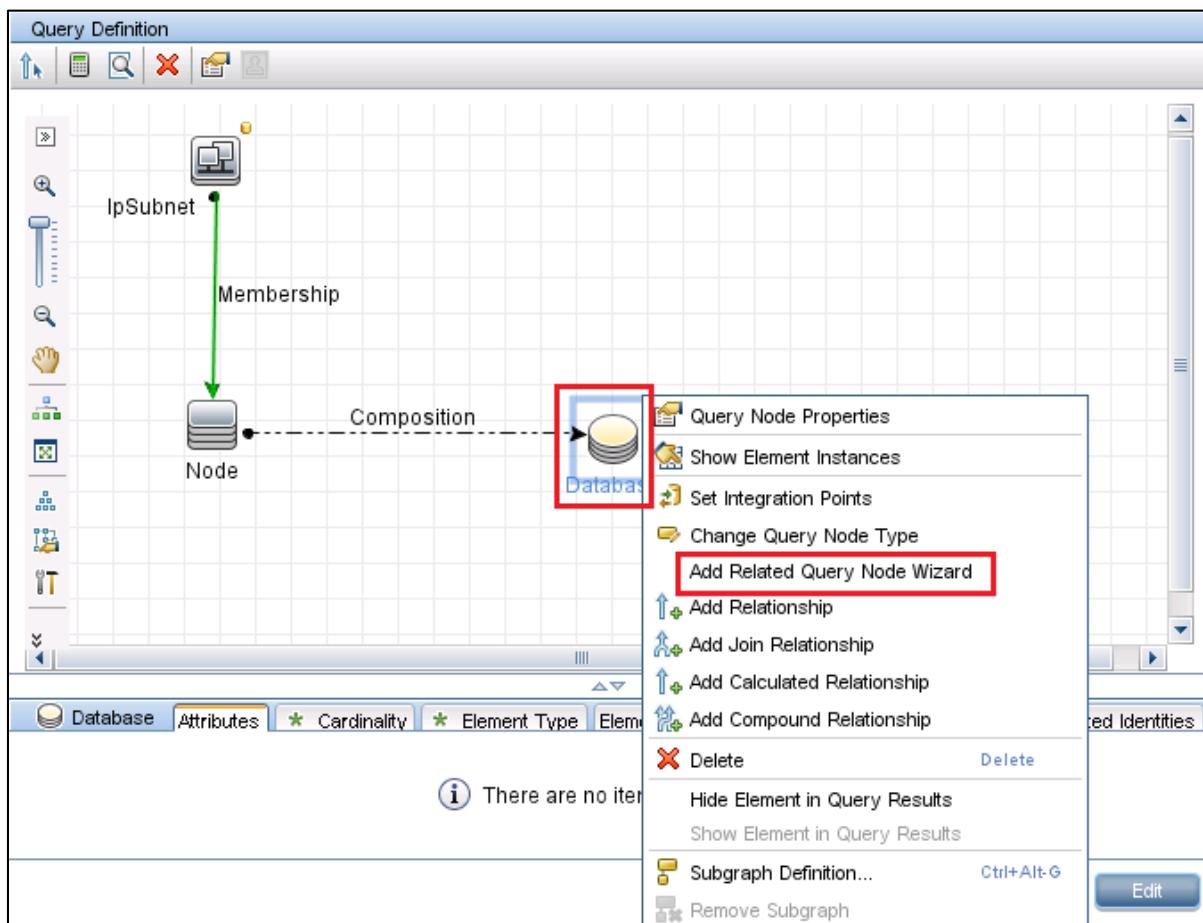
27. Click Finish to close the wizard, as shown in the following screenshot:



28. Now the Query should look similar to the following:

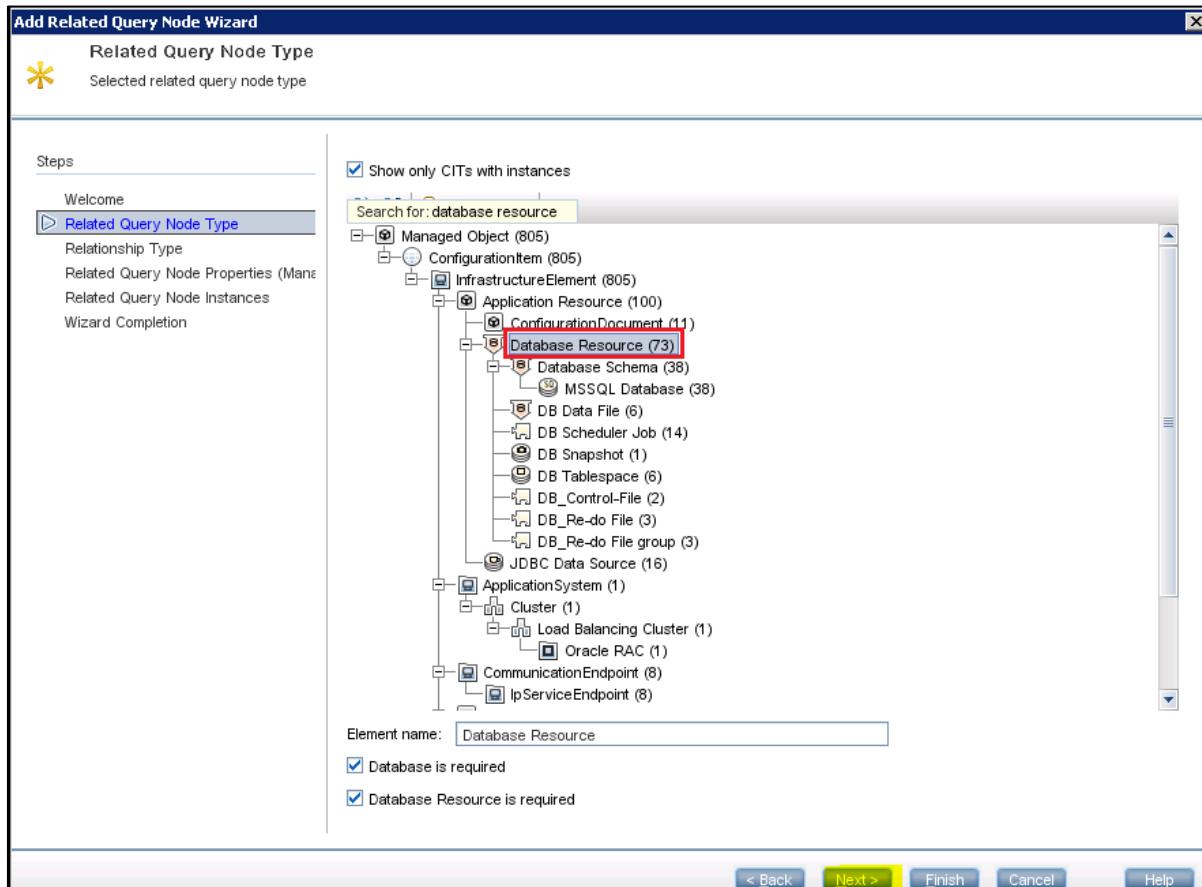


29. Similarly, use the Add Related Query Node wizard to add and link Database Resource Cls to the databases. For this, right-click the Database CIT and select Add Related Query Node Wizard from the context menu, as shown in the following screenshot:

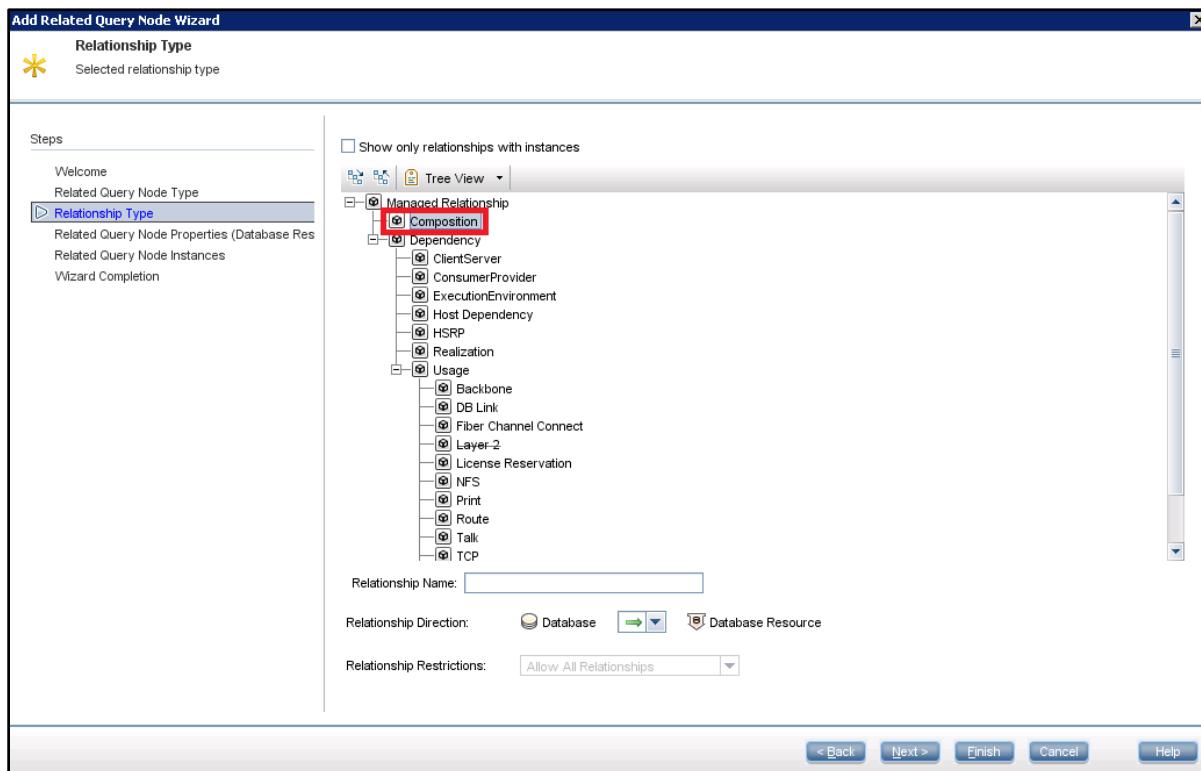


30. The Add Related Query Node Wizard screen is displayed. Click the Next button to go to the next screen of the wizard.

31. In the add Related Query Node wizard's Related query Node type screen, click the root of the CIT tree and type **database resource** to locate the Database Resource CIT. Select it and click the Next button to proceed, as shown in the following screenshot:



32. From the Relationship Type screen of the wizard, select the Composition link. Then click Next to proceed, as shown in the following screenshot:

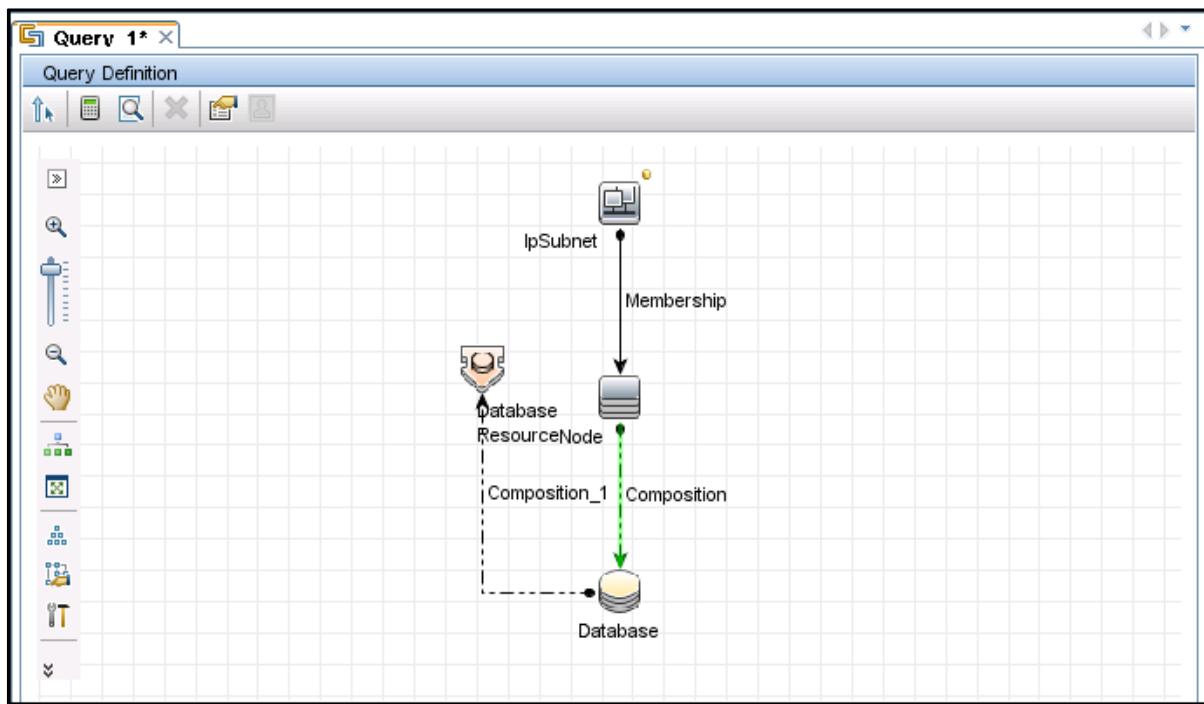


33. Click the Next button in the Related Query Node Properties screen.

34. Click the Next button in the Related Query Node Instances screen in the wizard to proceed.

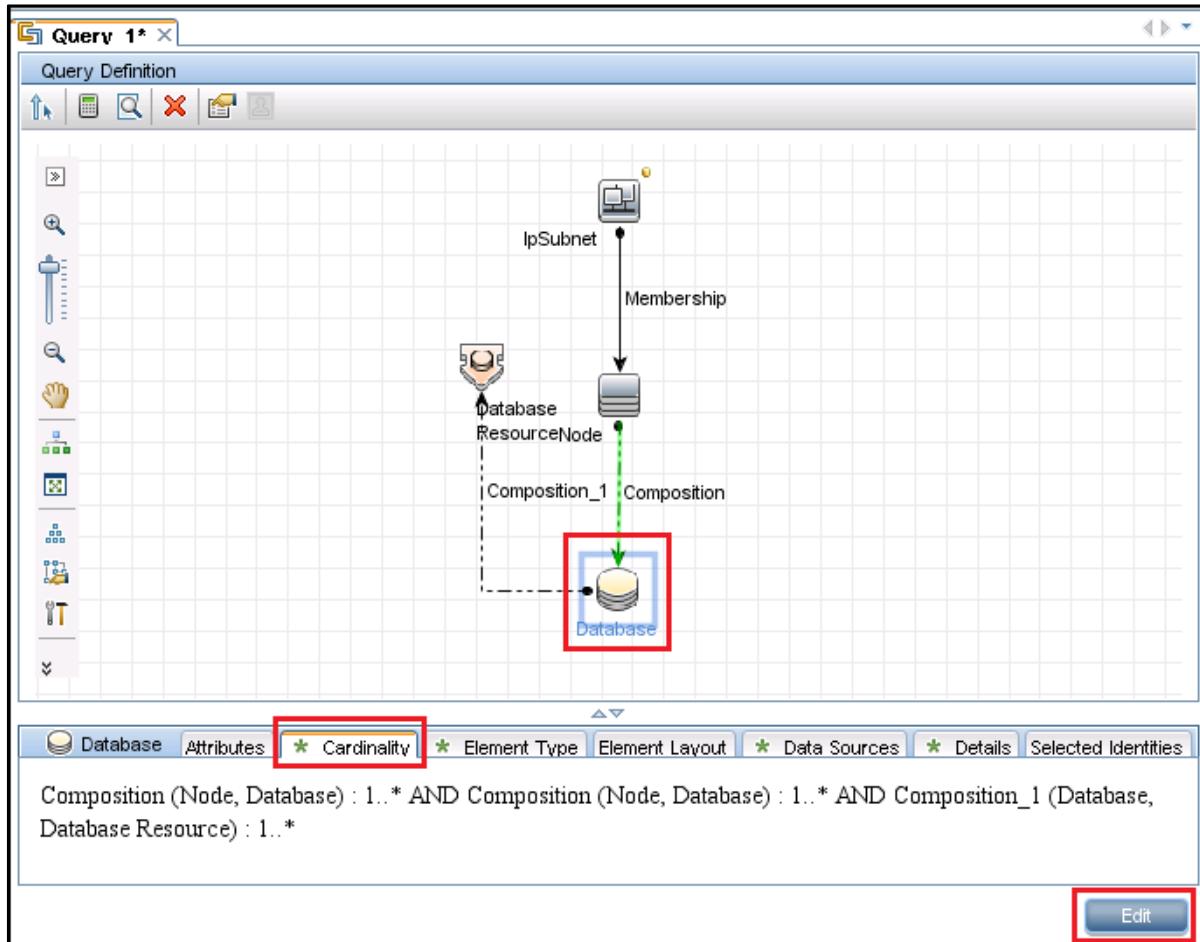
35. Click Finish to close the wizard.

36. Now the TQL should look similar to the following screenshot:



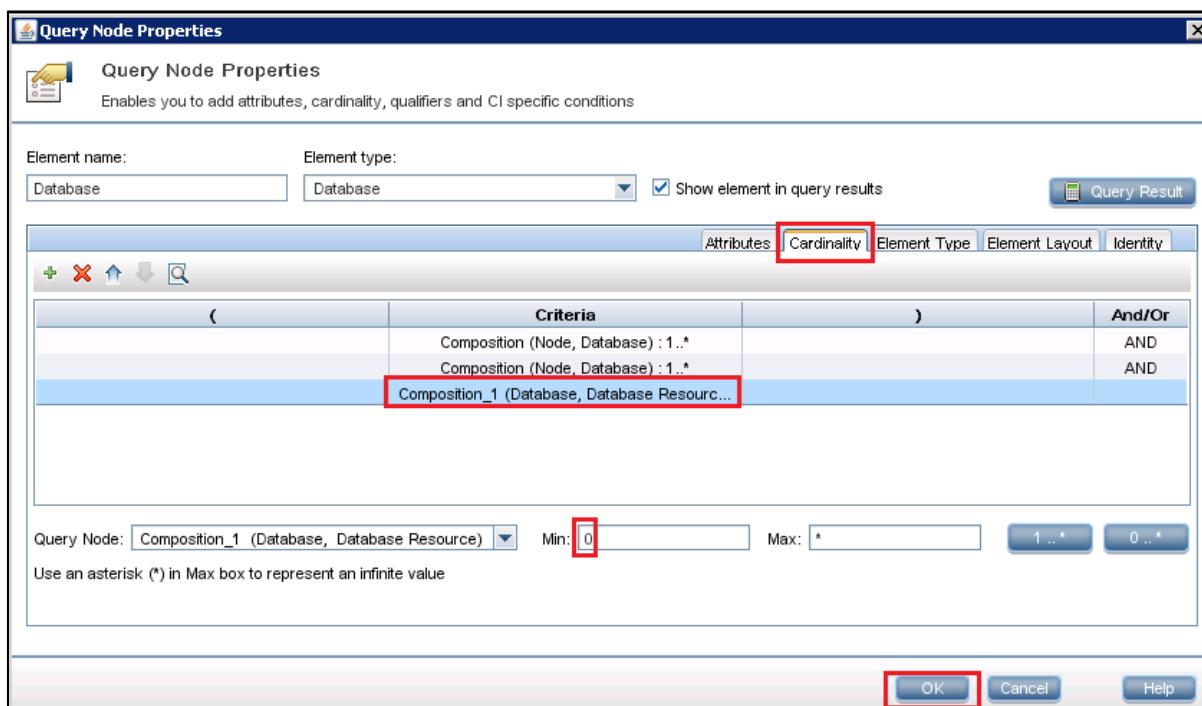
37. To change cardinality between Database CIT and Database Resource CIT to 0..\*, click the Database CIT and then click the Cardinality tab from the Advanced pane.

38. Click the Edit button, as shown in the following screenshot:

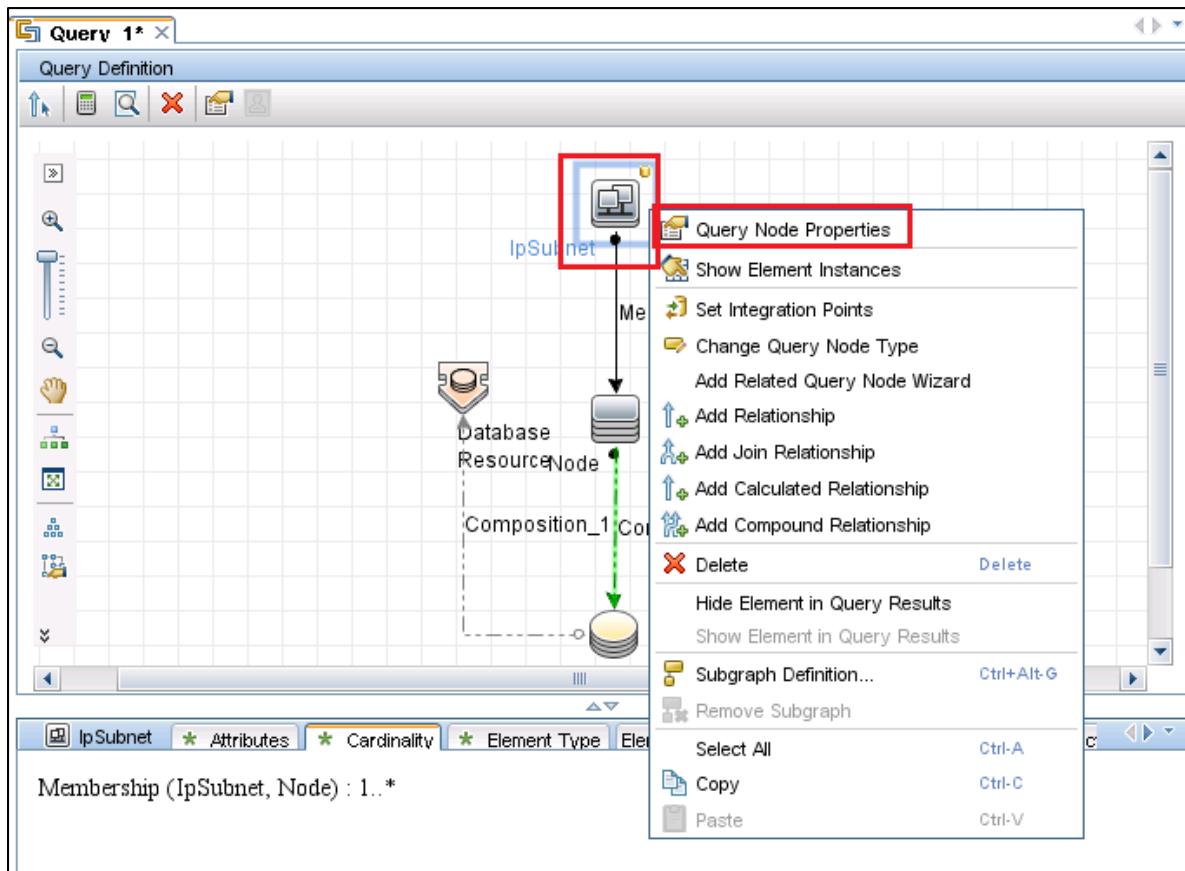


39. In the Query Node Properties window, select the Cardinality tab. Click the Composition\_1(Database, Database Resource) relationship row. Change the min value to 0.

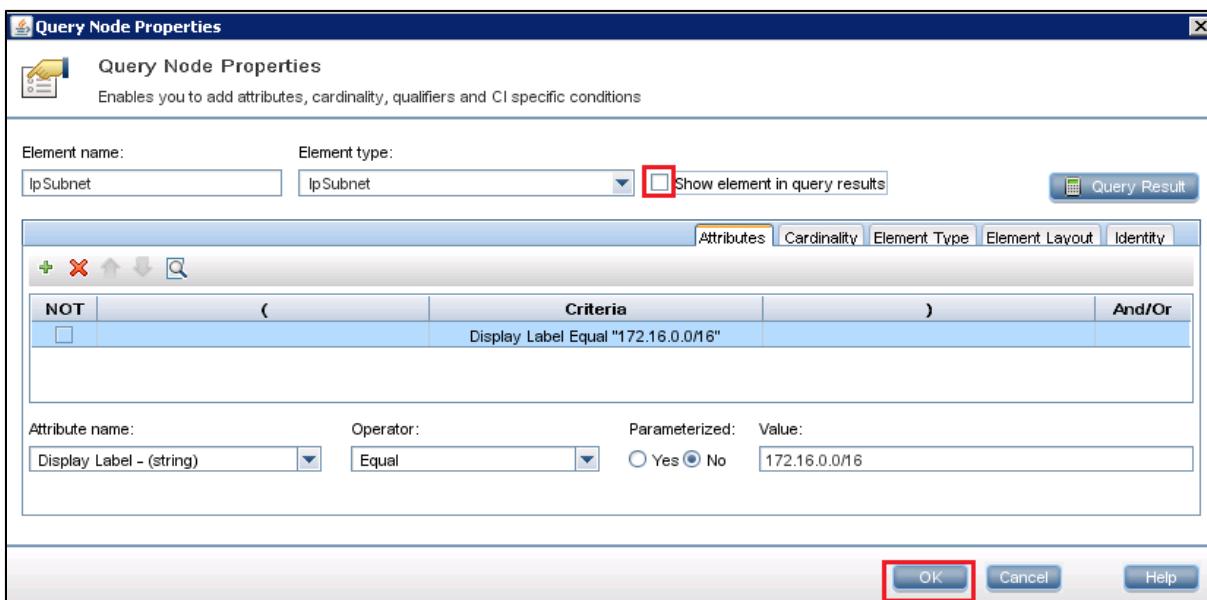
40. Click the OK button to close the dialog box, as shown in the following screenshot:



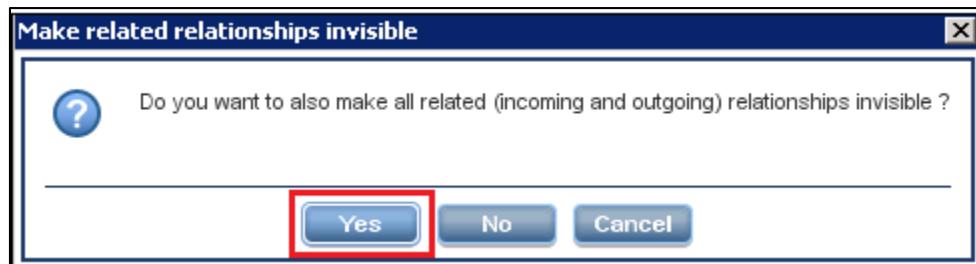
41. Right click IpSubnet CIT and select the Query Node Properties menu item from the context menu, as shown in the following screenshot:



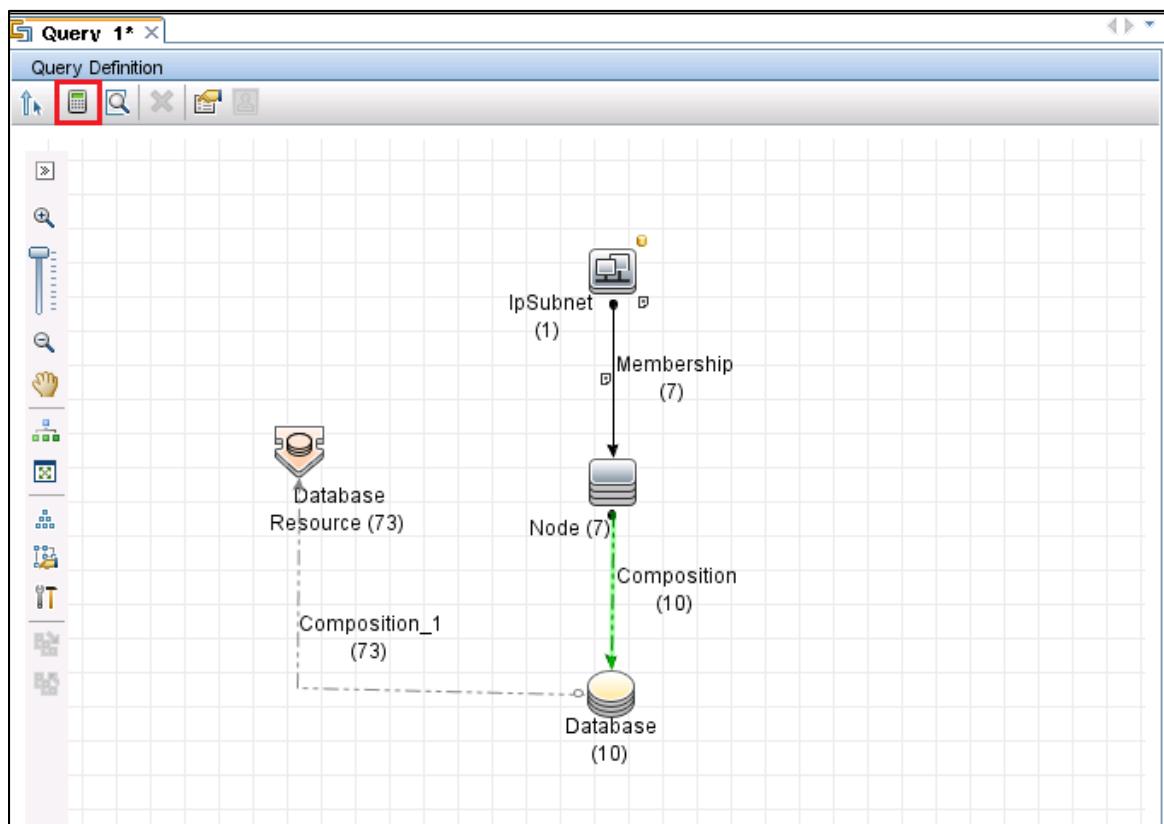
42. In the Query Node Properties window, uncheck Show element in query results. Click the OK button to save and close the window, as shown in the following screenshot:



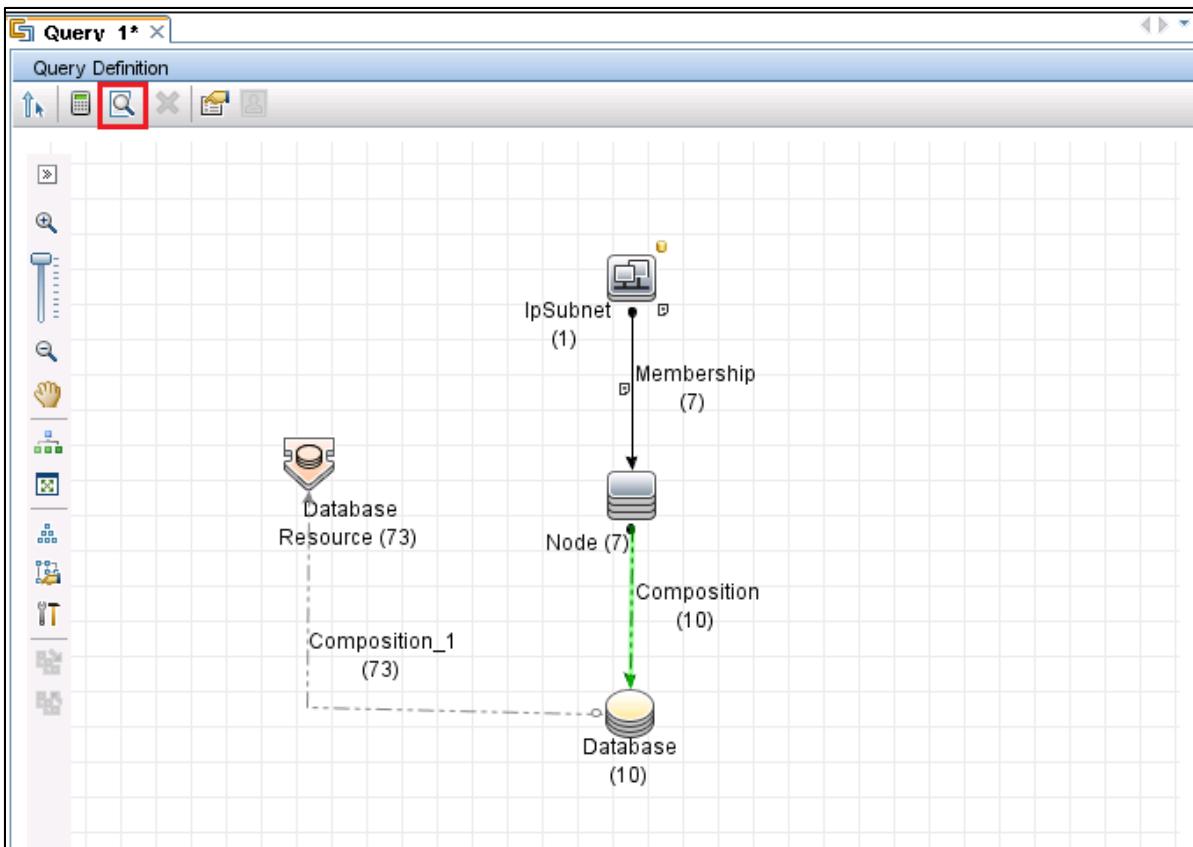
43. A message box is displayed prompting you to make the relationships invisible. Also, hide all related relationships by clicking the Yes button, as shown in the following screenshot:



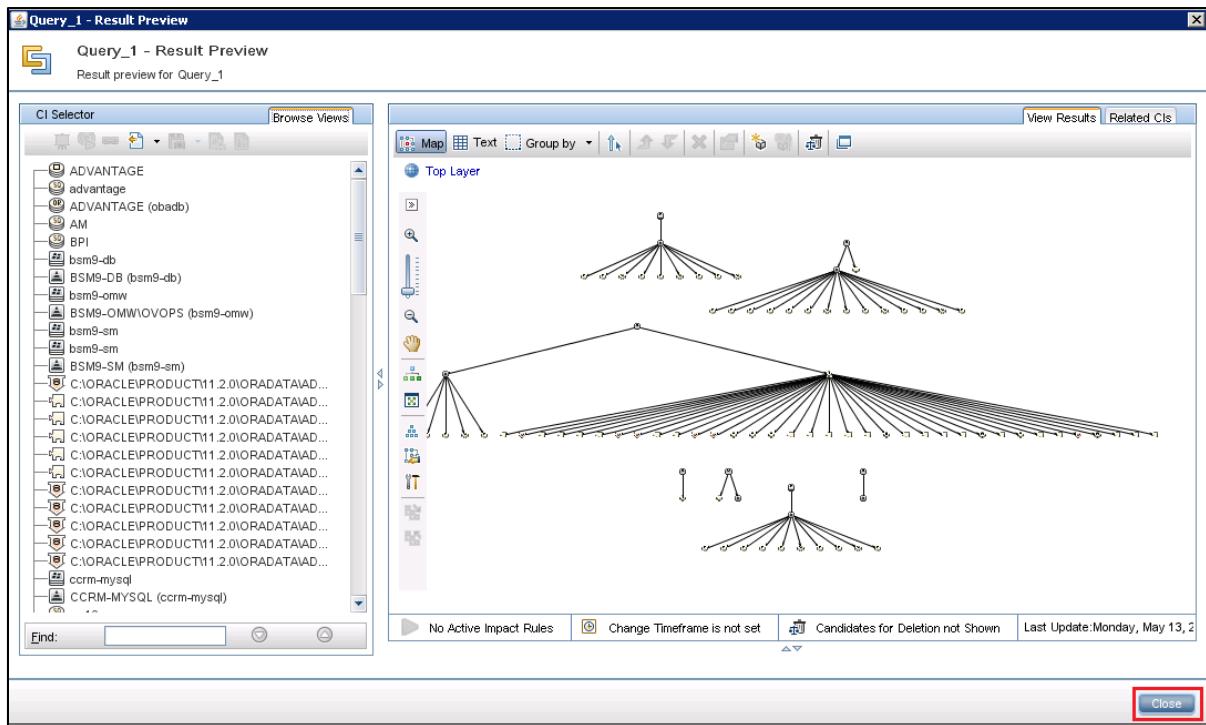
44. Click the Calculate Query Result Count button from the Query Definition toolbar, as shown in the following screenshot:



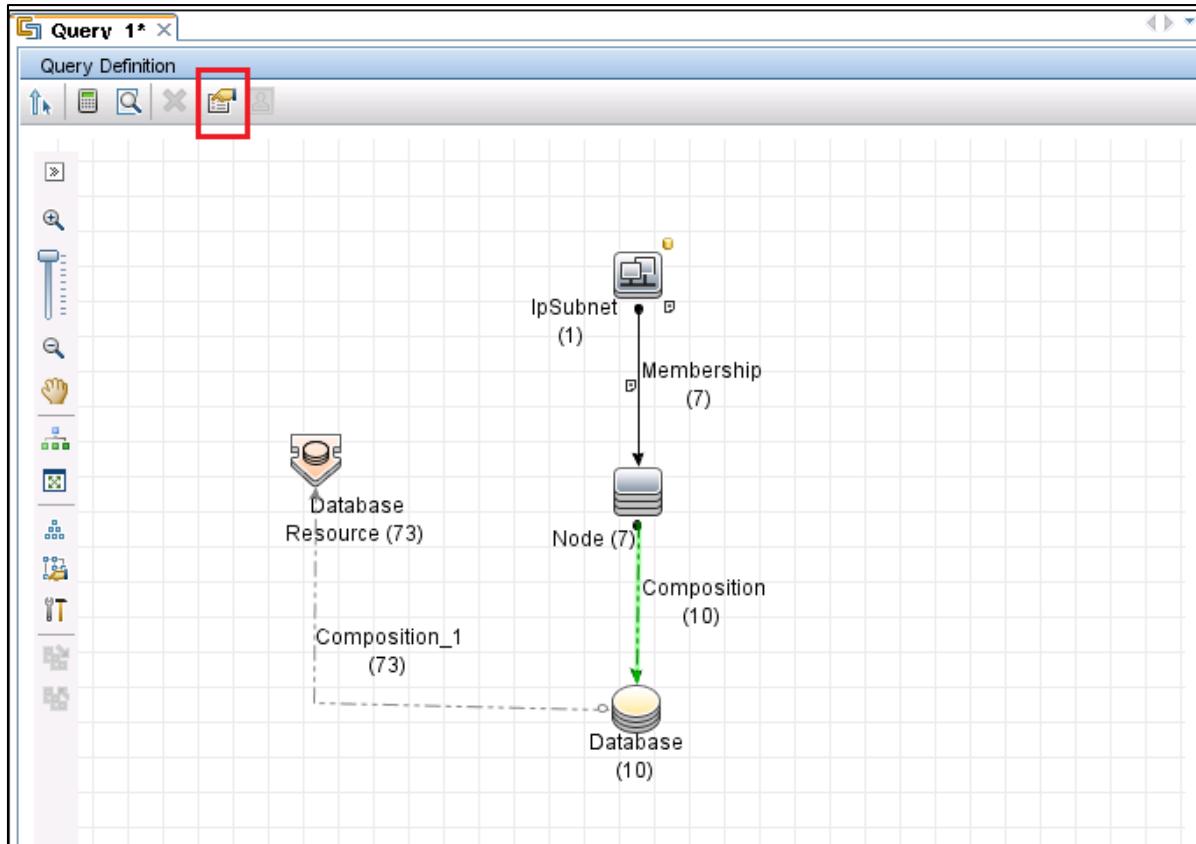
45. Click the Preview  button to see the view results, as shown in the following screenshot:



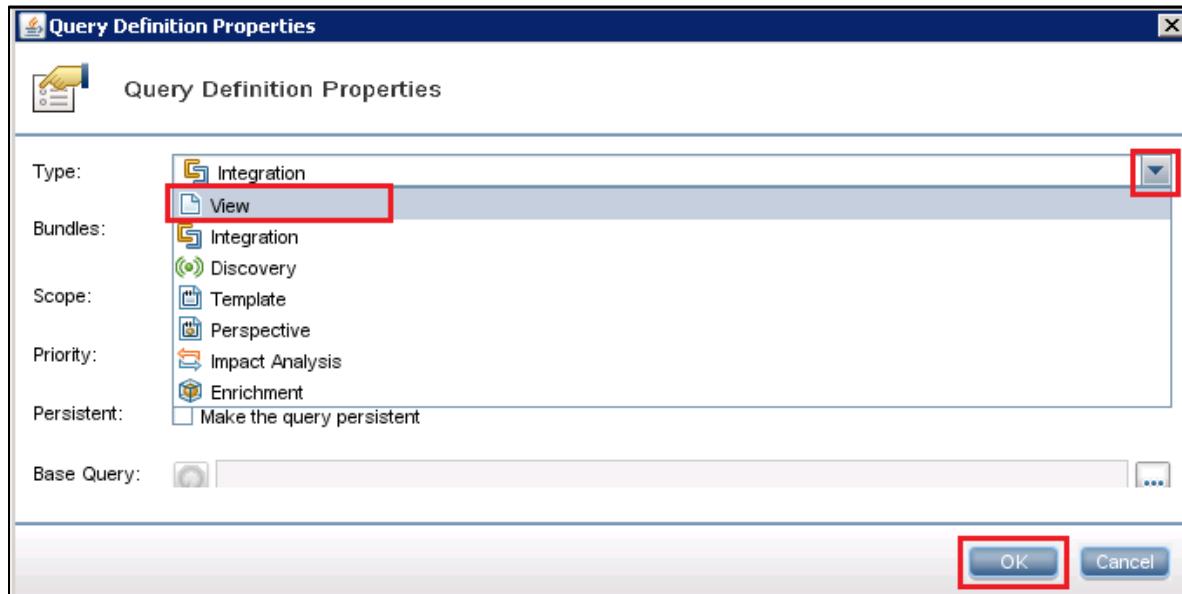
46. The Result Preview screen should look similar to the following screenshot. Close the Preview screen after verification.



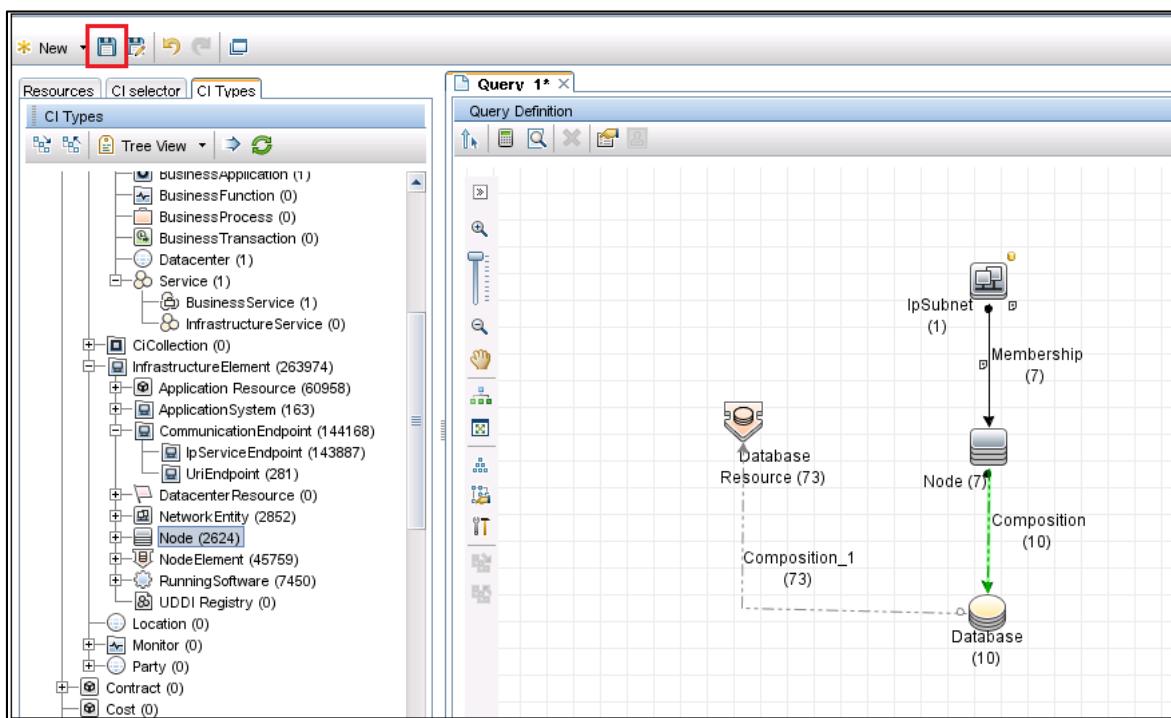
47. To set the properties of the TQL, click the Query Definition Properties button on the toolbar of the Query Definition pane, as shown in the following screenshot:



48. In the Query Definition Properties window, change the query type to View and click the OK button to close the dialog box, as shown in the following screenshot:

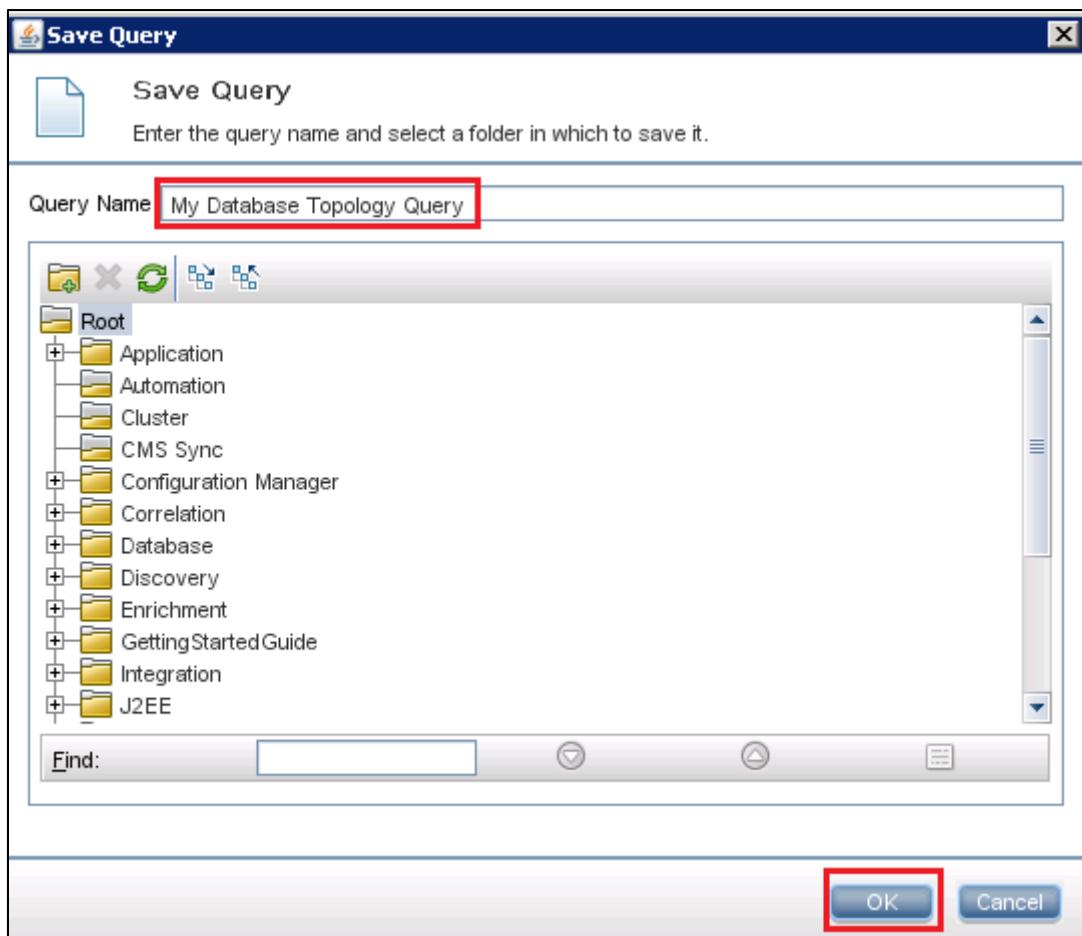


49. Click the Save button, as shown in the following screenshot:



50. The Save Query dialog box is displayed. In the **Query Name** field, type **My Database Topology Query**.

51. Click the OK button to save the changes and close the dialog box, as shown in the following screenshot:



## Exercise 3 – Creating a Query with Attribute, Identity, and Cardinality Conditions

In this exercise, you work without the aid of step-by-step instructions, as follows:

### **Query Specification:**

Create an Enrichment query named My Nodes and Software to return all devices on the subnet 172.16.0.0/16 and any software running on those devices that listens on port number 7000 or higher.

### **Note:**

As implied by the exercise title, use Attribute, Identity, and Cardinality conditions to achieve this.

You are working without the aid of step-by-step instructions, so ask the instructor for help or hints if you need them.

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# Lab 7 – Modeling Studio – Views

## Objectives

After completing this lab, you should be able to:

- Create new pattern views
- Create a template

## Exercise 1 – Creating New Pattern Views

Oscar, the operations bridge manager, has been asked to present his scope of responsibility to the new bank directors.

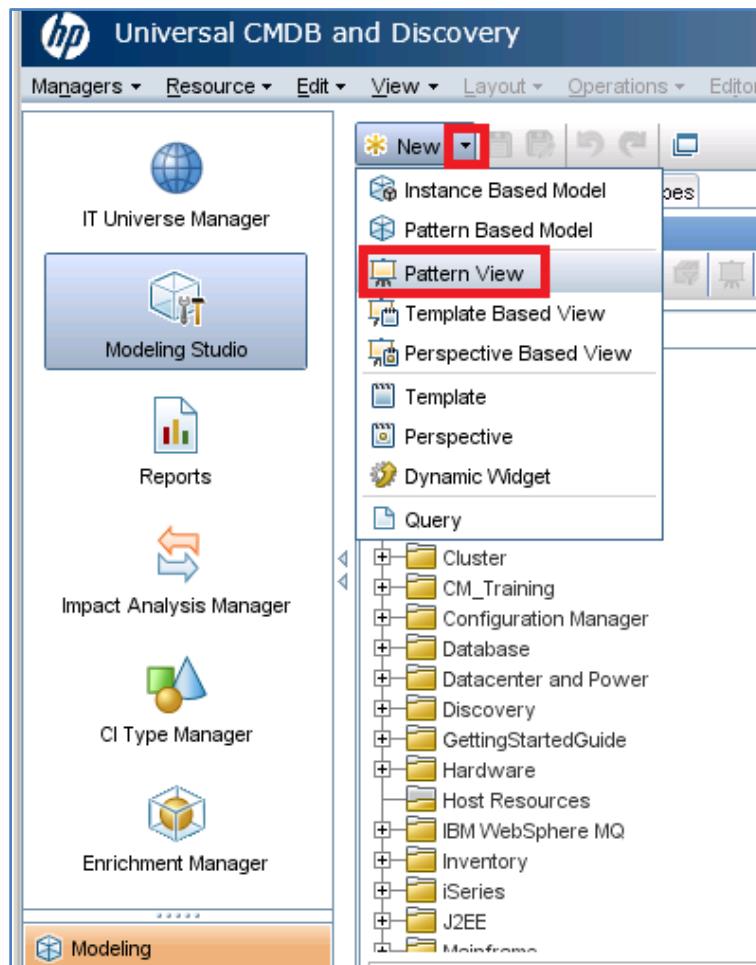
As a member of Oscar's team, you have been asked to create views to present this information. This exercise involves two tasks:

- Task 1 – Create the OBA Database Topology view based on an existing TQL
- Task 2 – Create a view with cardinality conditions and hierarchy

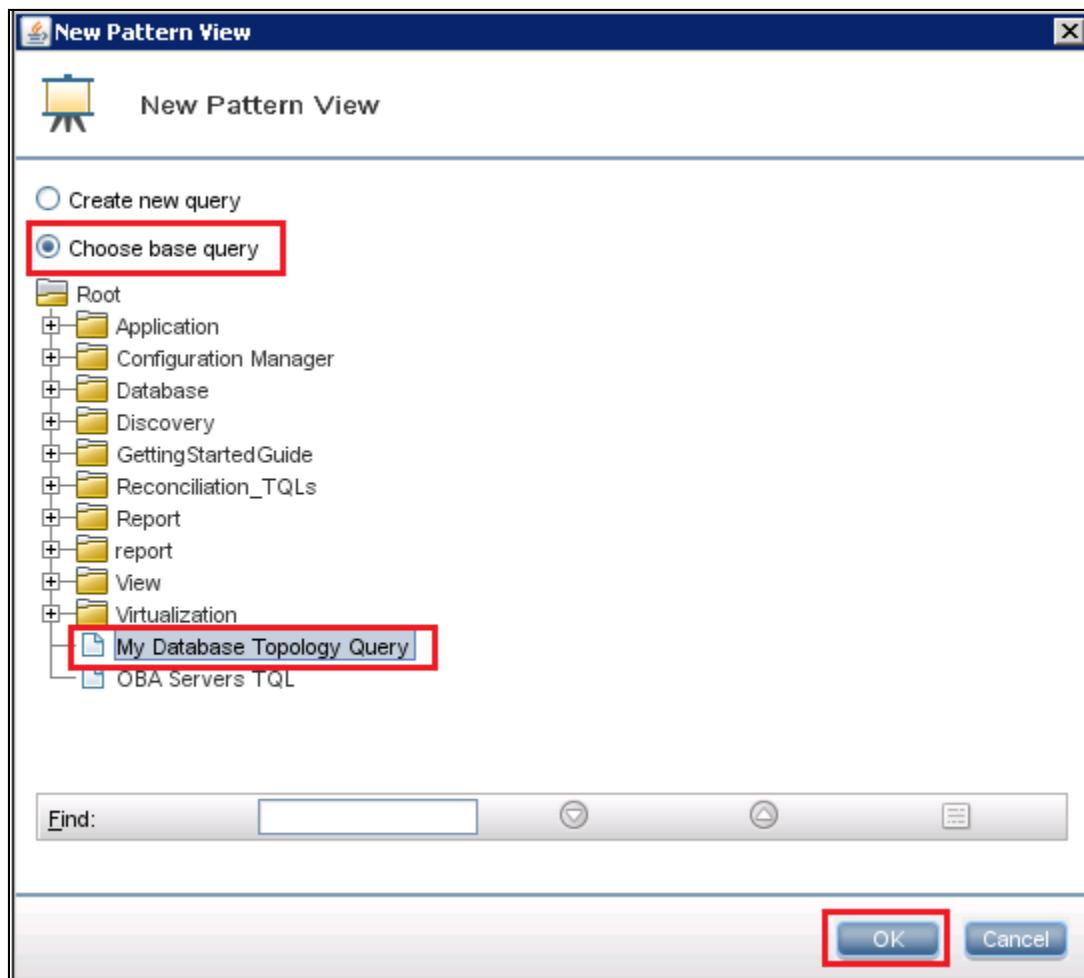
### Task 1 – Creating the OBA Database Topology View Based on an Existing TQL

To create a view based on an existing TQL, perform the following steps:

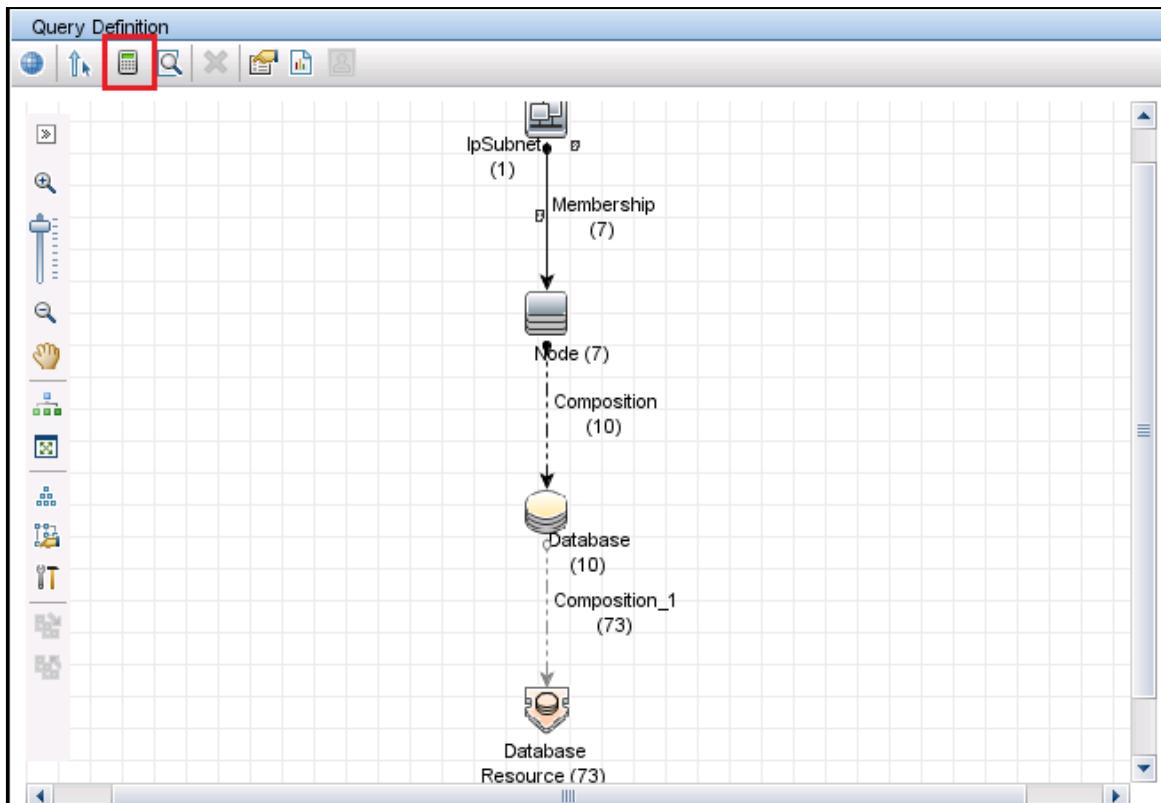
1. In UCMDB, go to Modeling Studio from the Modeling area.
2. Click the New button and select the Pattern View menu item from the drop-down menu, as shown in the following screenshot:



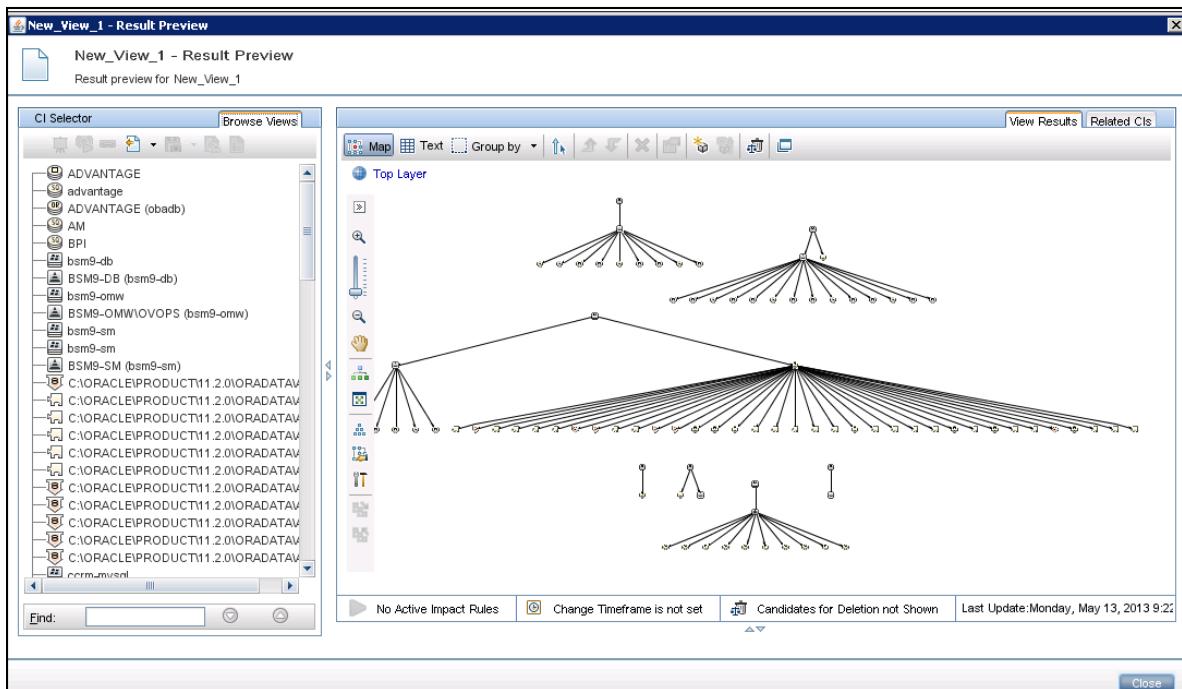
3. In the New Pattern View window, select the option Choose base query.
4. From the Query Tree, select the My Database Topology Query view. (You created this query in Lab 6, Exercise 2.) Then click the OK button, as shown in the following screenshot:



5. The View TQL appears in the Topology pane. Click the Calculate Query Count Result button from the toolbar, as shown in the following screenshot:



6. Click the Preview button  from the Topology pane toolbar. The New\_View\_1 – Result Preview window is displayed. Verify the number of instances, as shown in the following screenshot:



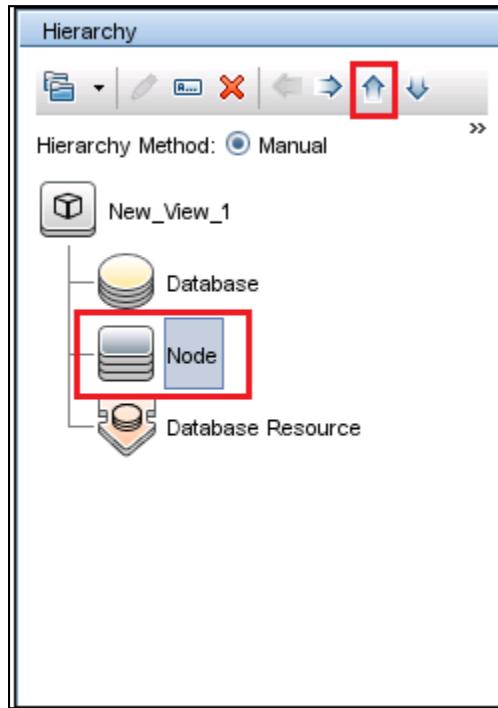
**Note:** Adjust the zoom bar from the left-side tool bar to see a more readable view of the Cls.

7. Click the Group By drop-down list and select the Group by CI Type menu item. Observe that the grouping of Cls happens in different layers, as shown in the following screenshot:

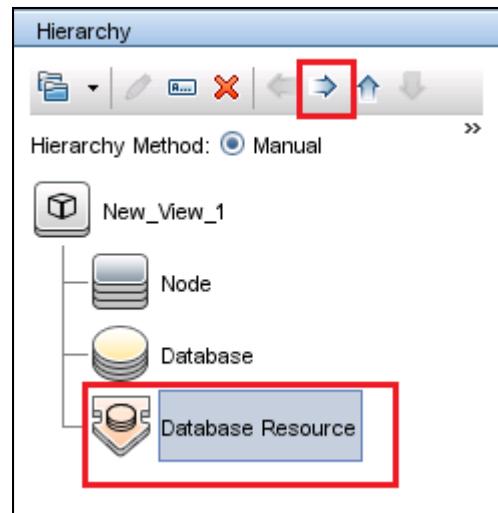


**Note:** Adjust the zoom bar from the left-side tool bar to see a more readable view of the Cls.

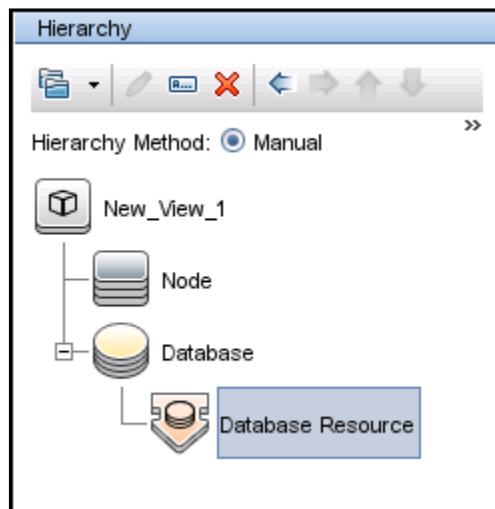
8. Click the Close button to close the preview window.
9. From the Hierarchy pane on the right side, push Node CIT to the top by selecting it and clicking the Up arrow, as shown in the following screenshot:



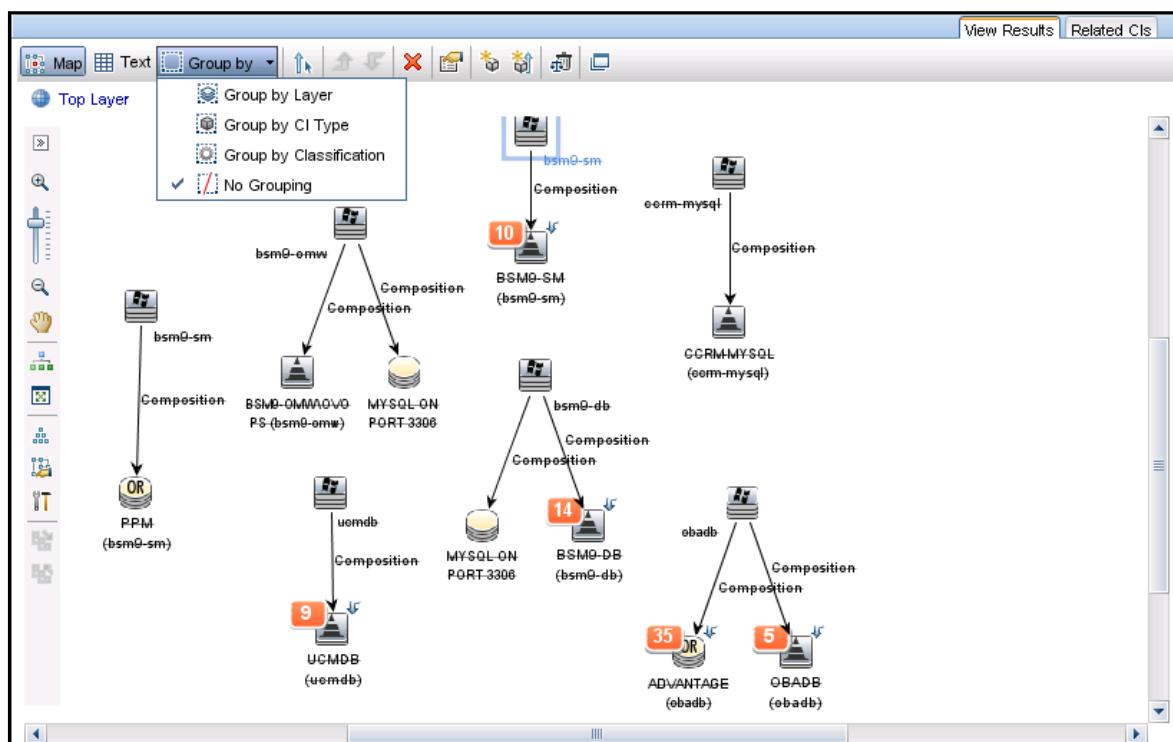
10. Fold the Database Resource CIT under Database CIT, by selecting Database CIT and clicking the right-pointing arrow, as shown in the following screenshot:



11. Verify the query hierarchy, as shown in the following screenshot:

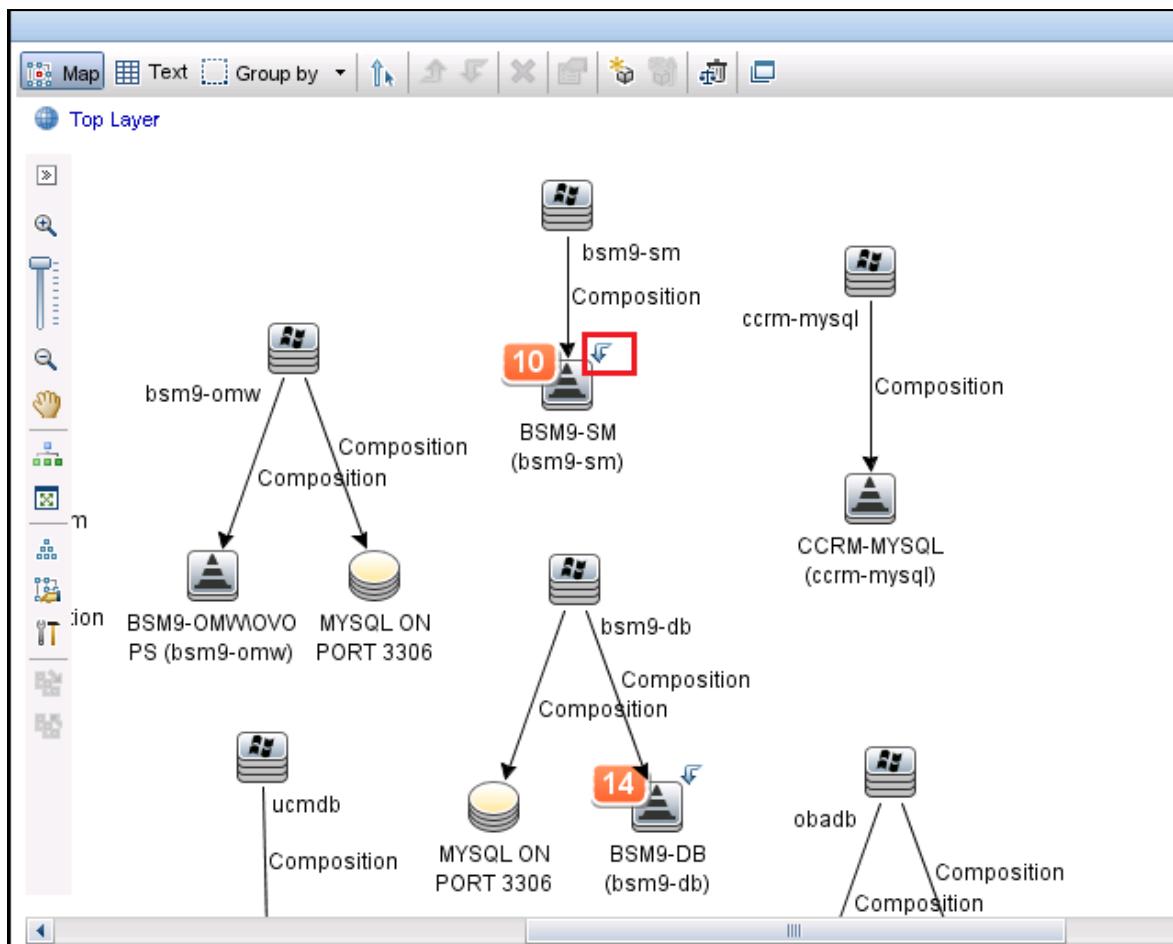


12. Click the preview button from the Topology pane toolbar. The New\_View\_1 – Result Preview window is displayed (that is, no grouping by default), as shown in the following screenshot:

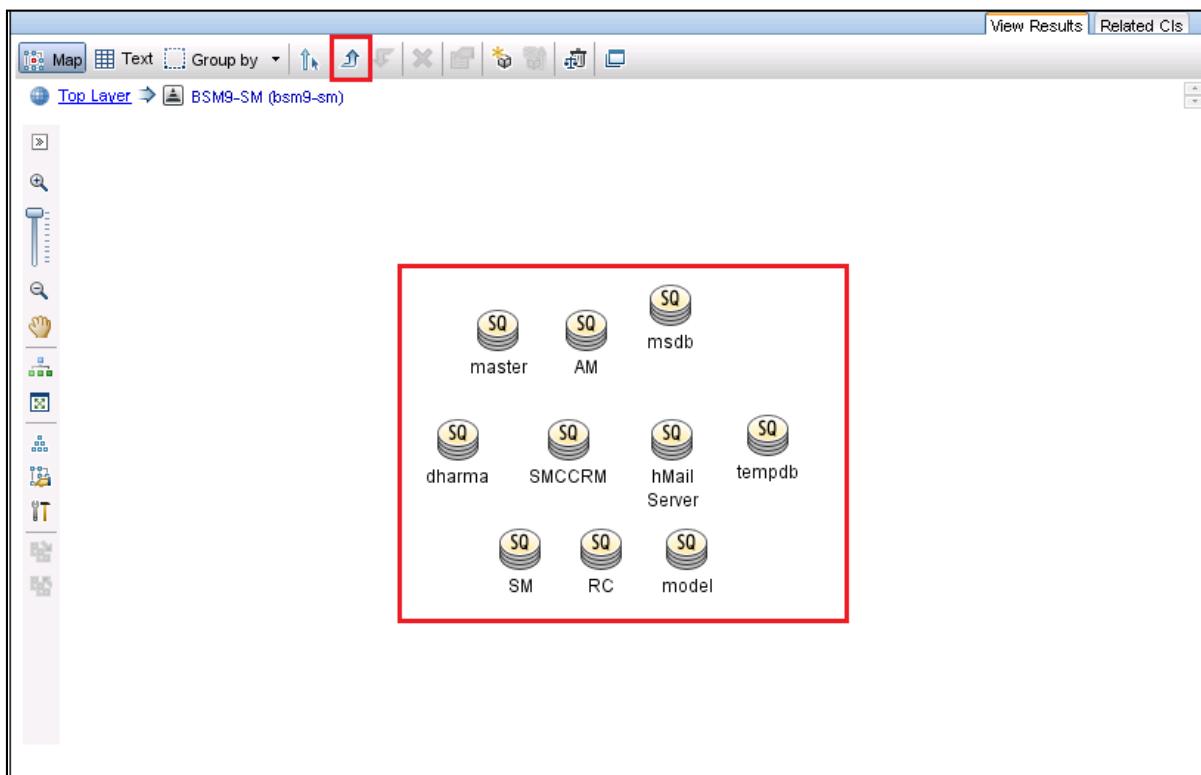


**Note:** Adjust the zoom bar from the left-side tool bar to see a more readable view of the Cls.

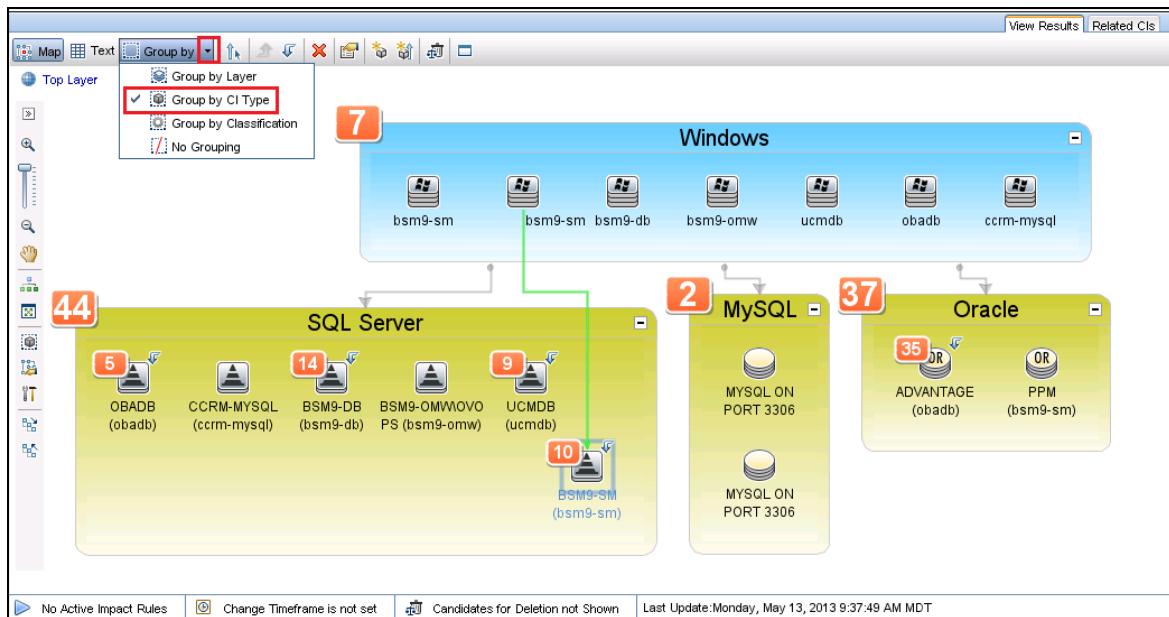
13. Drill down into the bsm9-sm database by clicking the down-pointing bent arrow visible against the CI, as shown in the following screenshot:



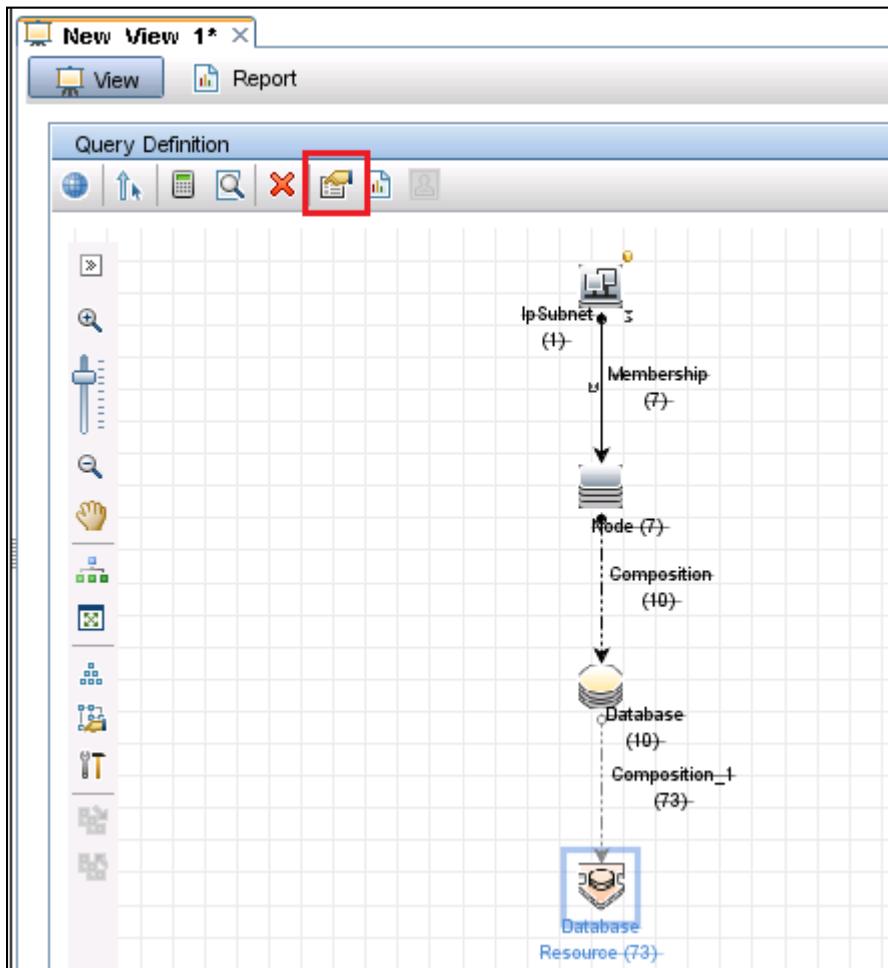
14. This displays all ten MSSQLServer databases in the next layer. After verifying, click the Go Up One Layer button from the toolbar to go back to the top layer of the view, as shown in the following screenshot:



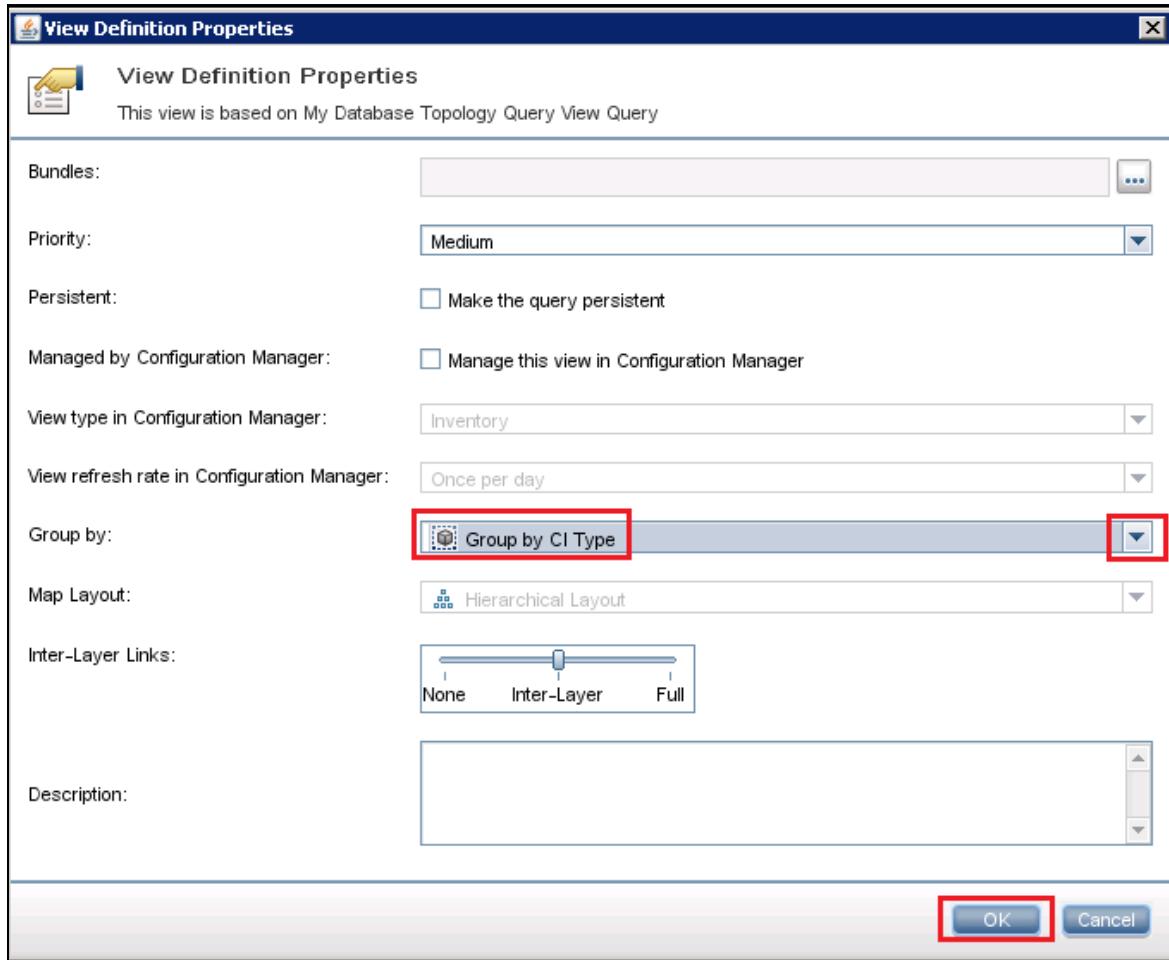
15. In the top layer screen of the view, select the Group By CI Type option from the Group By menu. Observe the grouping and the individual CIs in each group, as shown in the following screenshot:



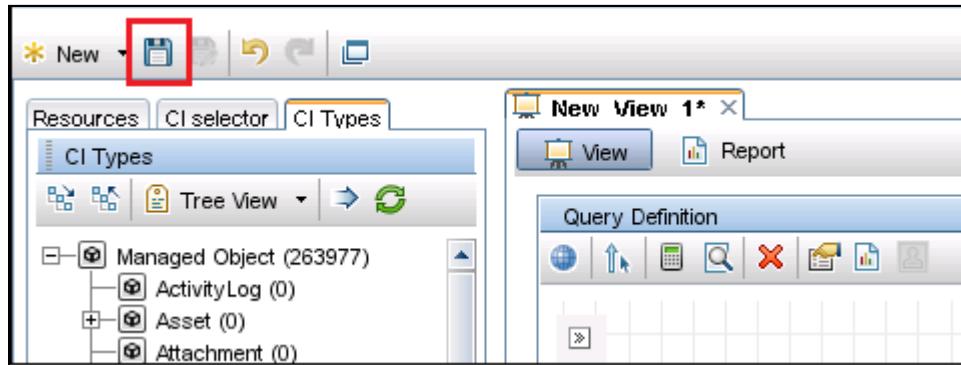
16. Click the Close button of the preview window to close it.
17. Click View Definition Properties from the Topology pane, as shown in the following screenshot:



18. In the View Definition Properties window, select Group by CI Type as the default group by. Then click the OK button, as shown in the following screenshot:

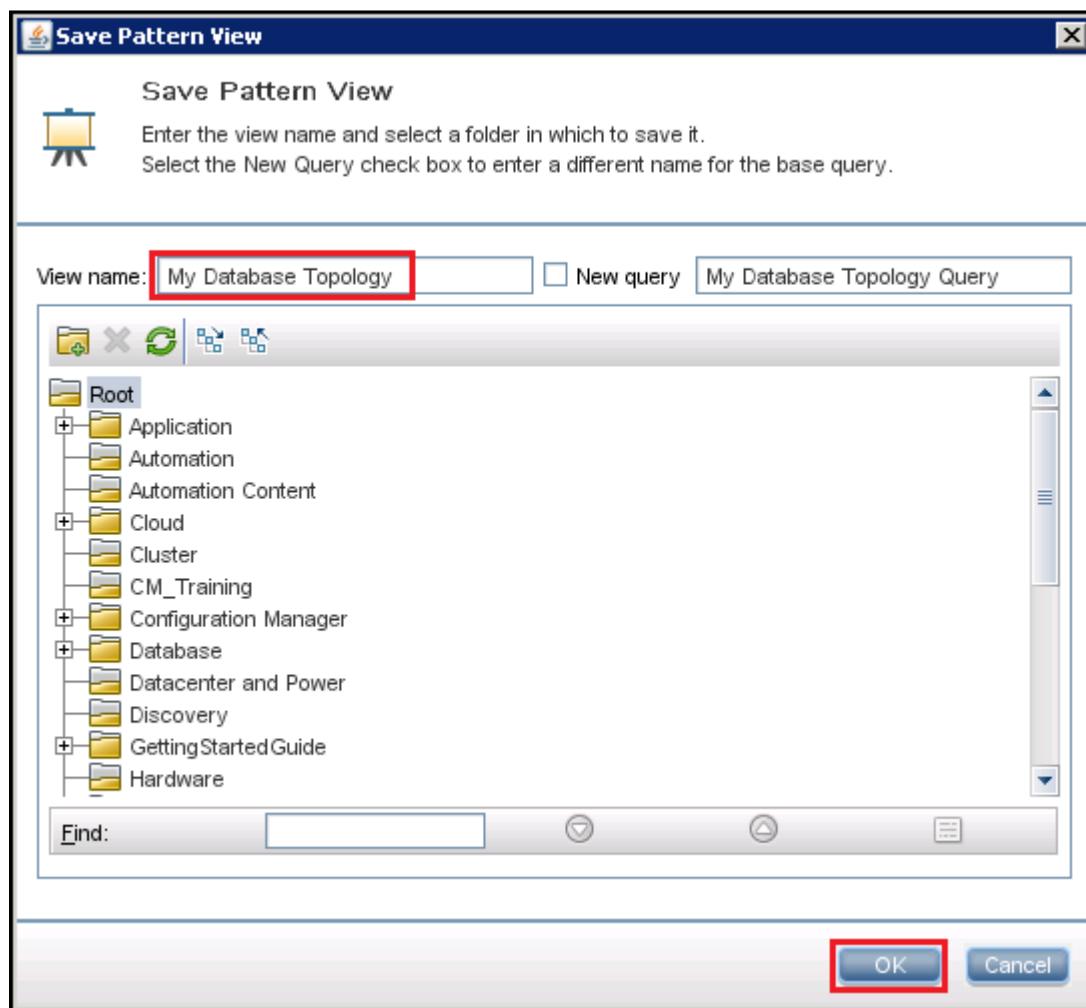


19. To save the view, click the Save button in Modeling Studio, as shown in the following screenshot:



20. In the Save Pattern View window, type **My Database Topology** in the View name field.

21. Click the OK button to close the window, as shown in the following screenshot:

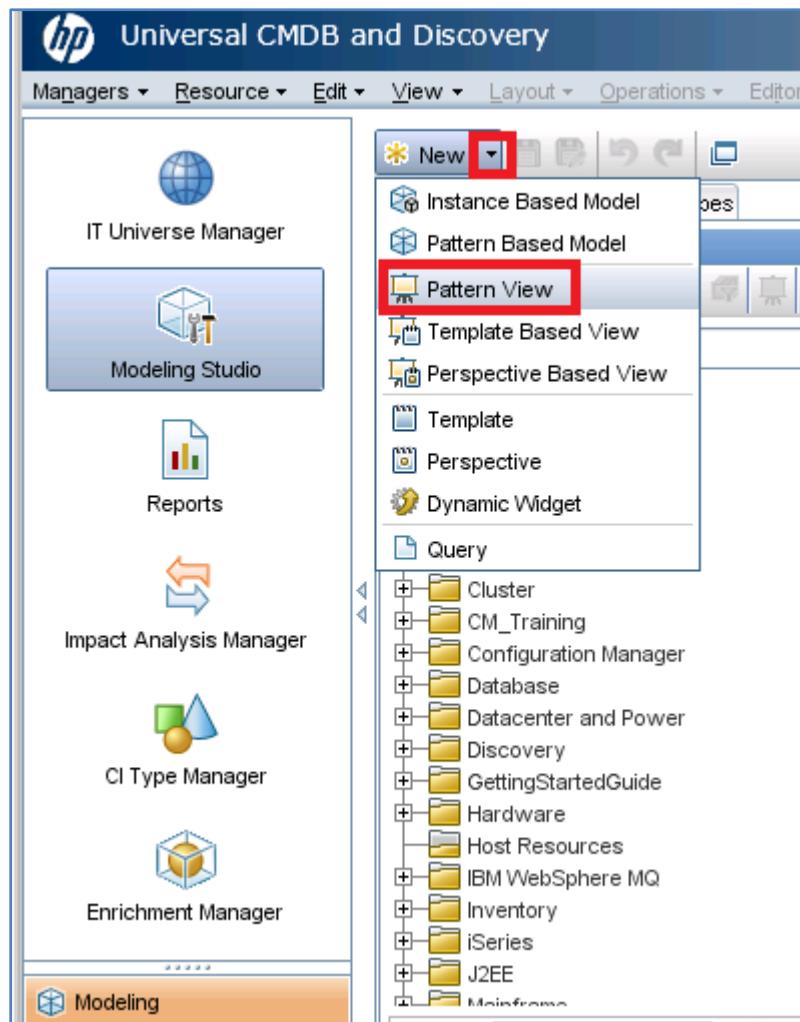


## Task 2 – Creating a View with Cardinality Conditions and Hierarchy

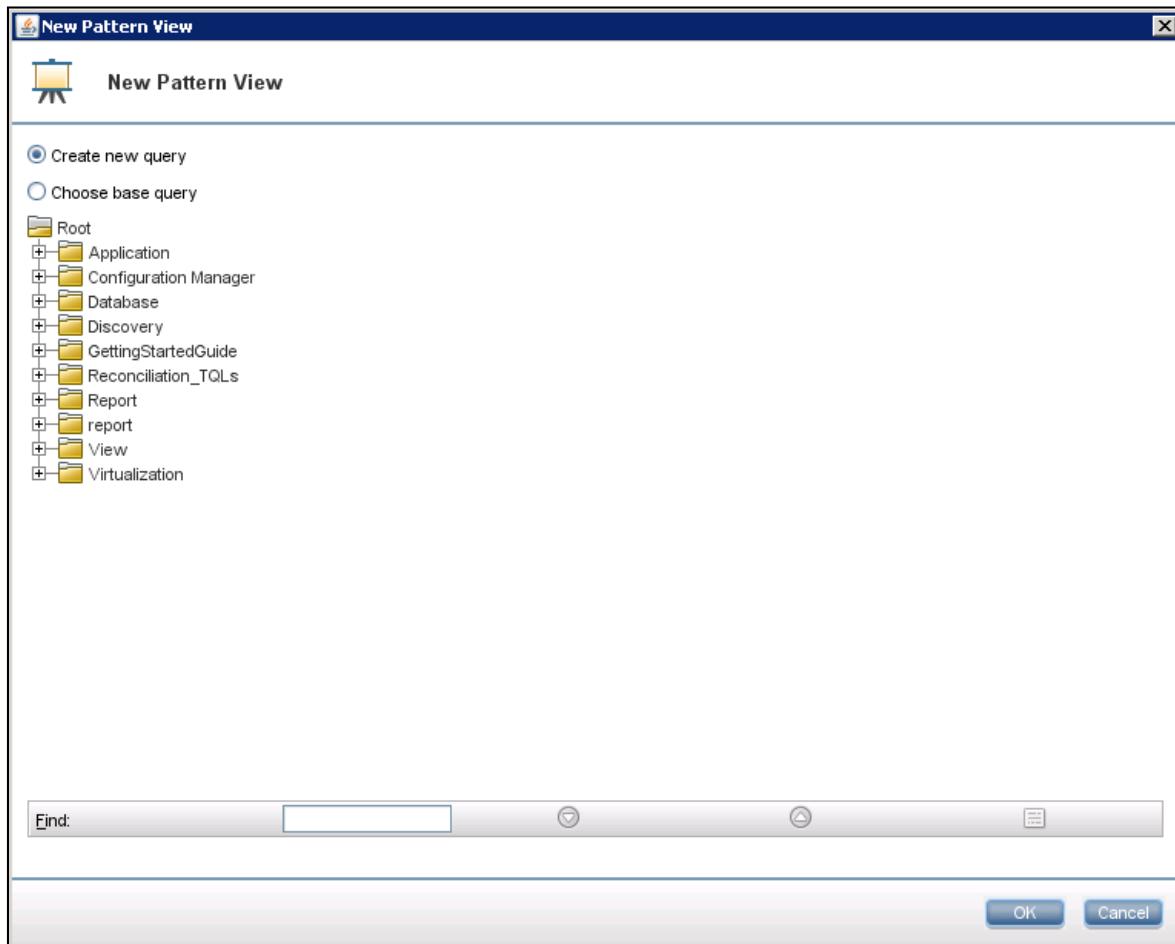
In this task, you create a view named Servers – Types & OS. The view should include all hosts that have two or more CPUs, grouped by their CI Type attribute, with a second grouping layer based on the DiscoveredOsName attribute. To create this view, perform the following steps:

1. Go to Modeling Studio in the Modeling area.

2. Click the New button and select Pattern View in the menu, as shown in the following screenshot:

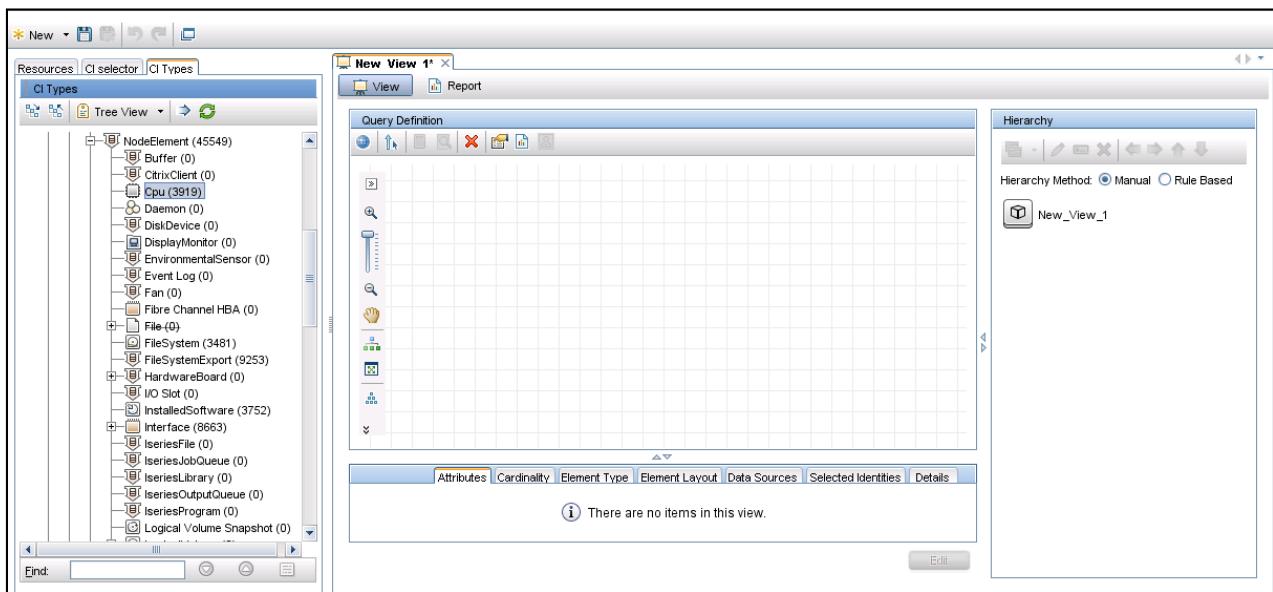


3. The Pattern View dialog box is displayed, as shown in the following screenshot:

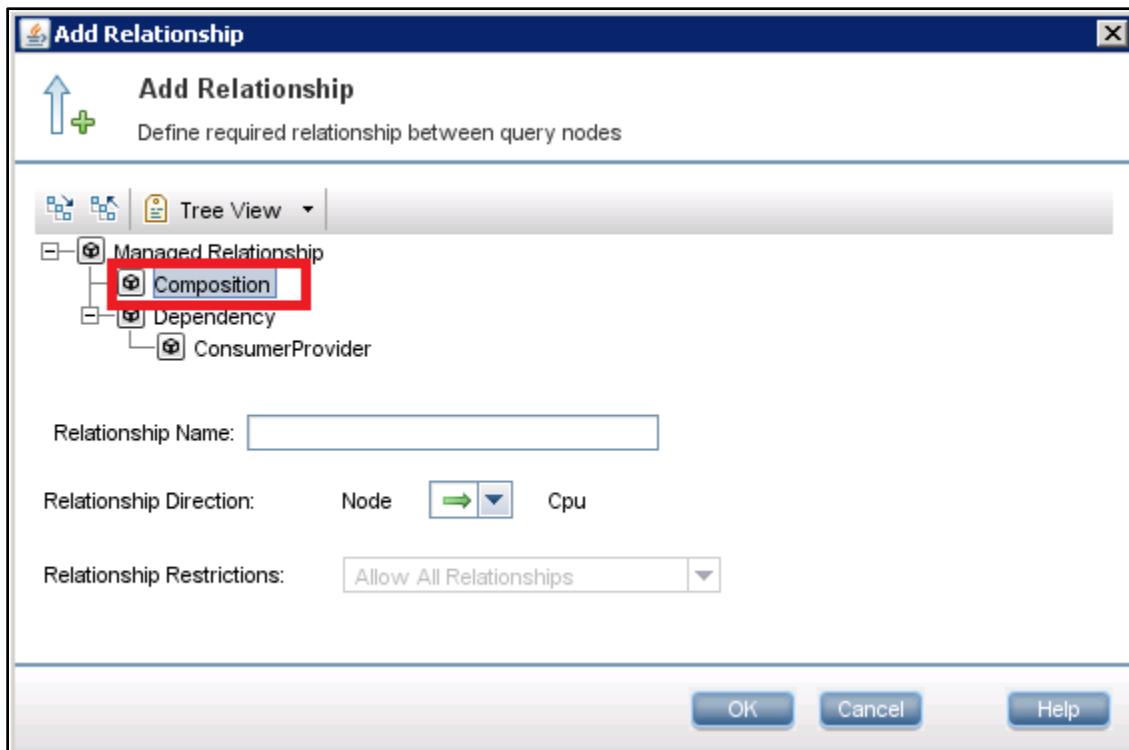


4. Select Create new query.

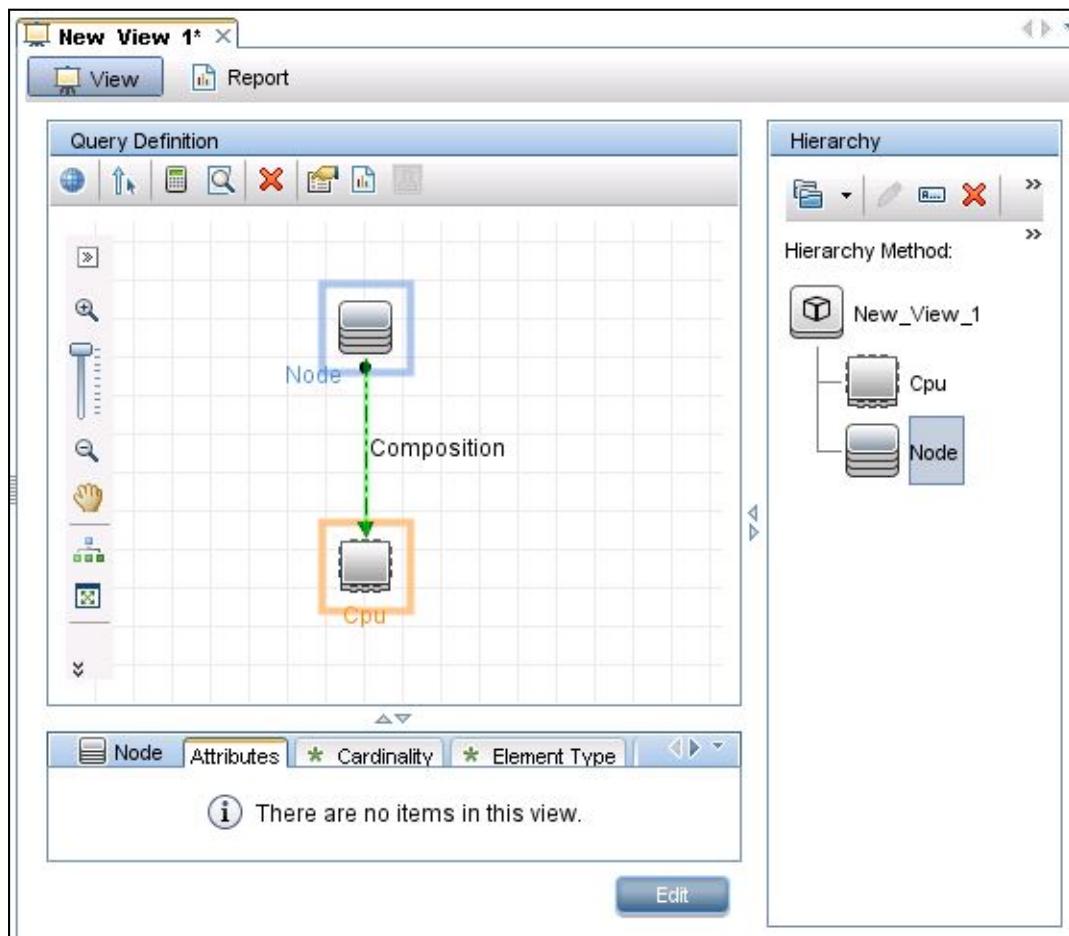
5. Click the OK button. The TQL Editor window opens, as shown in the following screenshot:



6. Locate Node in the CI Type list and drag it to the Query Definition pane.
7. Locate CPU in the CI Type list and drag it to the Query Definition pane.
8. Select Node and CPU in the Topology pane and right-click one of them.
9. Select Add Relationship from the menu. The Add Relationship dialog box is displayed, as shown in the following screenshot:

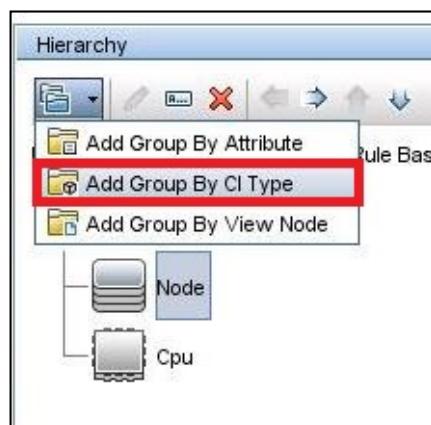


10. Make sure the Relationship Direction appears as Node → CPU.
11. Select Composition and press OK.
12. Press the Refresh to get an optimal layout button to tidy up your screen. Verify against the following screenshot:



13. Right-click Node in the Topology pane.
14. Select Query Node Properties in the menu.
15. Switch to the Cardinality tab.
16. In the Min field, type 2.
17. Click the OK button to close the dialog box.
18. On the Hierarchy pane in Modeling Studio, select Node.
19. Click the Add Group By button.

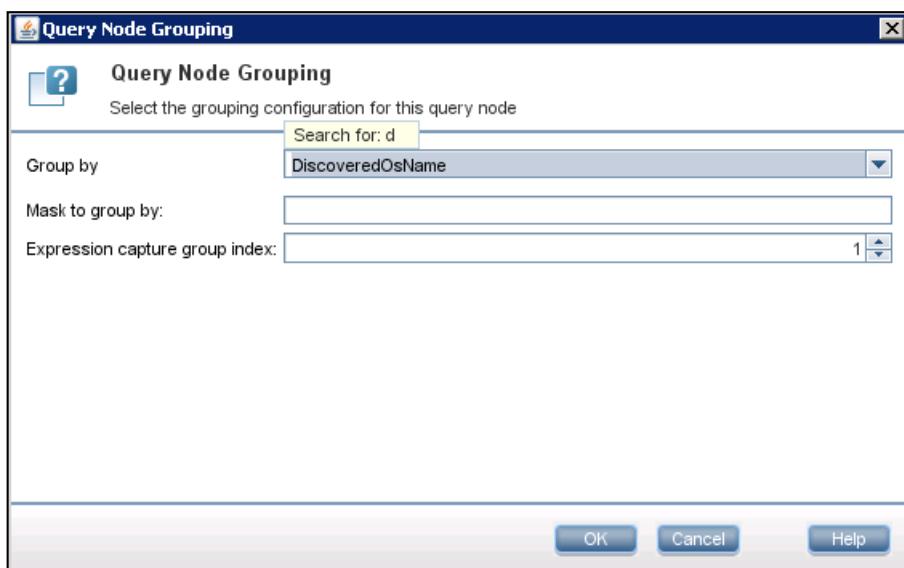
20. From the menu, select Add Group By CI Type, as shown in the following screenshot:



21. On the Hierarchy pane, select Node again.

22. Click the Add Group By button.

23. From the menu, select Add Group By Attribute. The Query Node Grouping dialog box is displayed, as shown in the following screenshot:

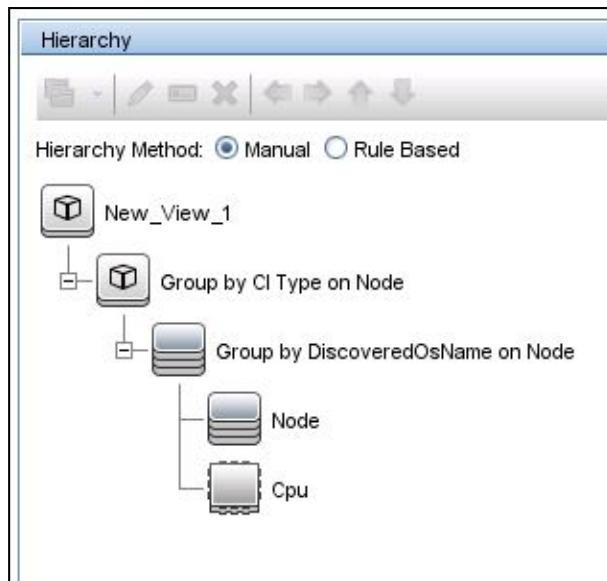


24. In Group By, select DiscoveredOsName.

25. Click the OK button to close the dialog box.

26. On the Hierarchy pane, select CPU.

27. Drag Cpu and drop it on Group by DiscoveredOsName on Node, so that it is displayed in the same layer as Node, as shown in the following screenshot:



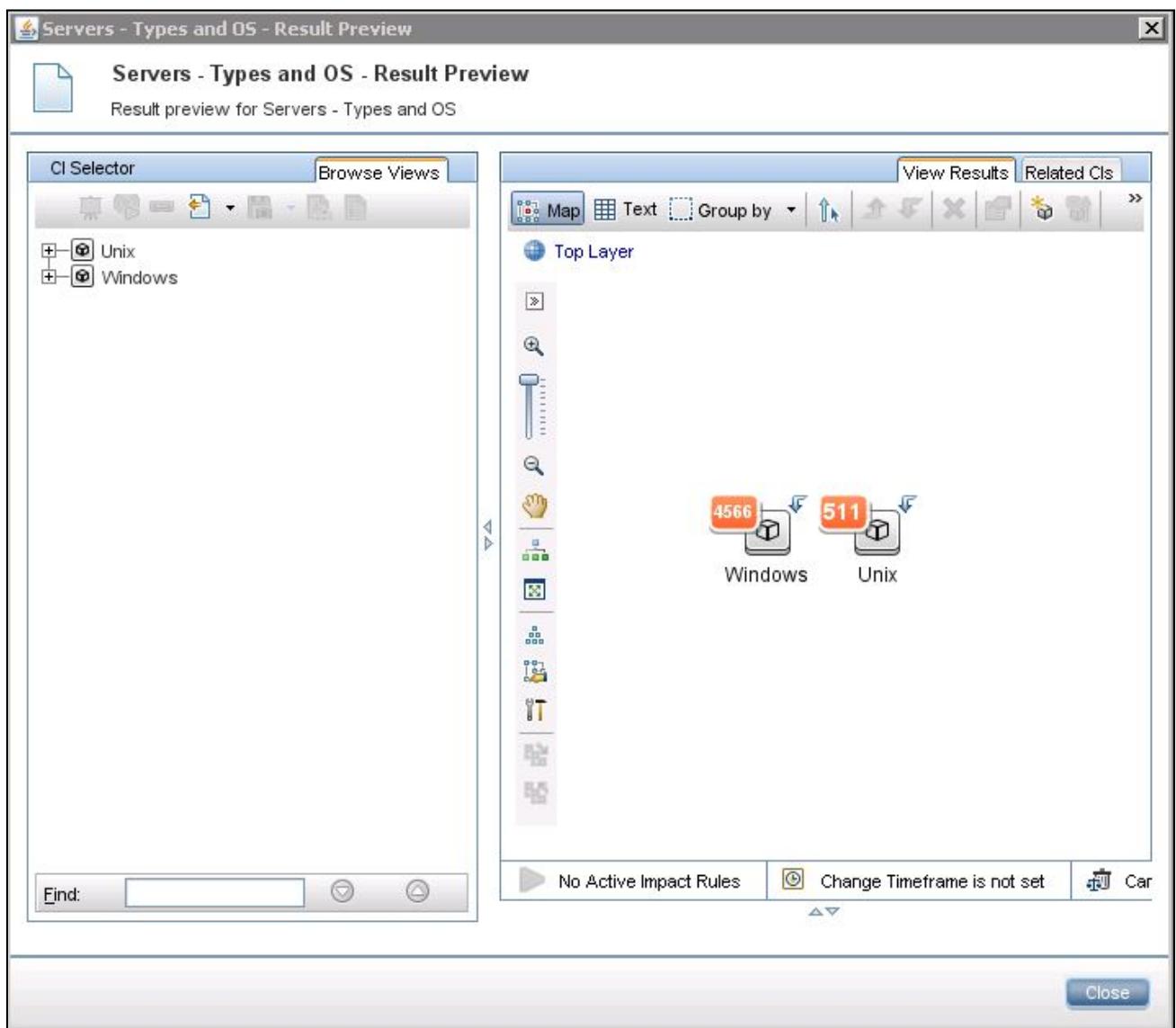
28. Click the Save button to save the view. The Save Pattern View dialog box is displayed.

29. Name your view **Servers - Types and OS**, as shown in the following screenshot:



30. Click the OK button to save the view.

31. Click the Preview button to see the result, as shown in the following screenshot:

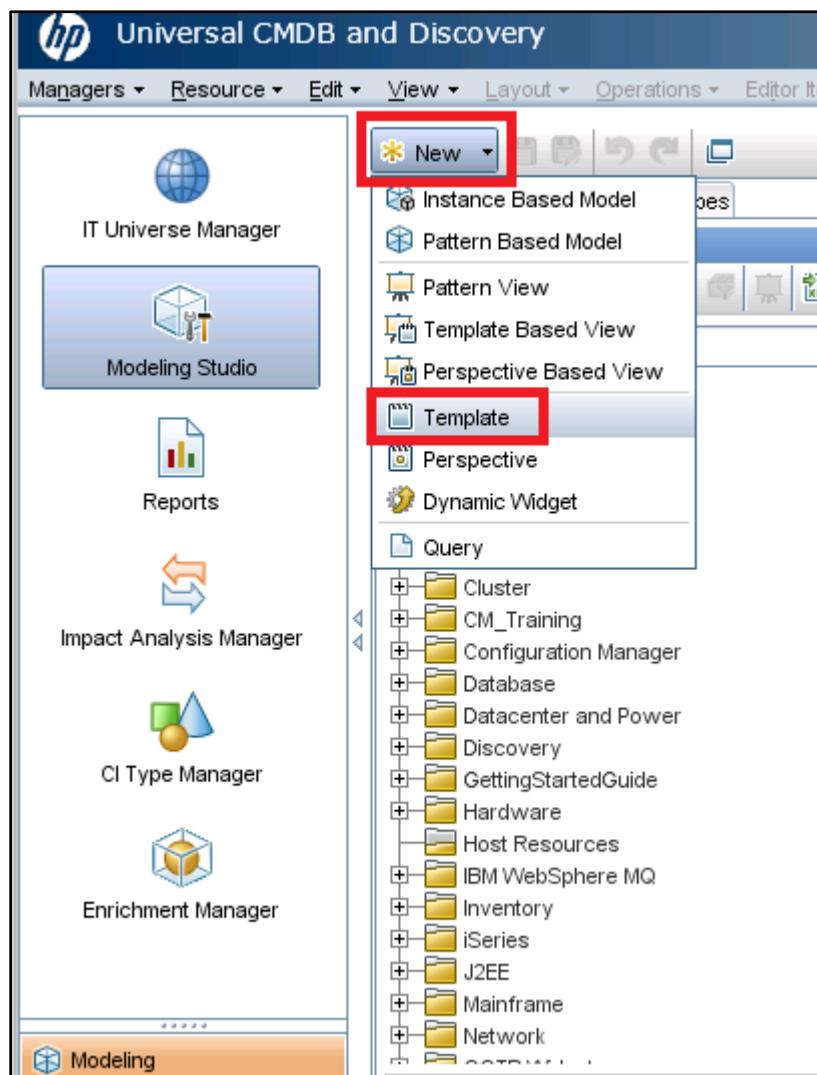


## Exercise 2 – Creating a Template

In this exercise, you create a template. The template has a structure with ipsubnet, nodes, and IP addresses at three levels. The node CIT in the template is parameterized to accept different values for OSFamily while creating view instances.

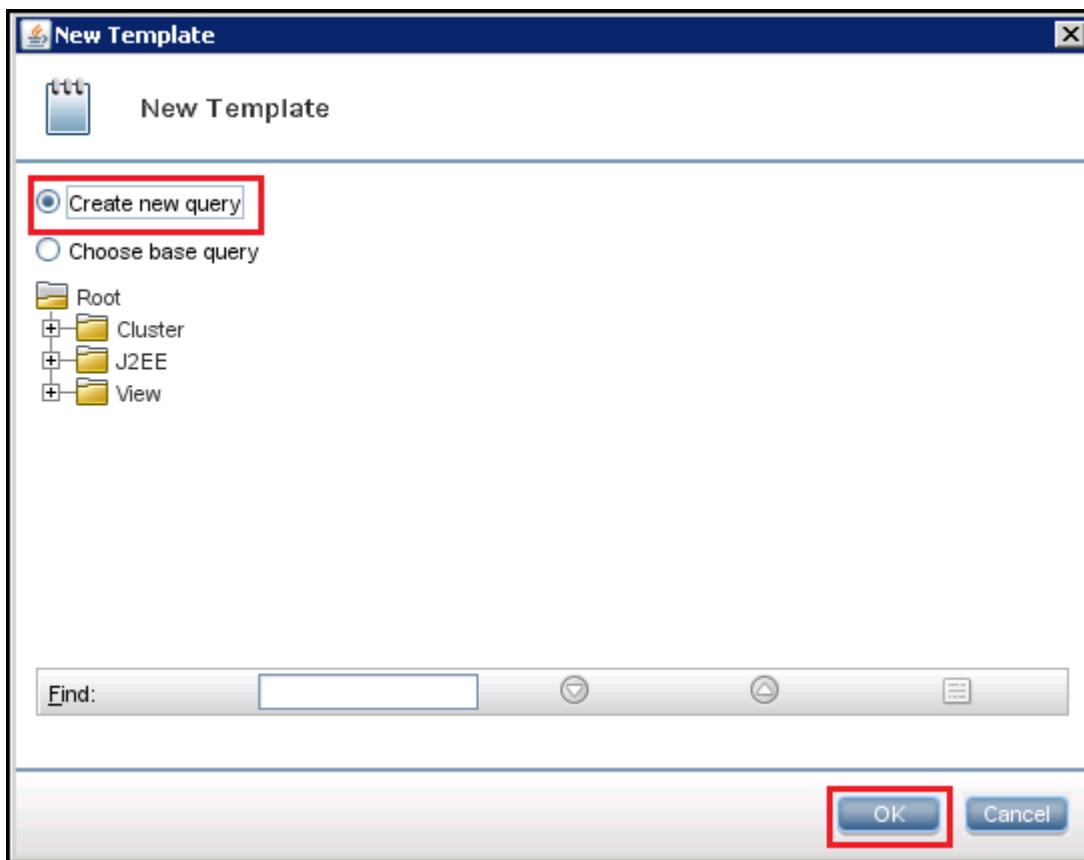
To create a template, perform the following steps:

1. From the Modeling area, go to Modeling Studio.
2. Click the New button and select Template from the drop-down menu, as shown in the following screenshot:

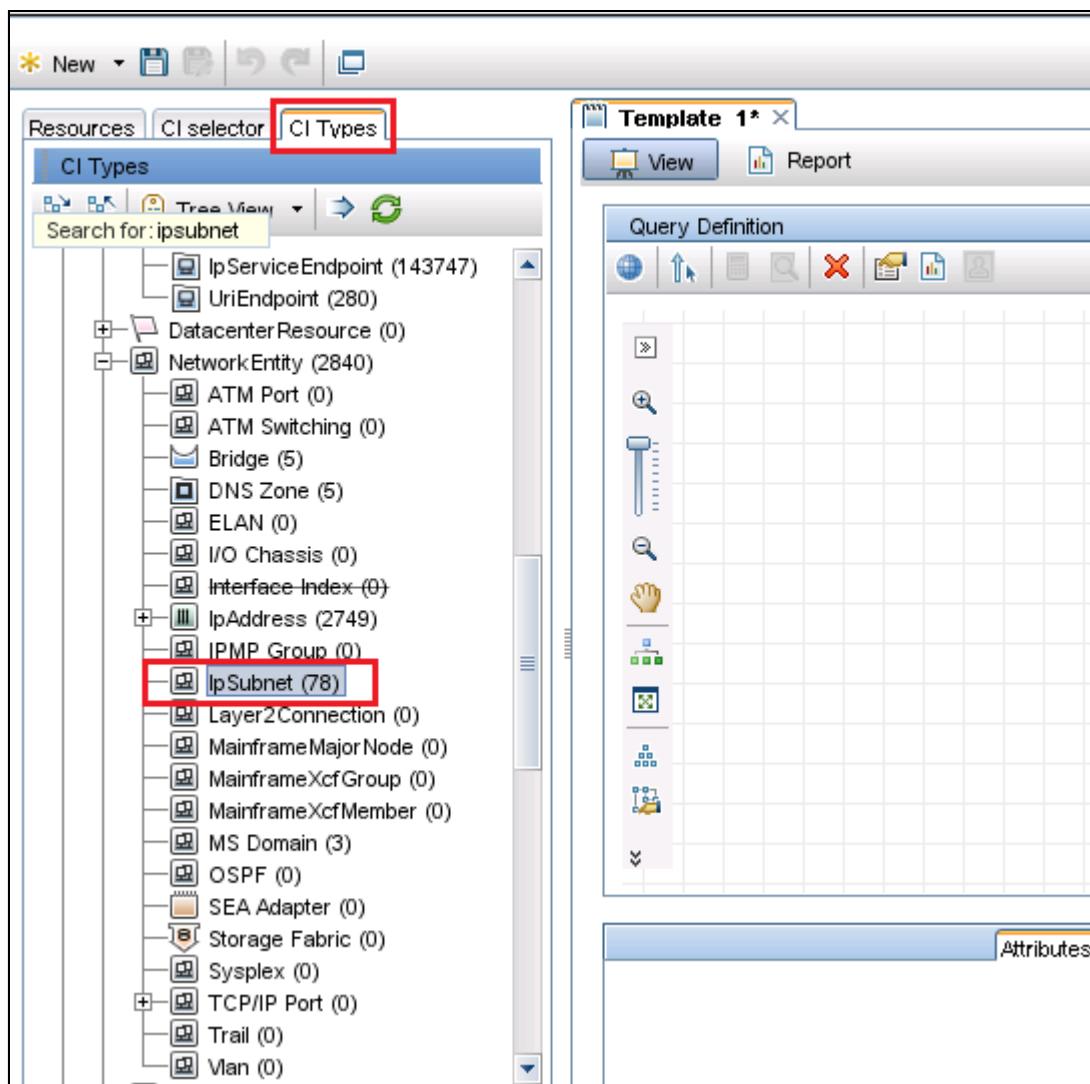


3. The New Template dialog box is displayed.

4. In the New Template dialog box, select the Create New query option. Click the OK button to close the dialog box, as shown in the following screenshot:

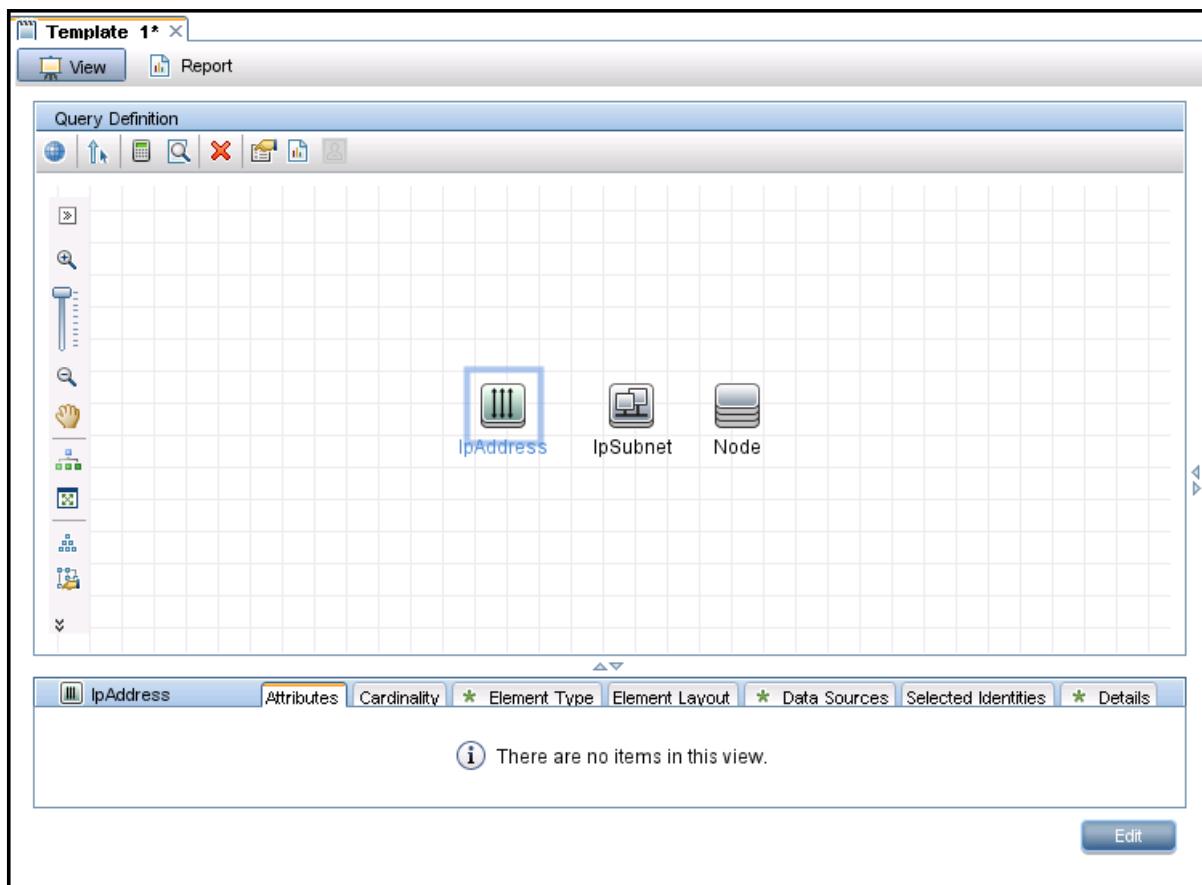


5. Locate the IpSubnet CIT in the CI Type tree by clicking the top CIT and typing **Ipsubnet**, as shown in the following screenshot:



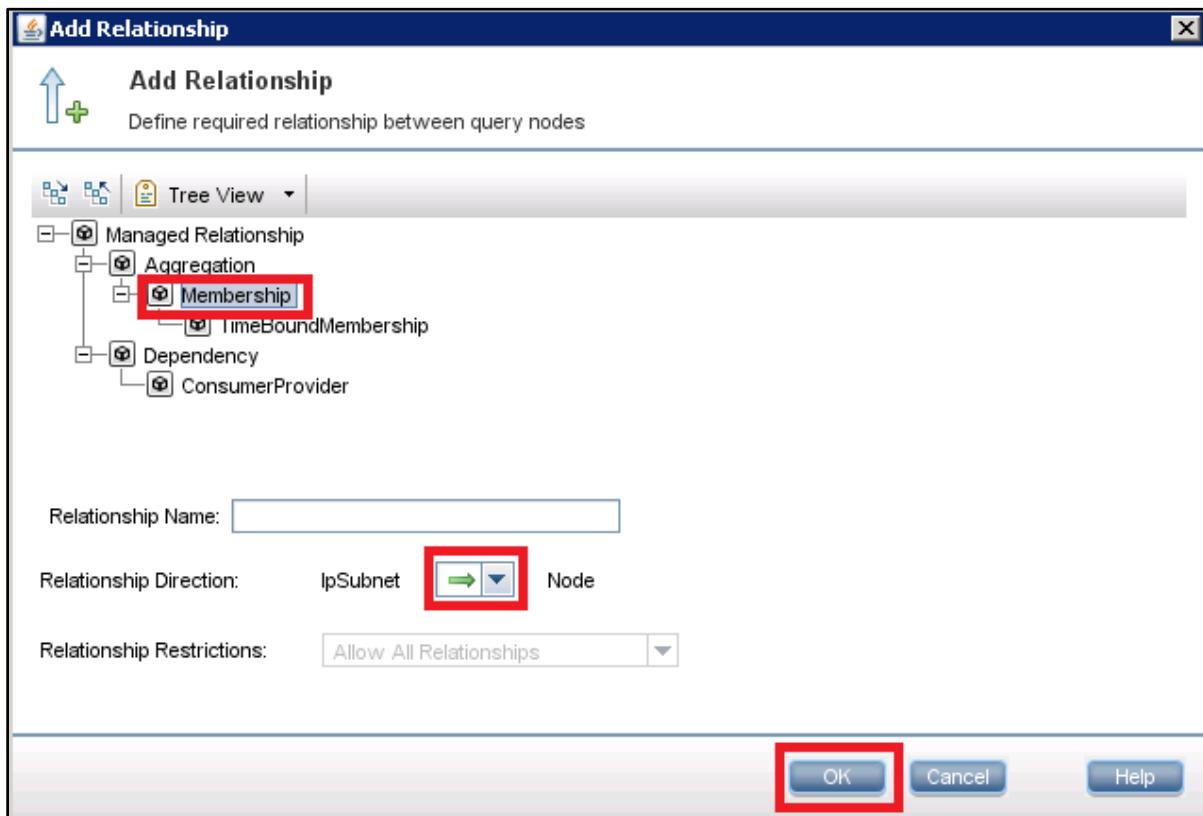
6. Drag IpSubnet to the Topology pane.
7. Locate Node in the CI Type tree by clicking the top CIT and typing **node**.
8. Drag Node to the Topology pane.
9. Locate the IPAddress CIT in the CIT tree by clicking the top CIT and typing **Ipaddress**.

10. Drag IpAddress to the Topology pane. All CITs are displayed on the TQL canvas, as shown in the following screenshot:



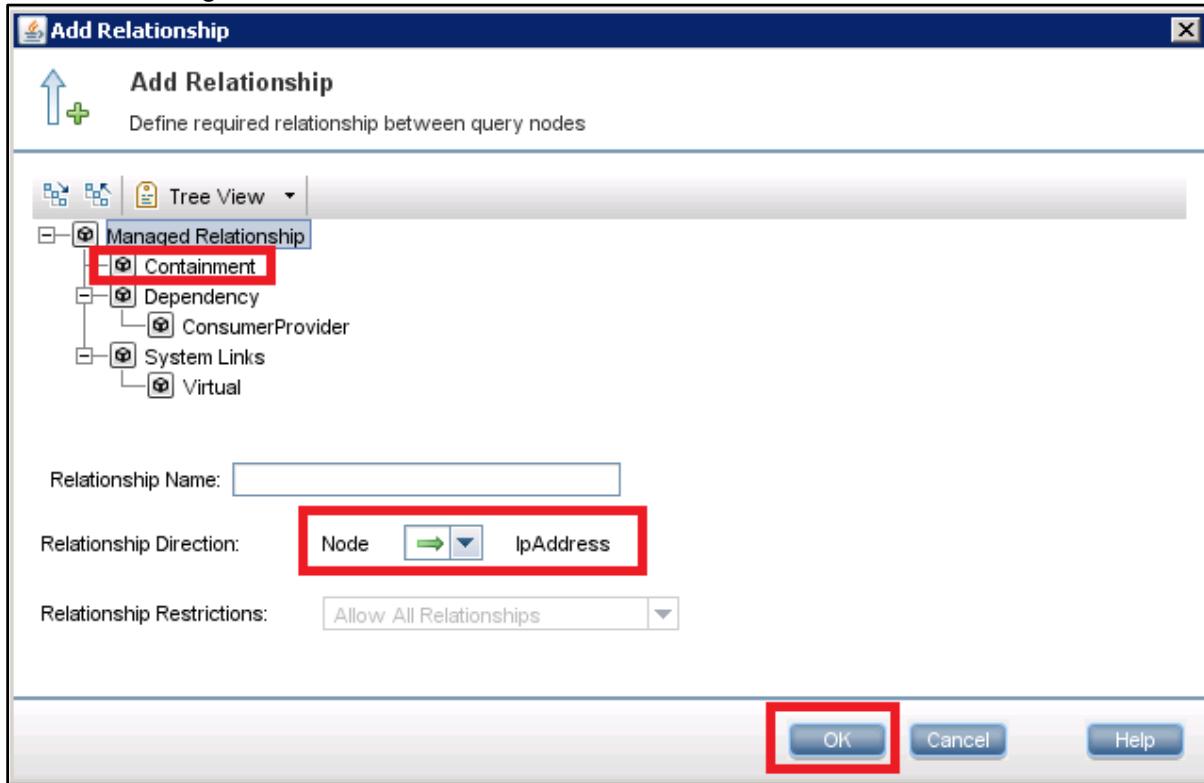
11. Select IpSubnet and Node in the Topology pane and right-click one of them.
12. Select Add Relationship from the menu. The Add Relationship dialog box is displayed.
13. Make sure the Relationship Direction appears as IpSubnet → Node.
14. Select the Membership link.

15. Click the OK button to close the dialog box, as shown in the following screenshot:



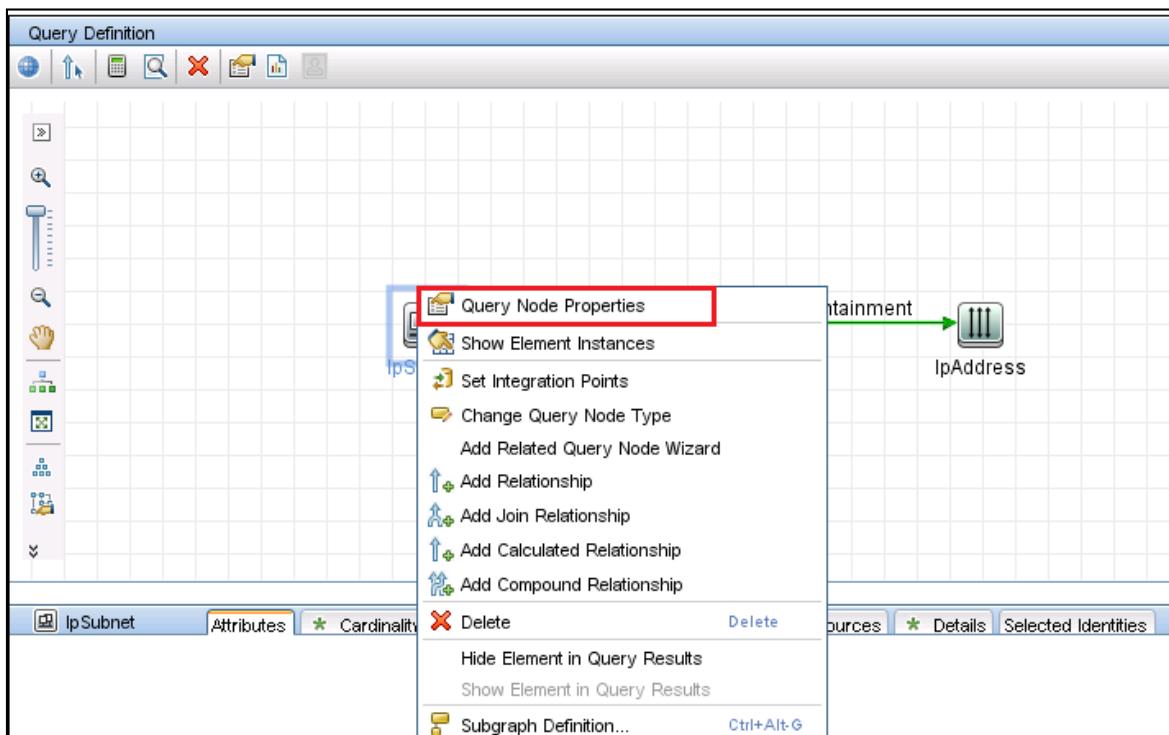
16. Select Node and IpAddress in the Topology pane and right-click one of them.

17. Select Add Relationship from the menu. The Add Relationship dialog box is displayed. Make sure that the Relationship Direction appears as Node → IpAddress . Select Composition and then click the OK button to close the dialog box, as shown in the following screenshot:



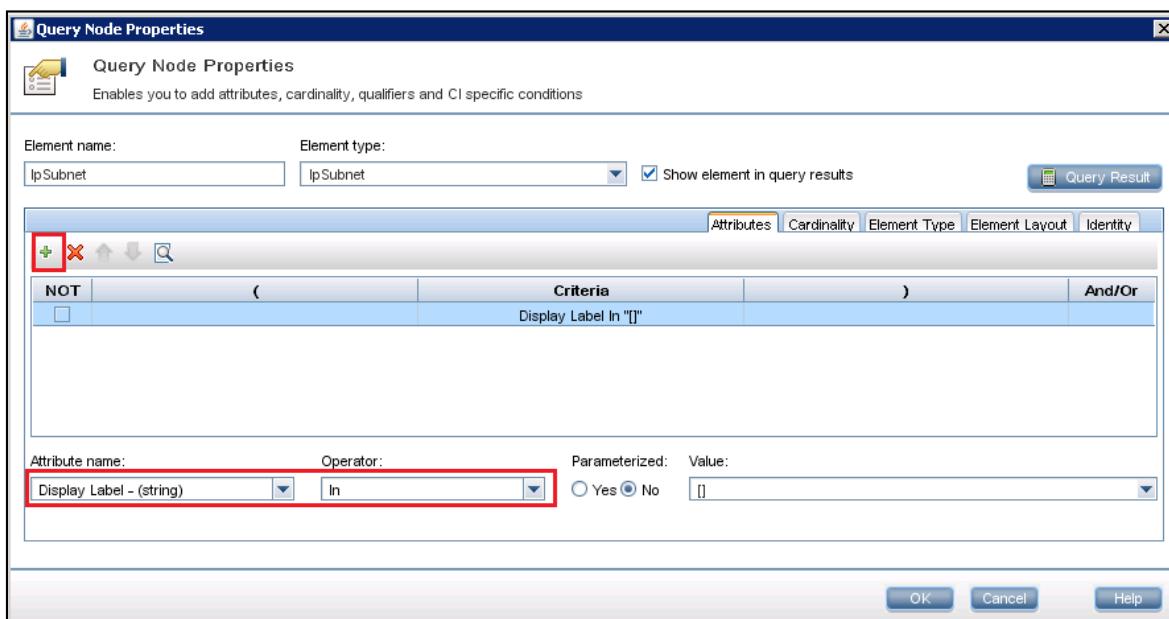
18. Right-click the IpSubnet CIT in the Topology view.

19. Select Query Node Properties, as shown in the following screenshot:

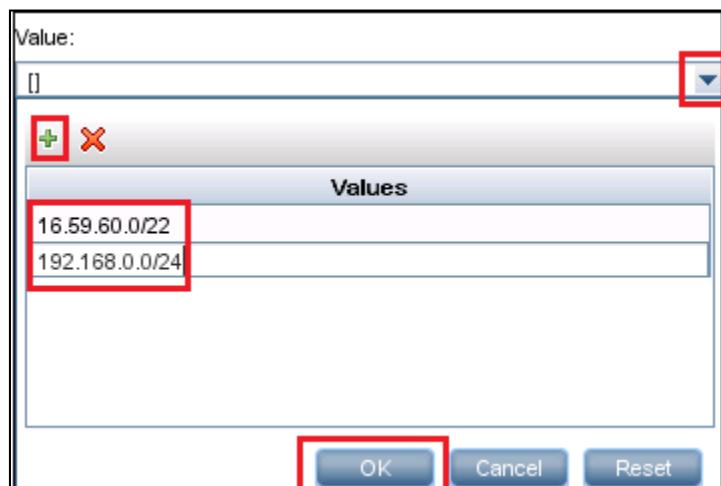


20. The Query Node Properties dialog box is displayed.

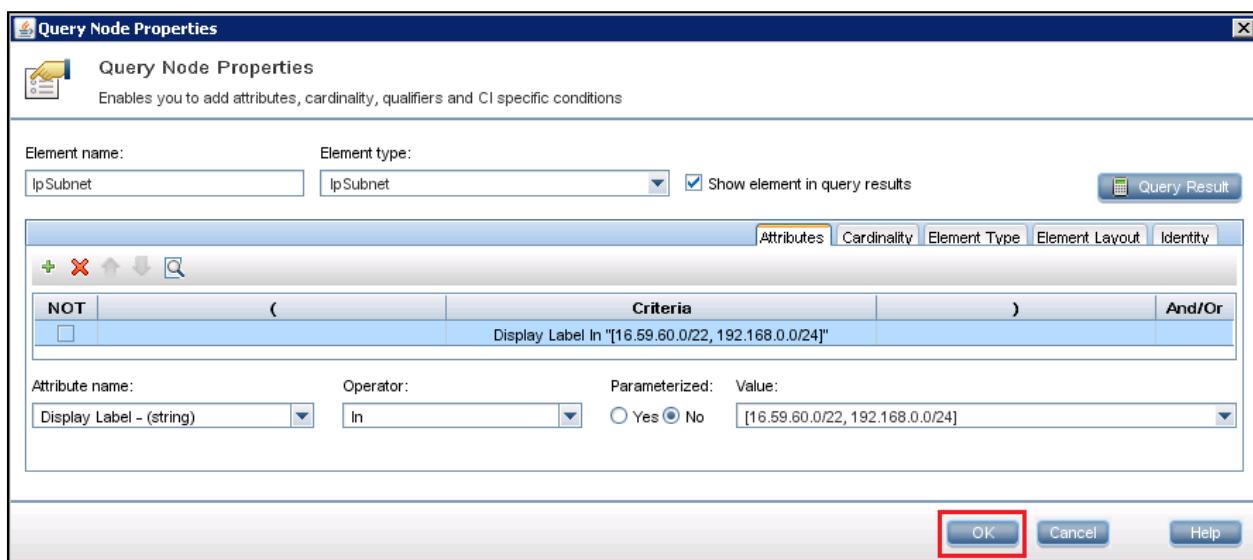
21. In the Query Node Properties dialog box, click the Add button. Then, in the Attribute Name drop-down list, ensure that Display Label is selected (default), and for Operator, select In, as shown in the following screenshot:



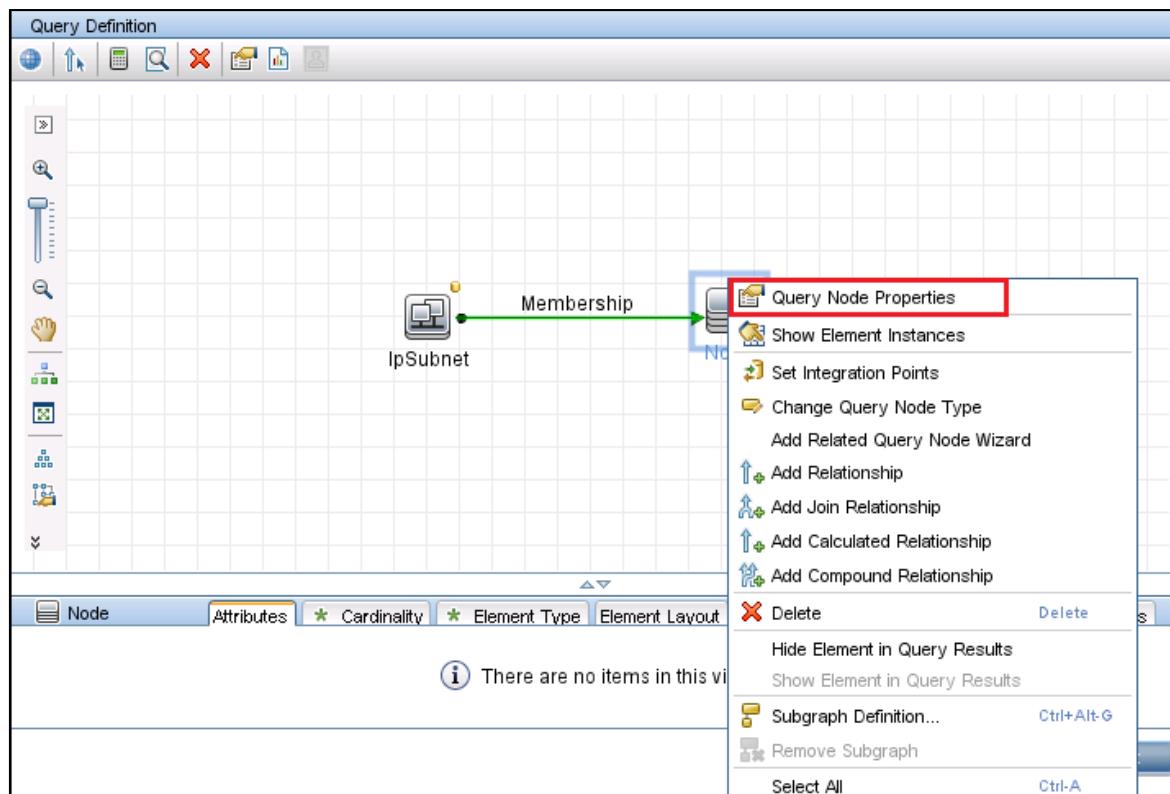
22. Click the Value drop-down field. Click the Add (+) button twice to include the values in the list as **16.59.60.0/22** and **192.168.0.0/24**. Then click the OK button, as shown in the following screenshot:



23. Click the OK button to close the Query Node Properties dialog box, as shown in the following screenshot:



24. To apply attribute conditions with parameters in the TQL, right-click the Node CIT in the Topology view and select Query Node Properties.



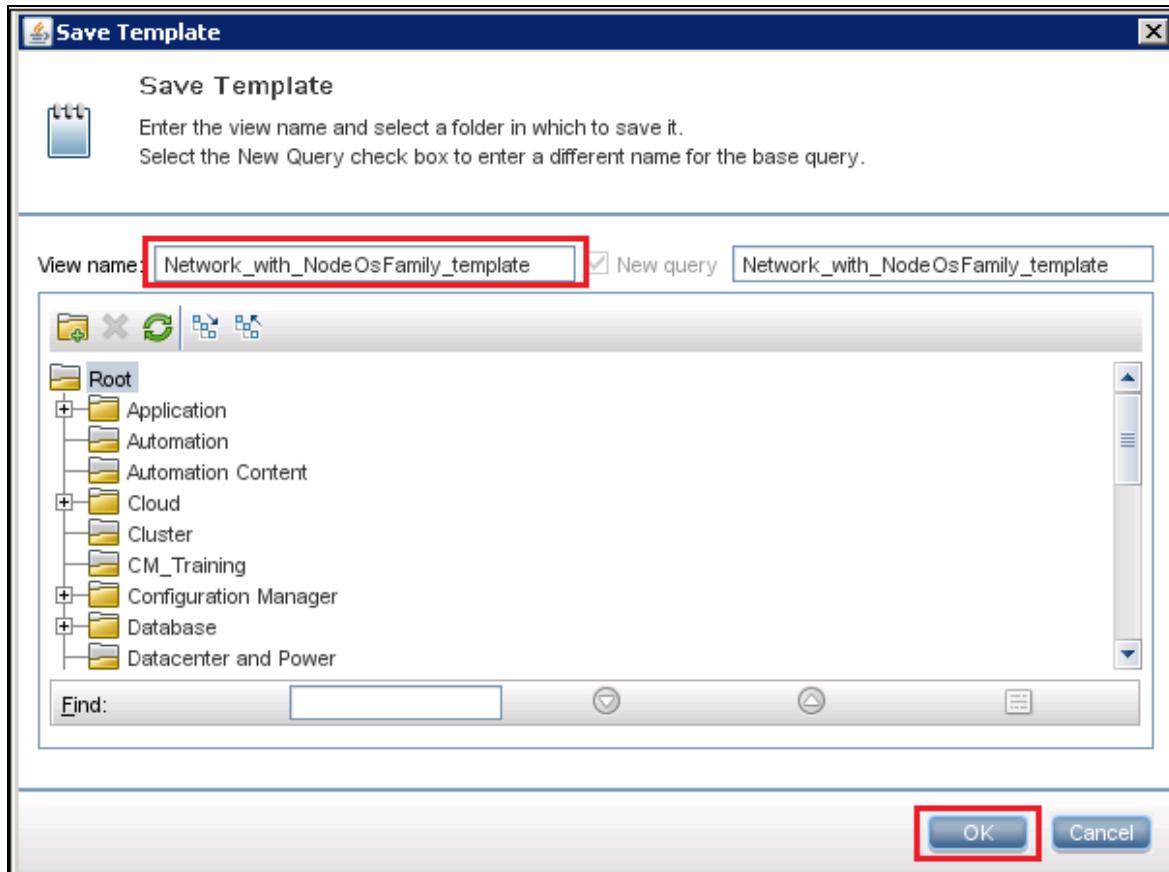
25. In the Attributes tabs of the Query Node Properties dialog box, click the Add button. Complete the fields as follows:

Field	Value
Attribute Name	<b>OsFamily</b>
Operator	<b>Equal</b>
Parameterized	<b>Yes</b>
Parameter Name	<b>OS Family</b>
Default Value	<b>unix</b>

Your attribute condition should look similar to the following screenshot:

Attribute name:	Operator:	Parameterized:	Parameter Name:	Default Value:
OsFamily - (os_family)	Equal	<input checked="" type="radio"/> Yes <input type="radio"/> No	OS Family	unix

26. Save your template as **Network\_with\_NodeOsFamily\_template**, as shown in the following screenshot:



27. Click the OK button to save the template.

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# Lab 8 – Modeling Studio – Models and Perspectives

## Objectives

After completing this lab, you should be able to:

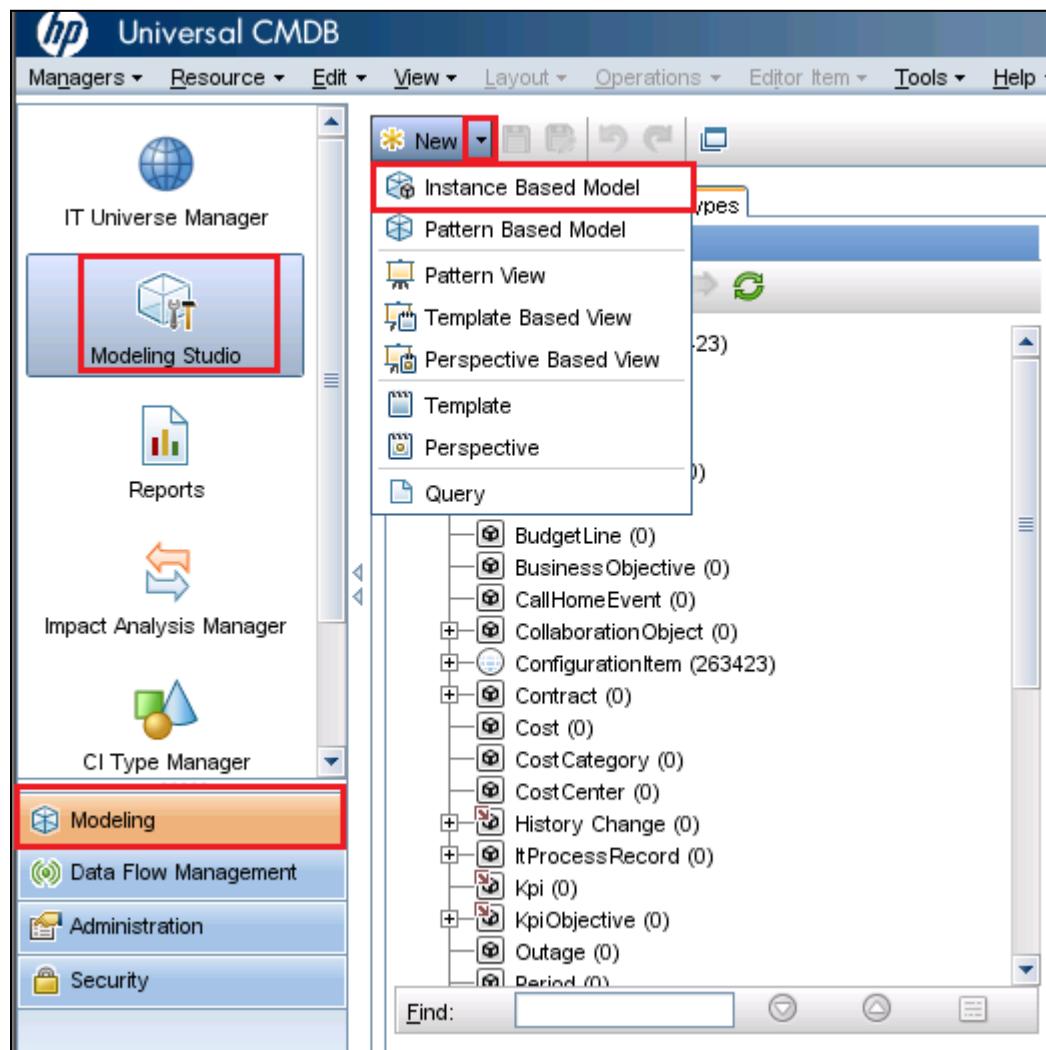
- Create the Advantage Banking line of business (LOB) instance-based model
- Create the Advantage Banking LOB perspective-based view
- Create the new Node Elements perspective
- Create the Running Software perspective

# Exercise 1 – Creating the Advantage Banking LOB Instance-based Model

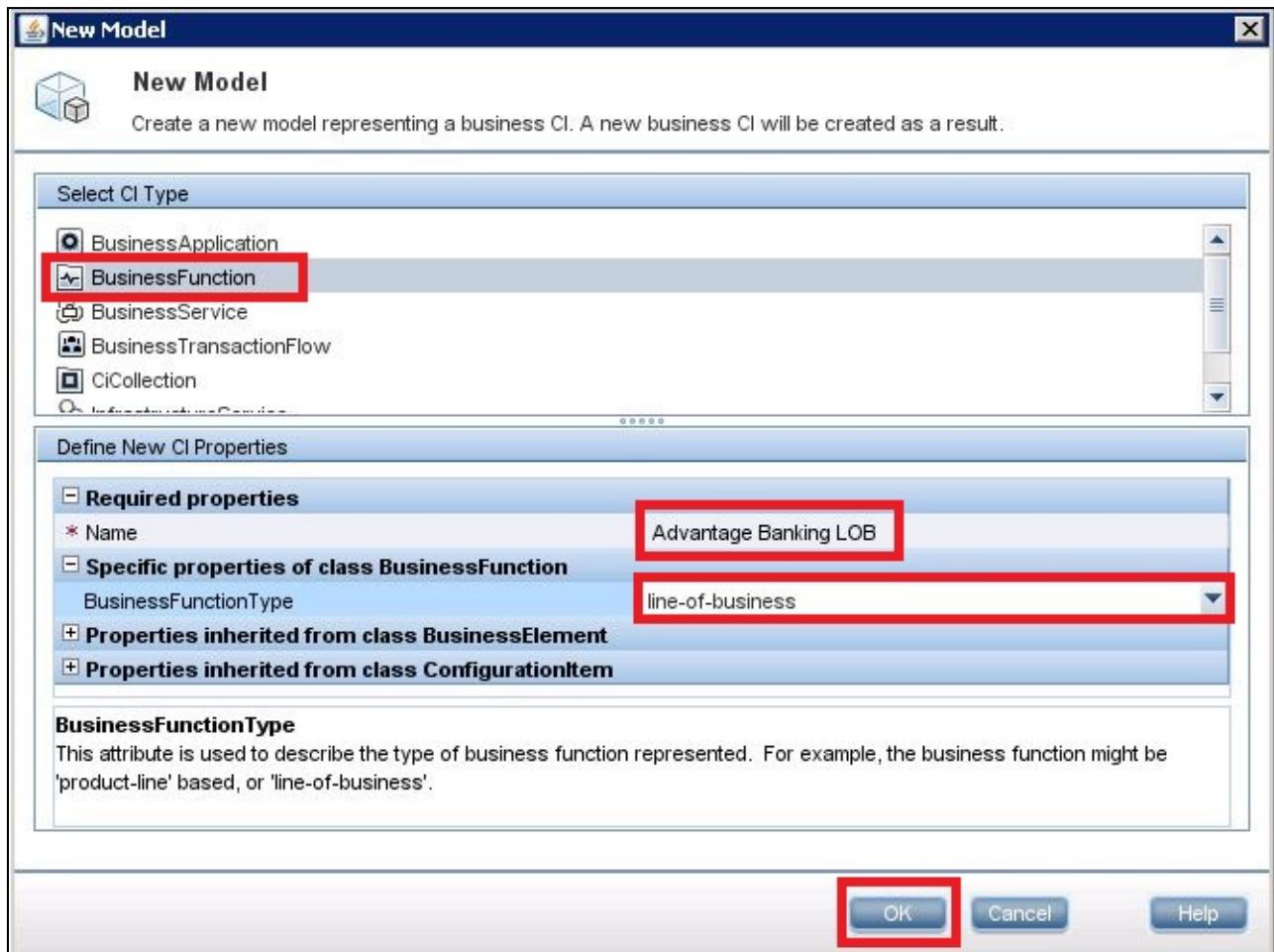
In this exercise, you create an instance-based model representing a business function with underlying services and applications in UCMDB Modeling Studio.

To create an instance-based model, perform the following steps:

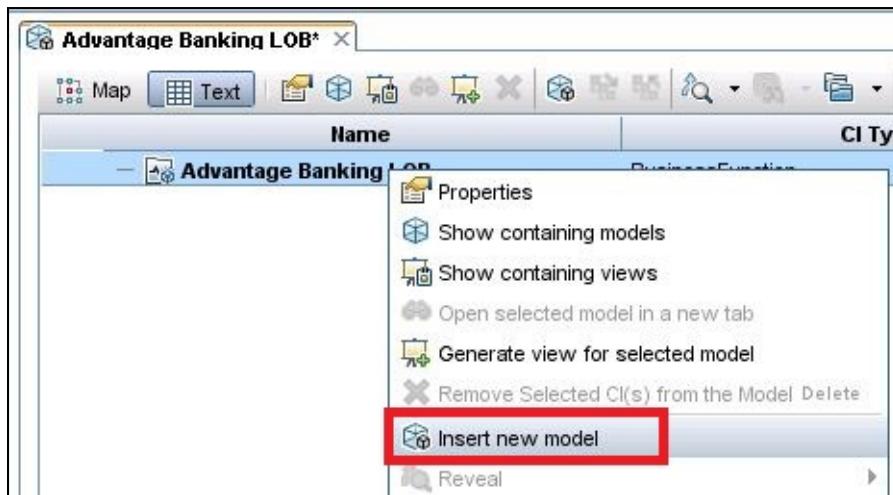
1. Open Modeling Studio from the Modeling area. Click the New button and Choose Instance Based Model, as shown in the following screenshot:



2. In the New Model dialog box, select Business Function as the CI Type. Then enter the Name as **Advantage Banking LOB**, select the Business Function Type as **line-of-business**, and click the OK button, as shown in the following screenshot:



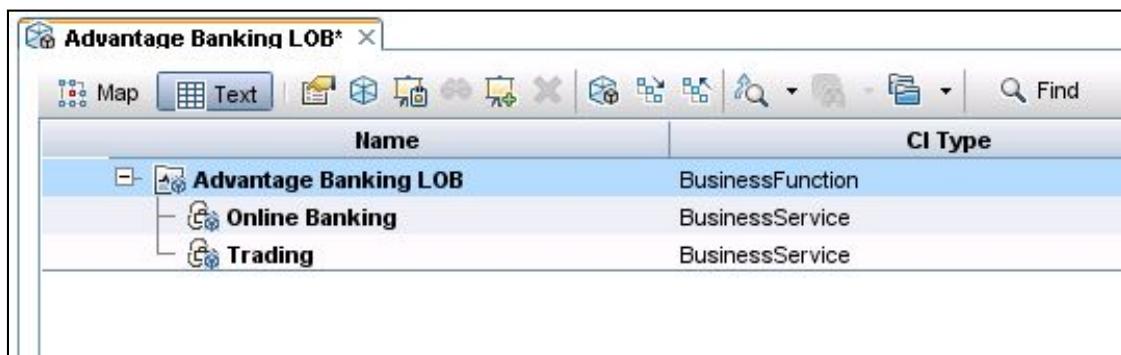
Right-click Advantage Banking LOB and select Insert New Model from the context menu, as shown in the following screenshot:



3. Select Business Service as the CI type and enter **Online Banking** as the Name. Press the OK button.
4. Use the alternate way of inserting a new model by clicking Advantage Banking LOB and then clicking the Insert new model toolbar button, as shown in the following screenshot:



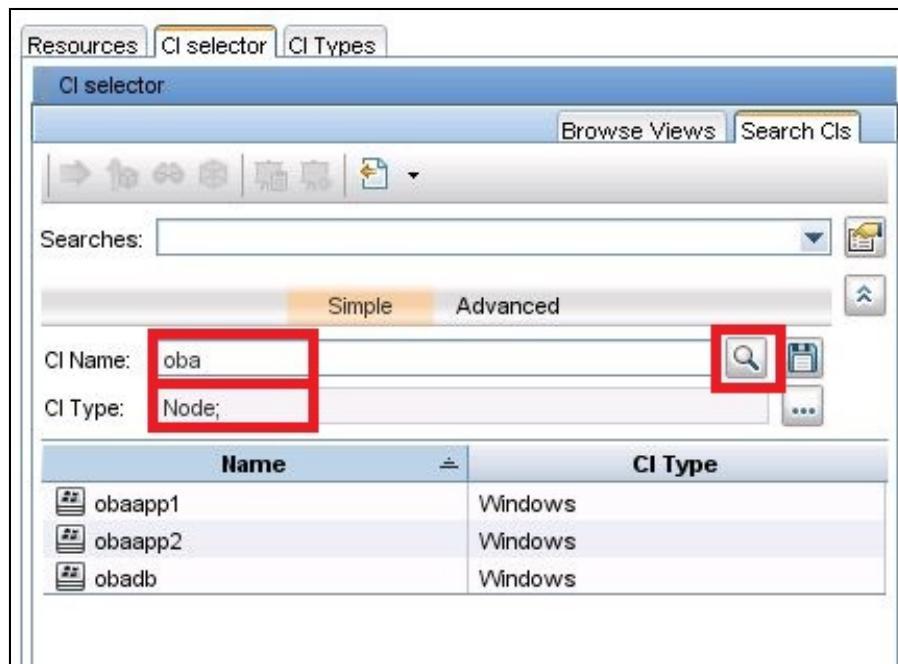
5. As before, select Business Service as the CI type and this time enter **Trading** as the Name. Press the OK button. Your model should look similar to the following screenshot:



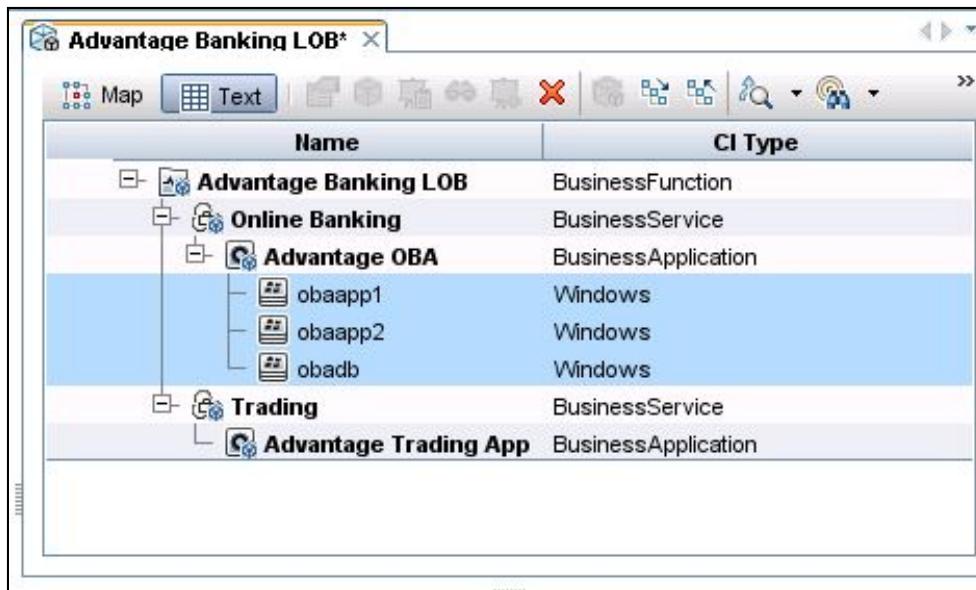
6. Now use whichever of the above methods you prefer to insert new Business Application CIs below each of the Business Services, so that your model looks similar to the following screenshot:



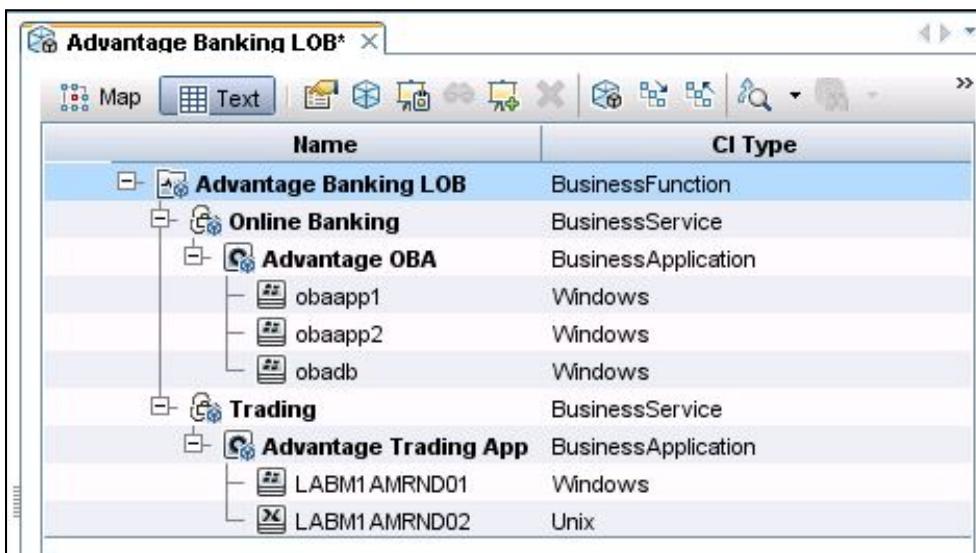
7. In the CI Selector pane on the left, in the Search CIs tab, choose Node as the CI Type, type **OBA** into the CI Name field, and then click the search button, as shown in the following screenshot:



8. Drag all three Windows CIs onto the Advantage OBA Business Application CI. If you made a mistake and the CIs are in the wrong place, you can drag them to the correct place within the Editor window.
9. Your model should look similar to the following screenshot:



10. Repeat what you did in Steps 7 and 8, but this time add the nodes LABM1AMRND01 and LABM1AMRND02 to Advantage Trading App. Your model is now complete and should look similar to the following screenshot:



11. Click the Save button to save your new model.

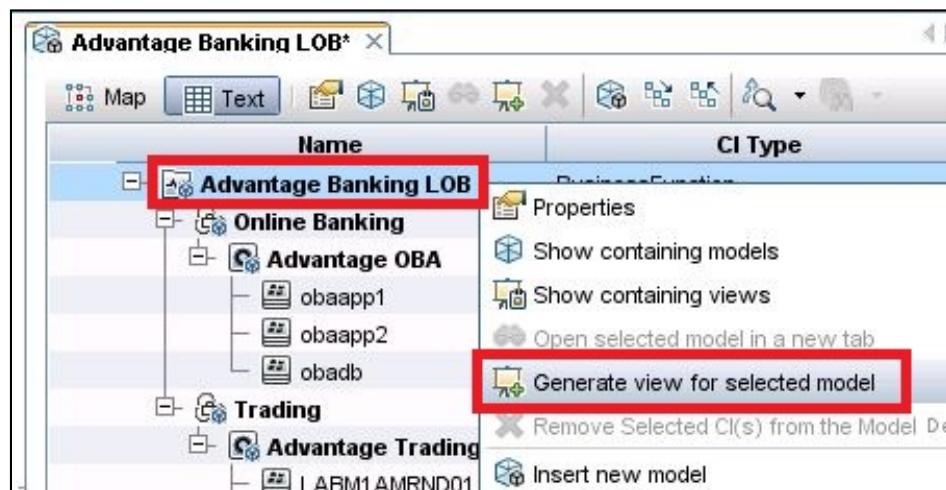
## Exercise 2 – Creating the Advantage Banking LOB Perspective-based View

To create a view from an existing model, apply one or more perspectives to it. Here you make use of the Advantage Banking LOB model and the simplest OOTB perspective, Content only.

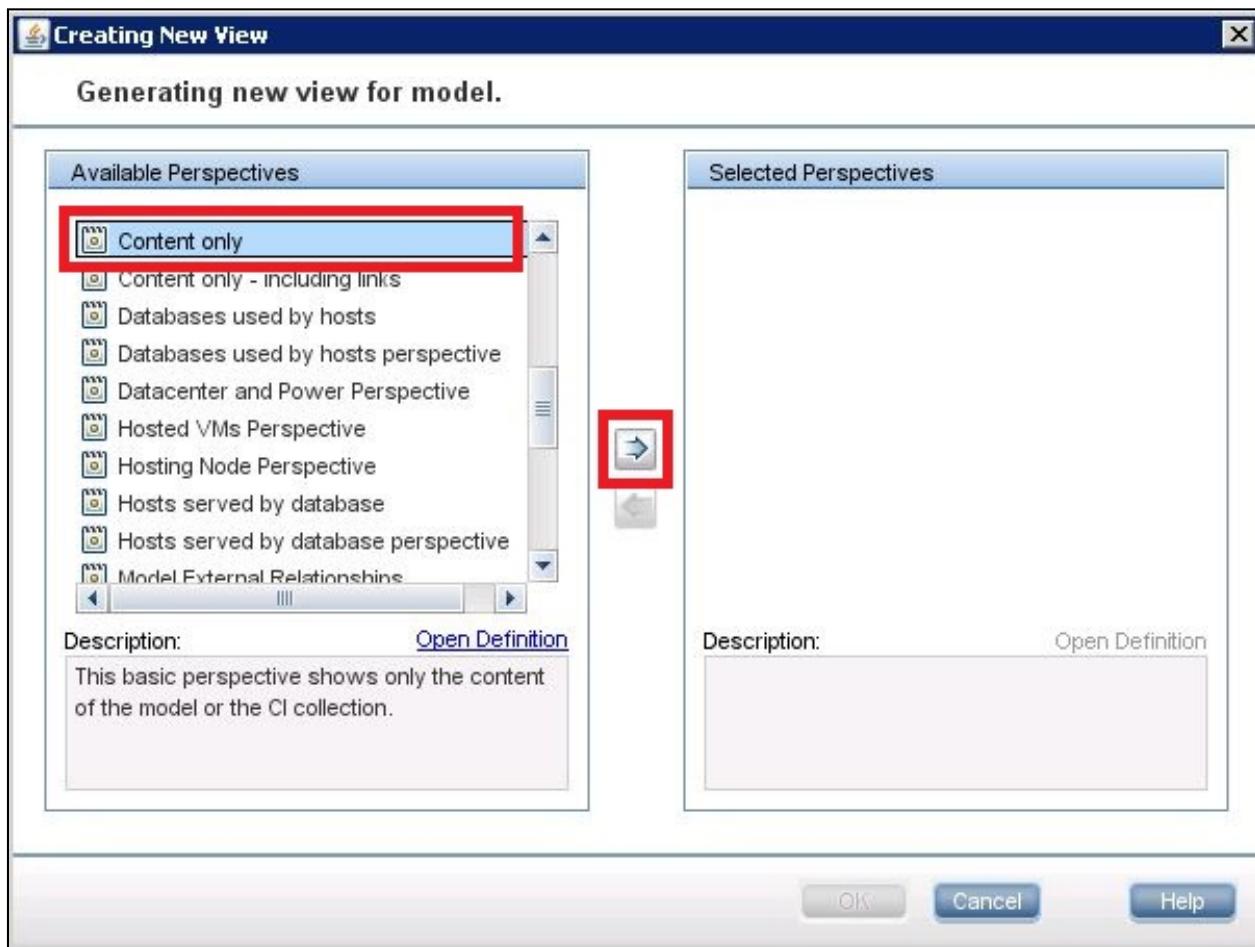
For this purpose, perform the following steps:

1. From Modeling Studio, open the Advantage Banking LOB model from the Resources tab (if not already open).

Right-click the CI at the top of the tree; that is, click the Advantage Banking LOB business function and select the Generate view for selected model menu item from the context menu, as shown in the following screenshot:



2. In the resulting dialog box, select the Content only perspective from the left-side Available Perspectives box and click the right-pointing arrow to add it in the Selected Perspectives box, as shown in the following screenshot:



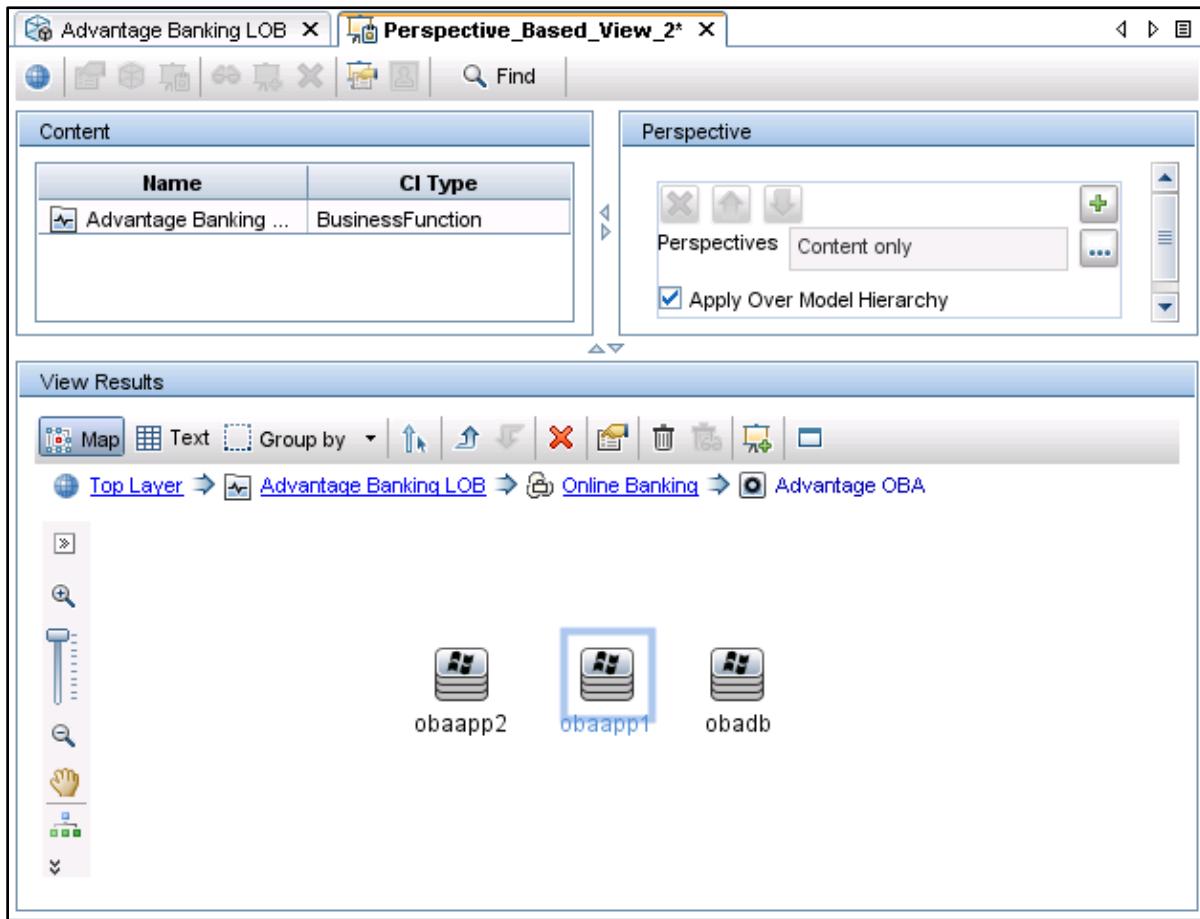
3. Click the OK button to apply the perspective to the model and close the window.

4. The newly created Perspective Based View is previewed in the View Results pane, as shown in the following screenshot:

The screenshot shows the 'Advantage Banking LOB' perspective-based view in the 'Perspective Based View 1\*' tab of the Modeling Studio interface. The interface is divided into several panes:

- Content:** A table showing one item: 'Advantage ...' of type 'BusinessFunction'.
- Perspective:** A panel with buttons for creating and deleting perspectives, and a checkbox for 'Apply Over Model Hierarc.'
- View Results:** A large pane displaying the results. It includes a toolbar with 'Map', 'Text', 'Group by', and other icons. Below the toolbar, it says 'Top Layer'. On the left is a vertical toolbar with icons for expanding/collapsing, search, and zoom. In the center, there is a card labeled '9' with a small icon, followed by the text 'Advantage Banking LOB'.

5. In the View Results panel at the bottom, the business application CI is displayed. Click the bent arrow to open the next layer in the view, as shown in the following screenshot:



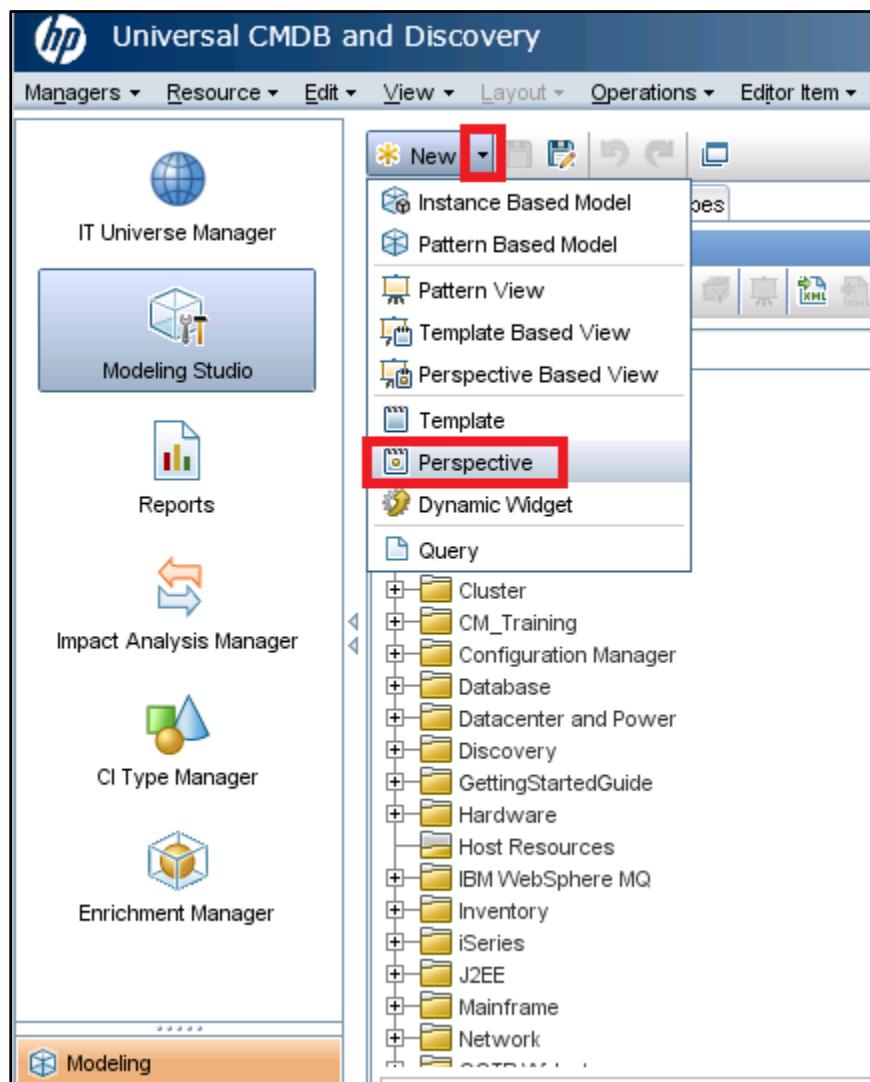
6. Use the tools provided in the View Results pane to investigate the content and structure of the new view.  
7. Use the Save button on the Modeling Studio toolbar to save the new view as Advantage LOB view.

## Exercise 3 – Creating the New Node Elements Perspective

The Node Element perspective, when applied to Node CIs, automatically adds the Node Element CIs if they exist in the UCMDB.

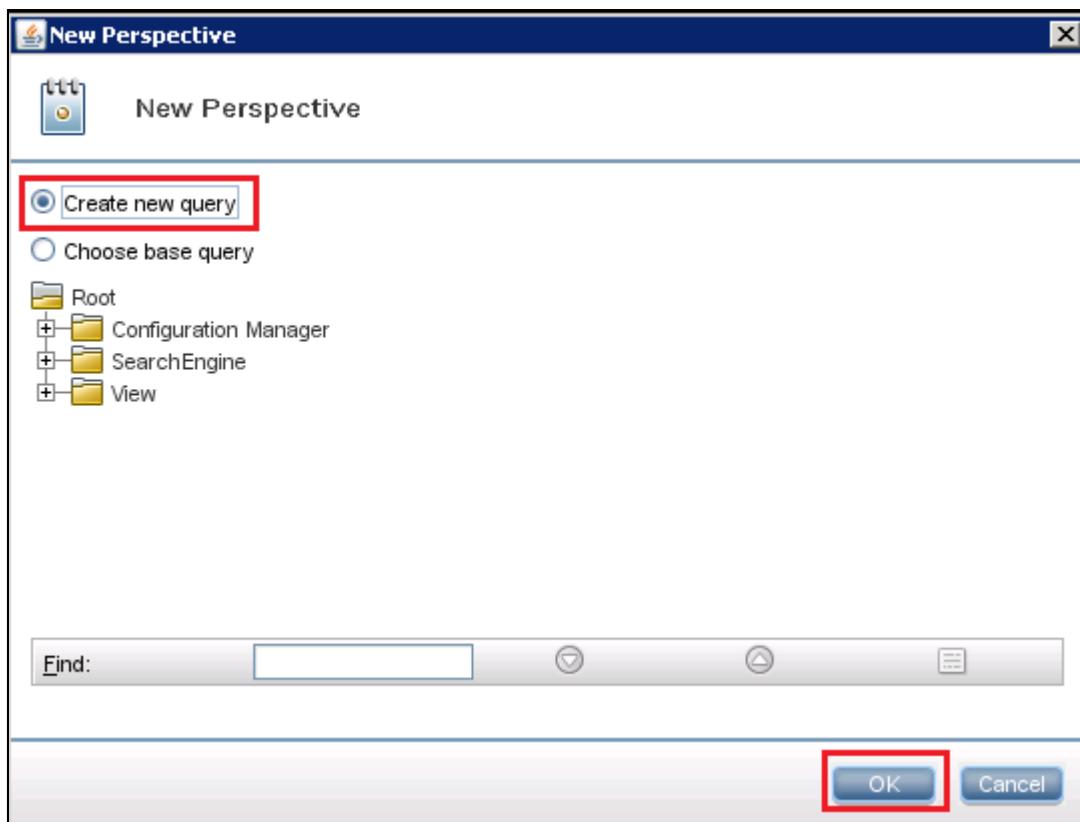
To create this perspective, perform the following steps:

1. From the Modeling area, go to the Modeling Studio.
2. Click the New button and select Perspective from the drop-down menu, as shown in the following screenshot:

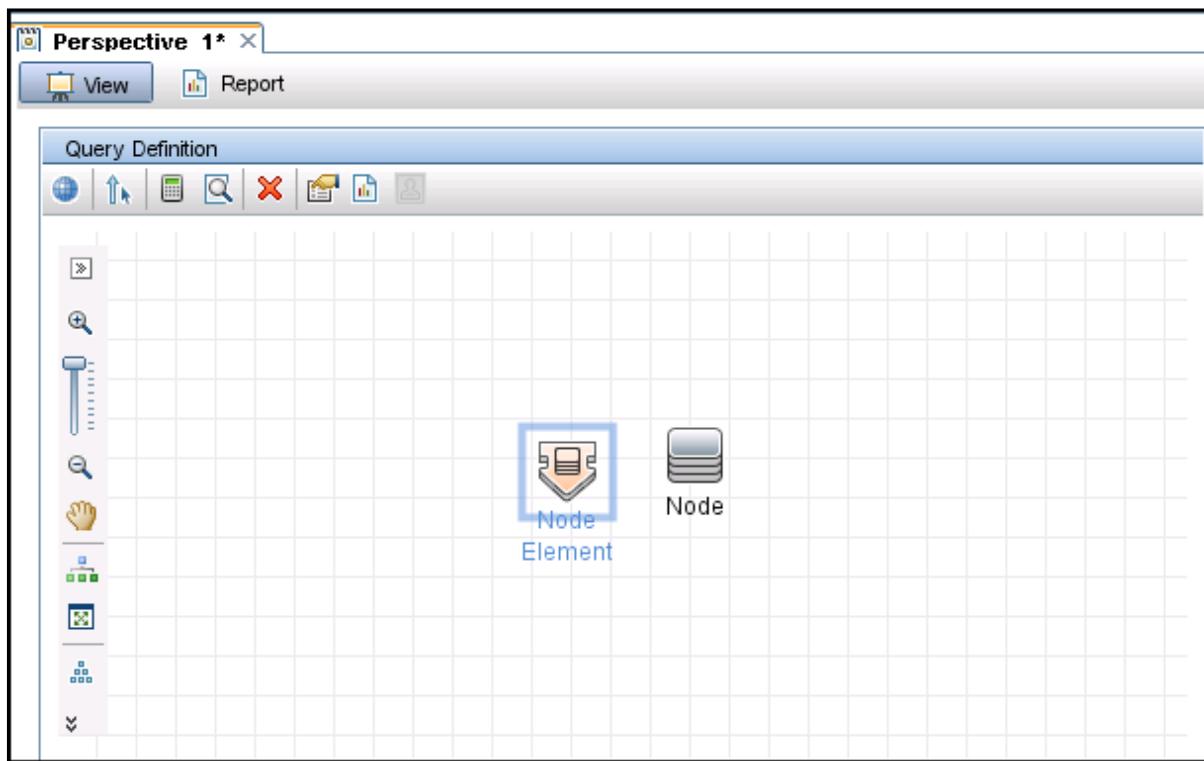


3. The New Perspective dialog box is displayed.

4. In the New Perspective dialog box, select the Create new query option and click the OK button, as shown in the following screenshot:

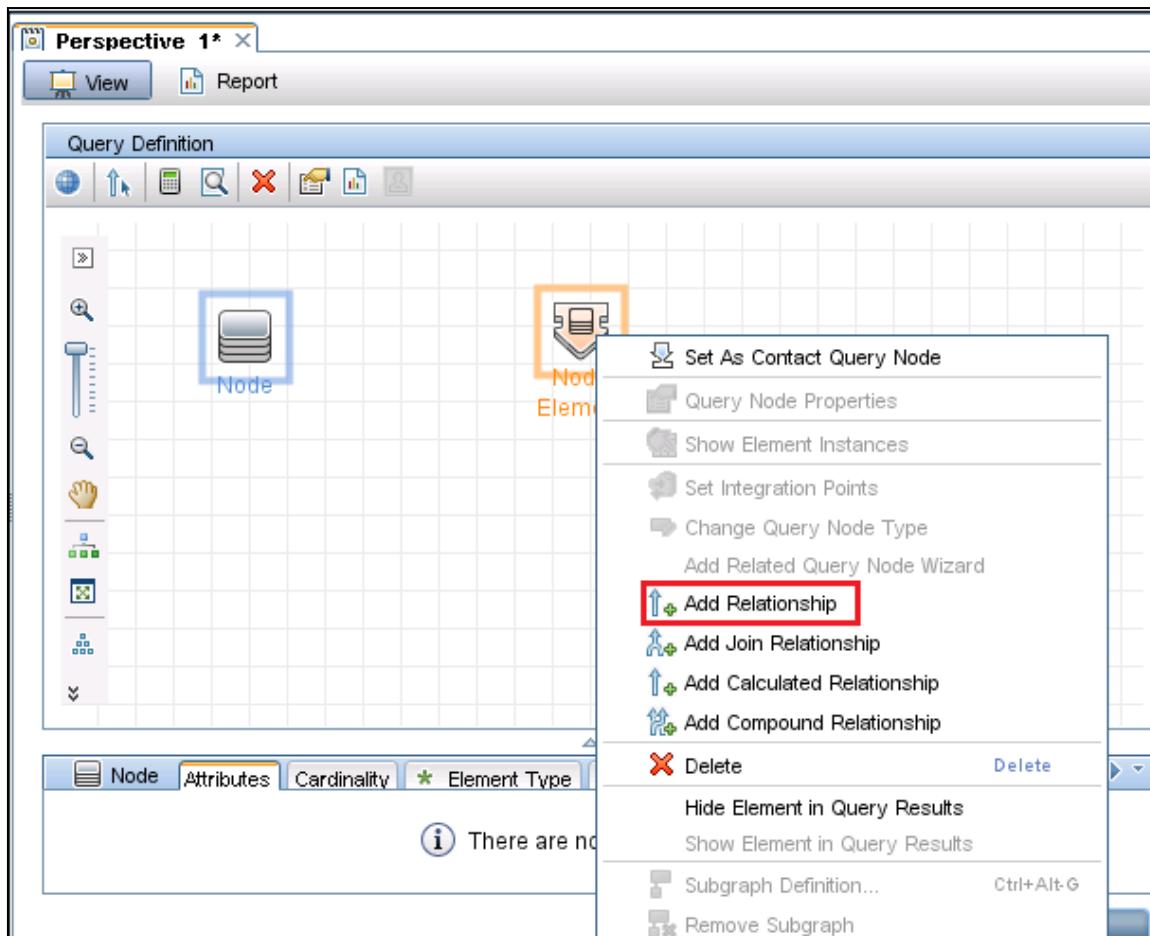


5. Add Node and Node Element to the query, as shown in the following screenshot:



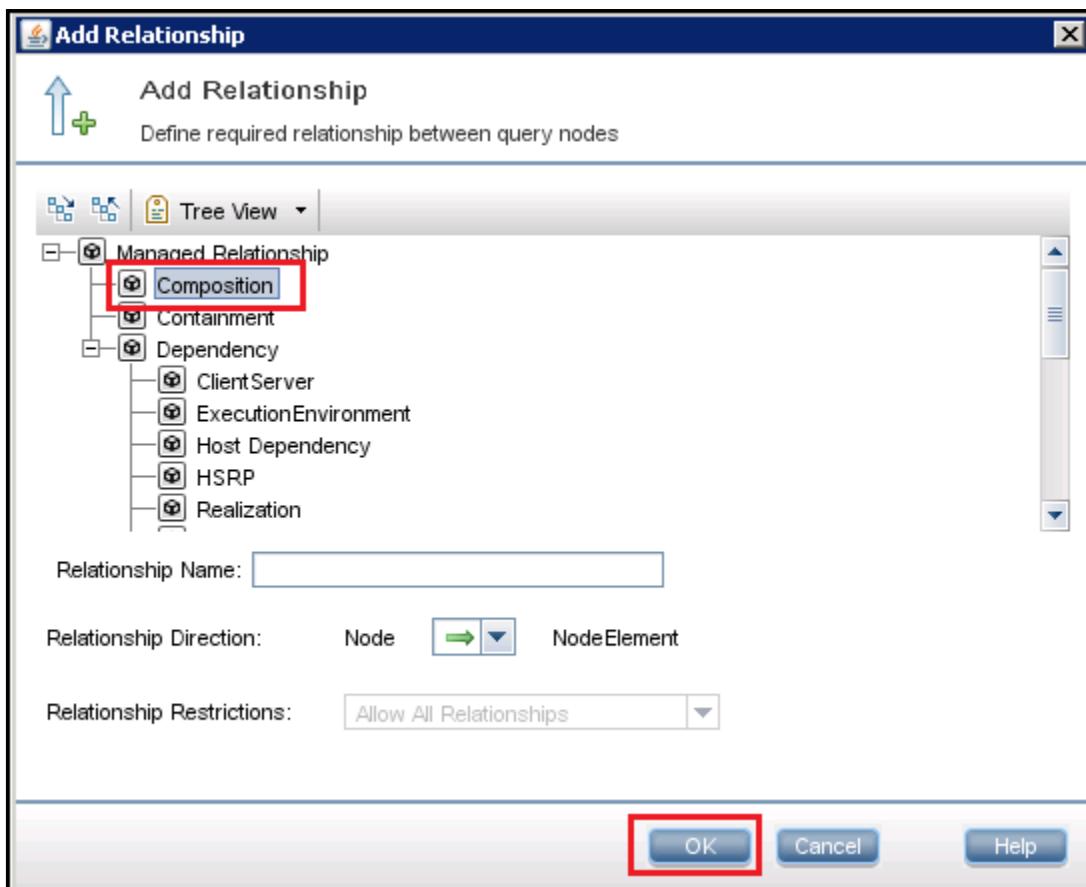
6. While holding down the CTRL key, select the Node and NodeElement CITs in the Topology pane and then right-click one of them.

7. Select the Add Relationship menu item from the context menu that is displayed, as shown in the following screenshot:

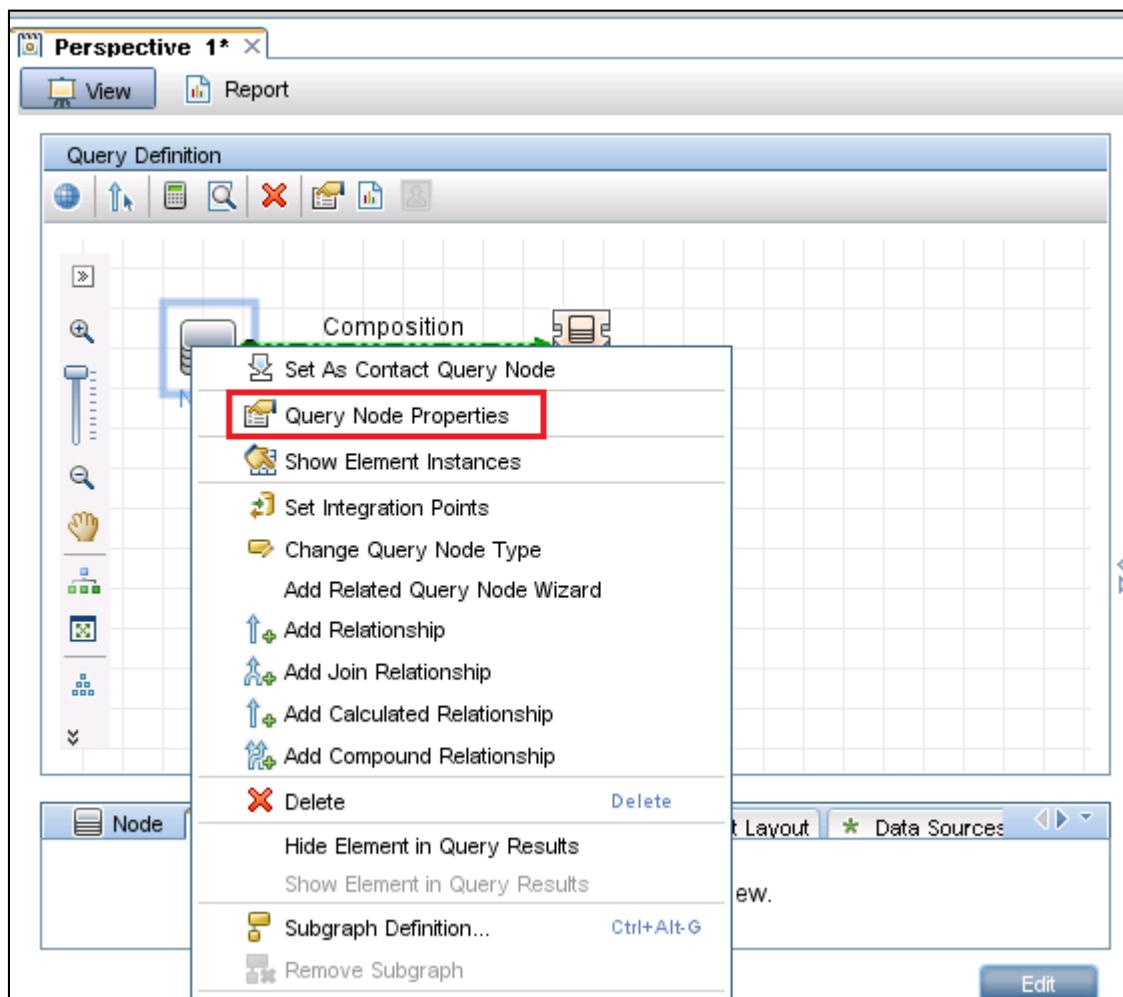


8. The Add Relationship dialog box is displayed. In the Add Relationship dialog box, select Composition relationship from the relationship hierarchy. Make sure that the Relationship Direction appears as Node→NodeElement.

9. Click the OK button to close the Add Relationship dialog box, as shown in the following screenshot:



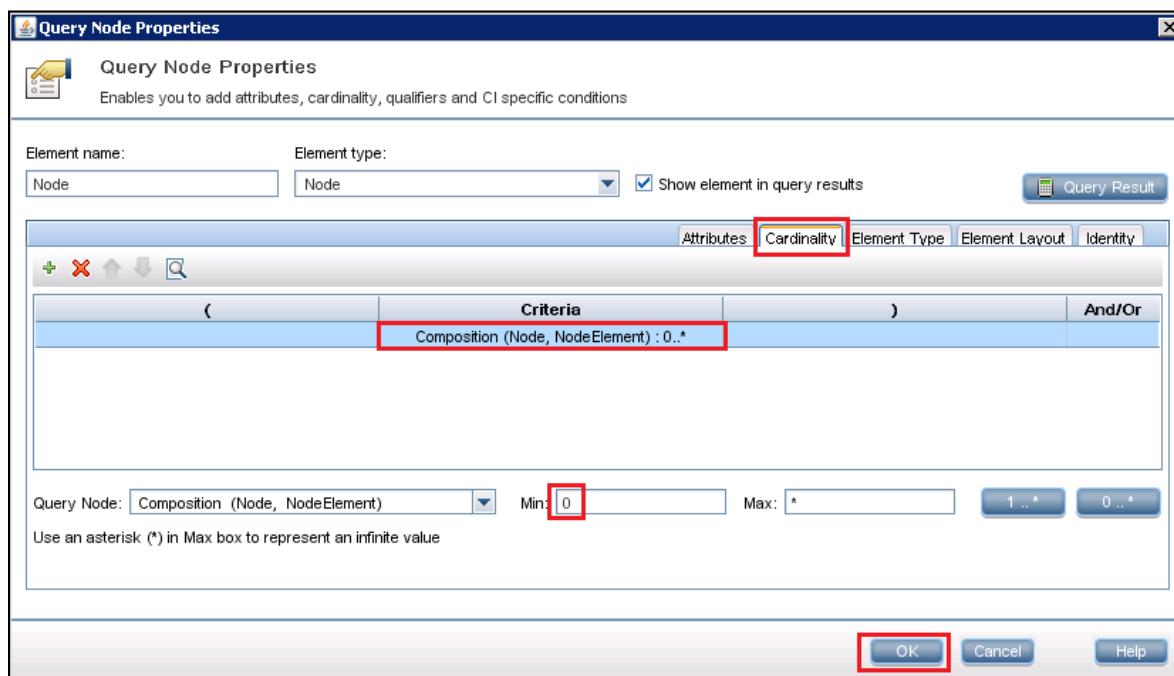
10. Select the Node CIT from the Topology pane and right-click it. From the context menu that is displayed, select the Query Node Properties menu item, as shown in the following screenshot:



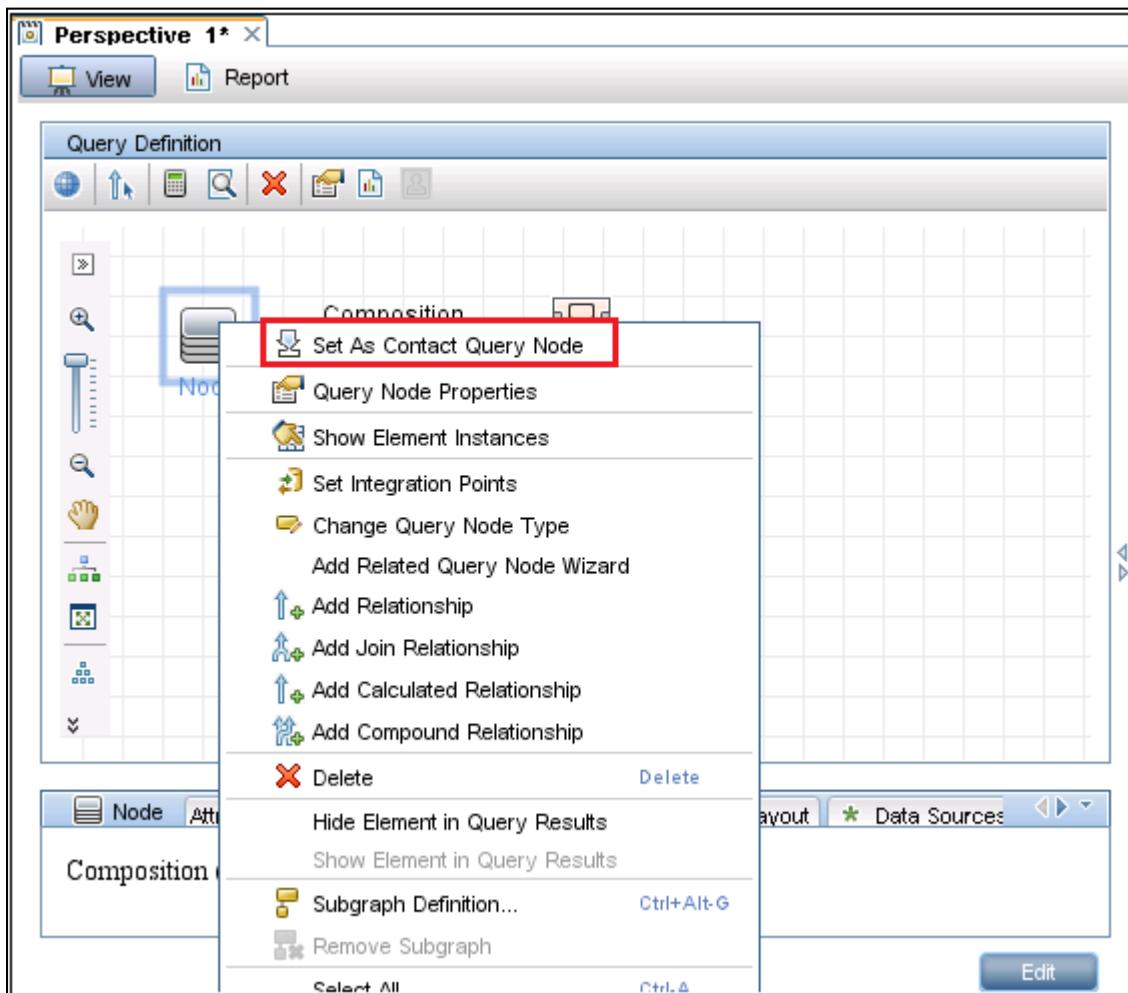
11. From the Query Node Properties window, click the Cardinality tab.

12. Click the row `Composition (Node,NodeElement) : . . *`. Enter 0 in the `Min` field.

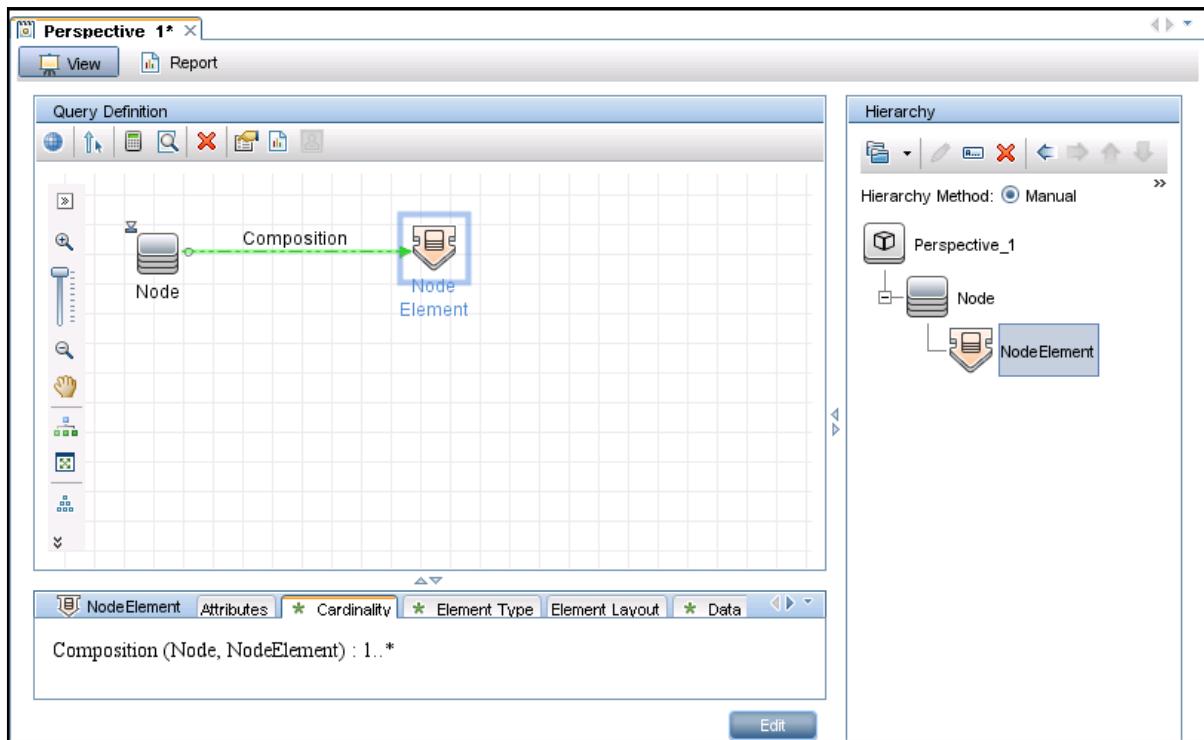
13. Click OK to close the dialog box, as shown in the following screenshot:



14. Select the Node CIT from the Topology pane and right-click it. From the context menu that is displayed, select the Set As Contact Query Node menu item, as shown in the following screenshot:

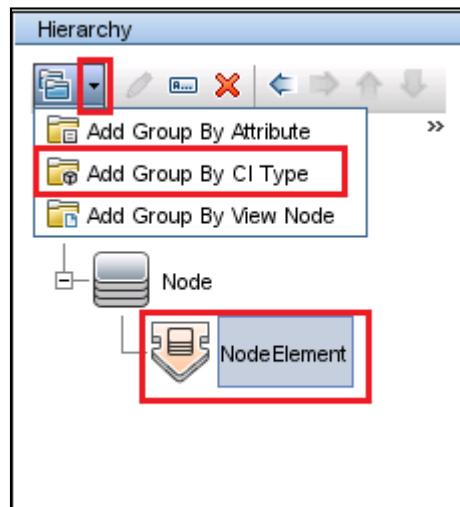


15. Fold Node Element under Node CIT in the Hierarchy pane, as shown in the following screenshot:

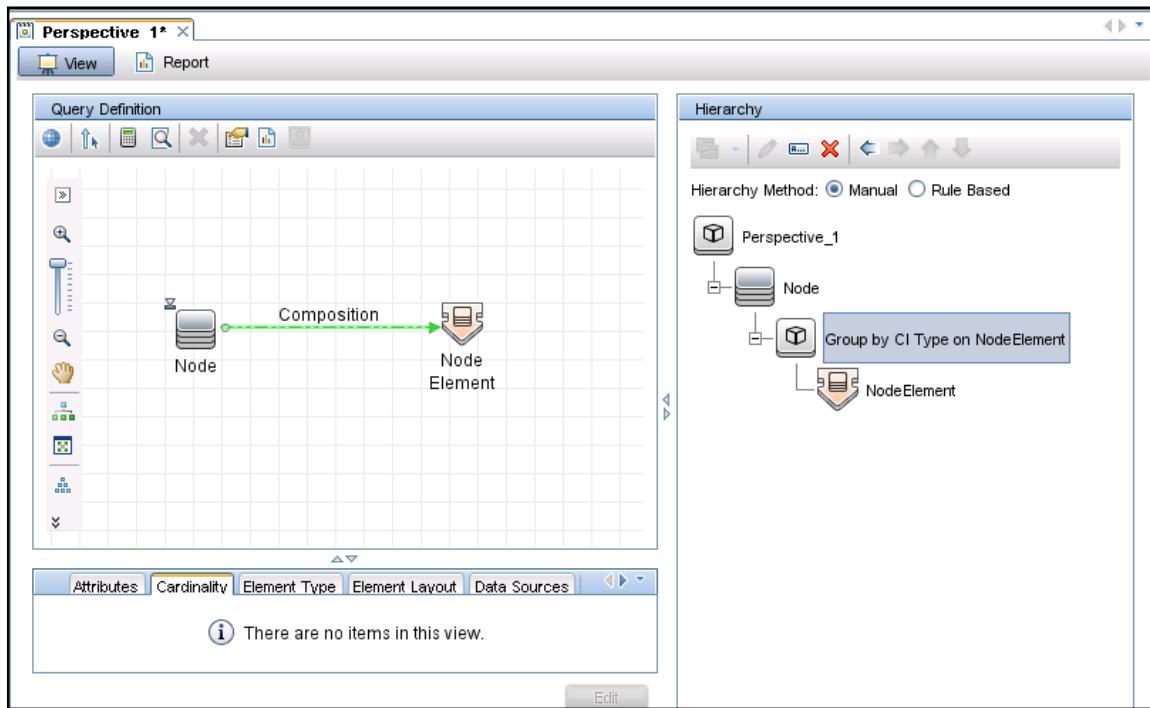


16. Group the NodeElement by CI Type. For this, click the NodeElement CIT in the Hierarchy pane and click the Add Group By drop-down list from the toolbar.

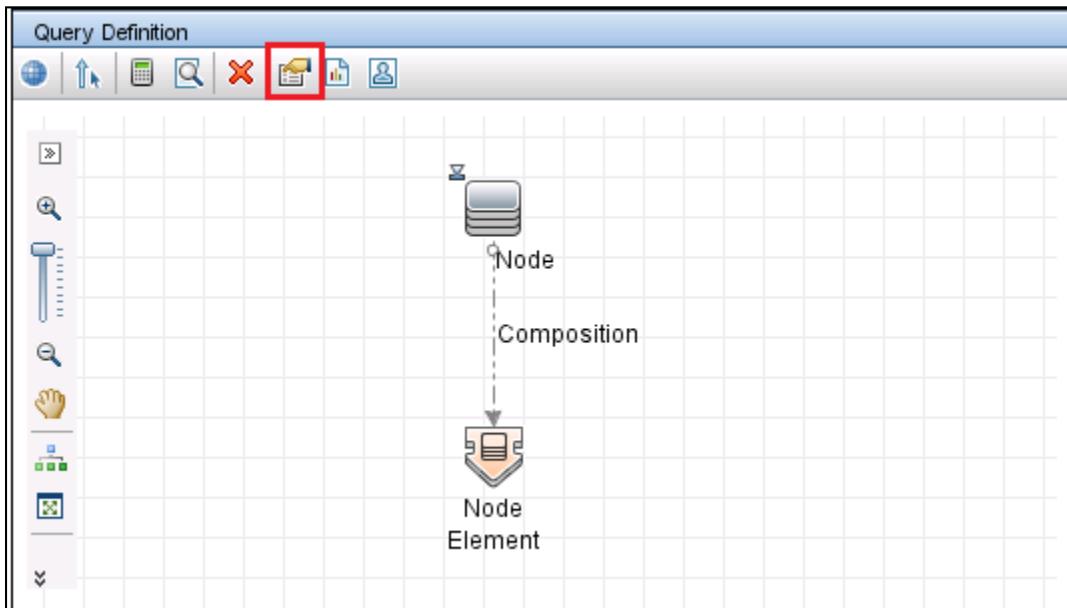
17. Select Add Group By CI Type from the drop-down menu, as shown in the following screenshot:



18. Ensure that your screen looks similar to the following screenshot:

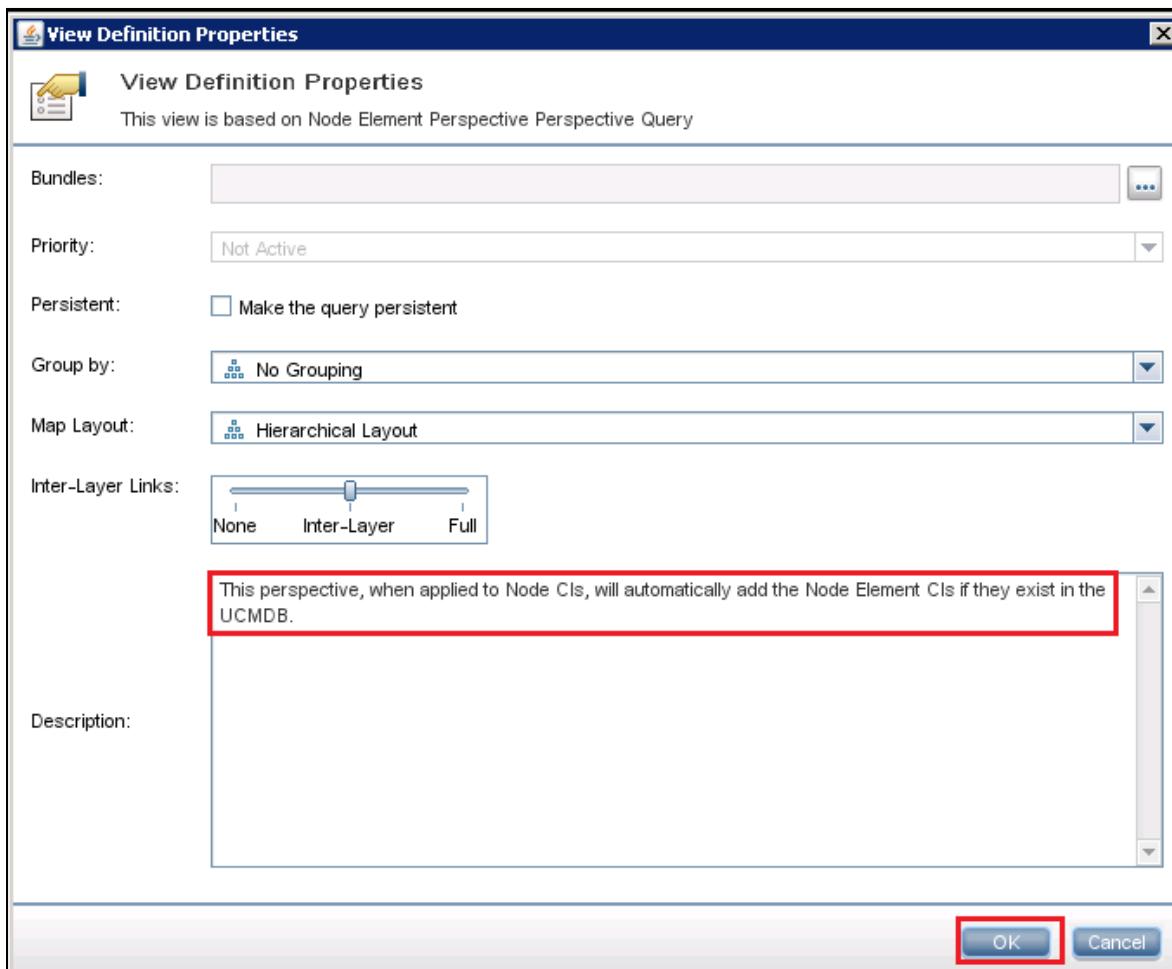


19. To add a description to the perspective, click the View Definition Properties button from the toolbar, as shown in the following screenshot:



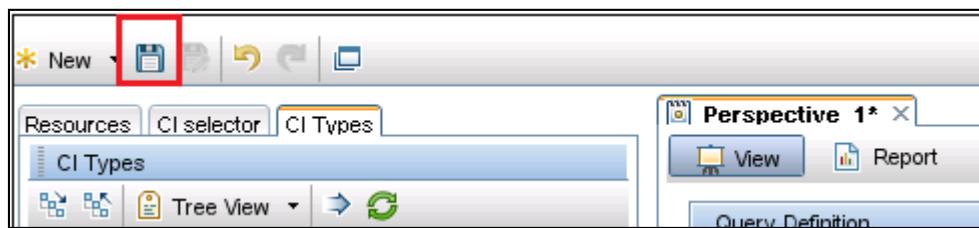
20. In the View Definition Properties window, type the details in the Description text area, as shown in the following screenshot:

Description: This perspective, when applied to Node CIs, will automatically add the Node Element CIs if they exist in the UCMDB.



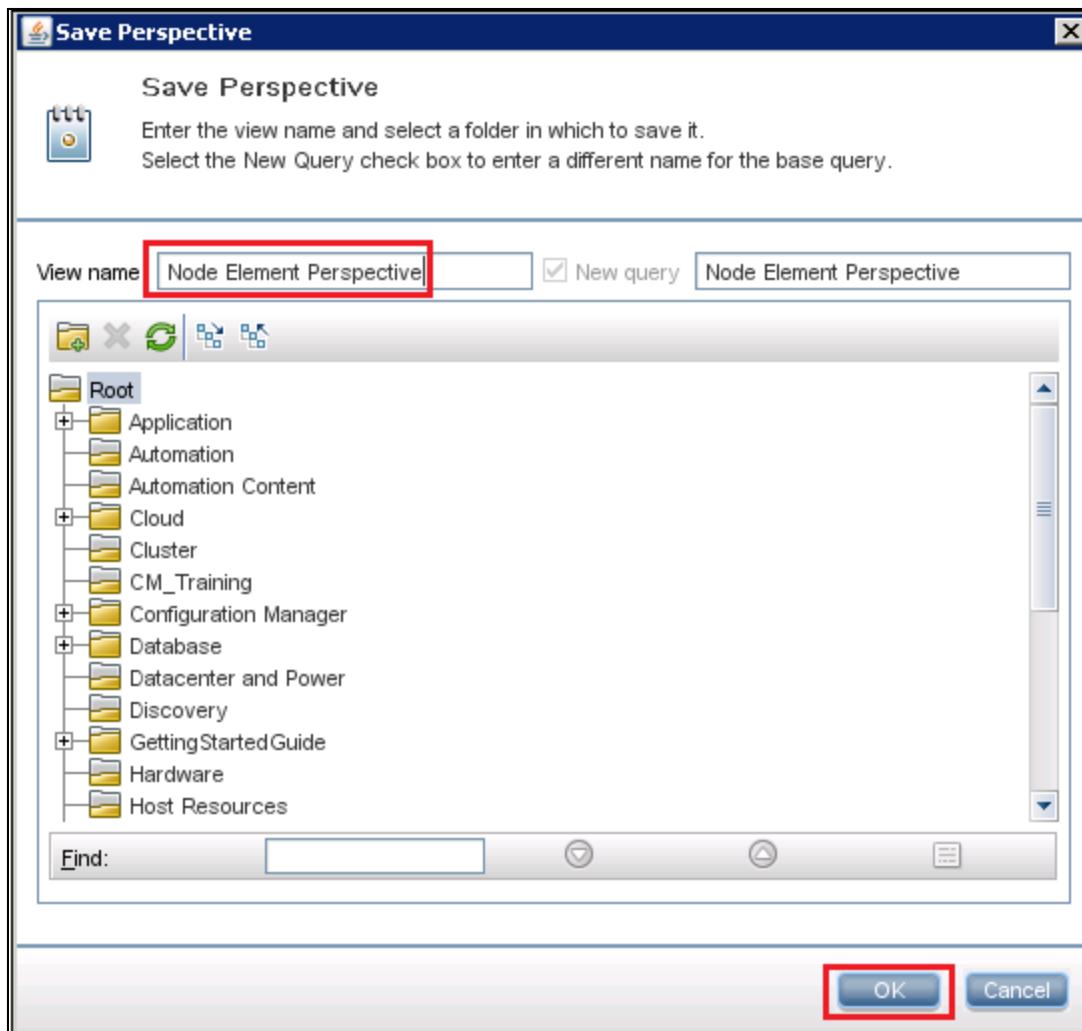
21. Click the OK button to save the properties and to close the Properties window.

22. Click the Save button from the Modeling Studio toolbar.

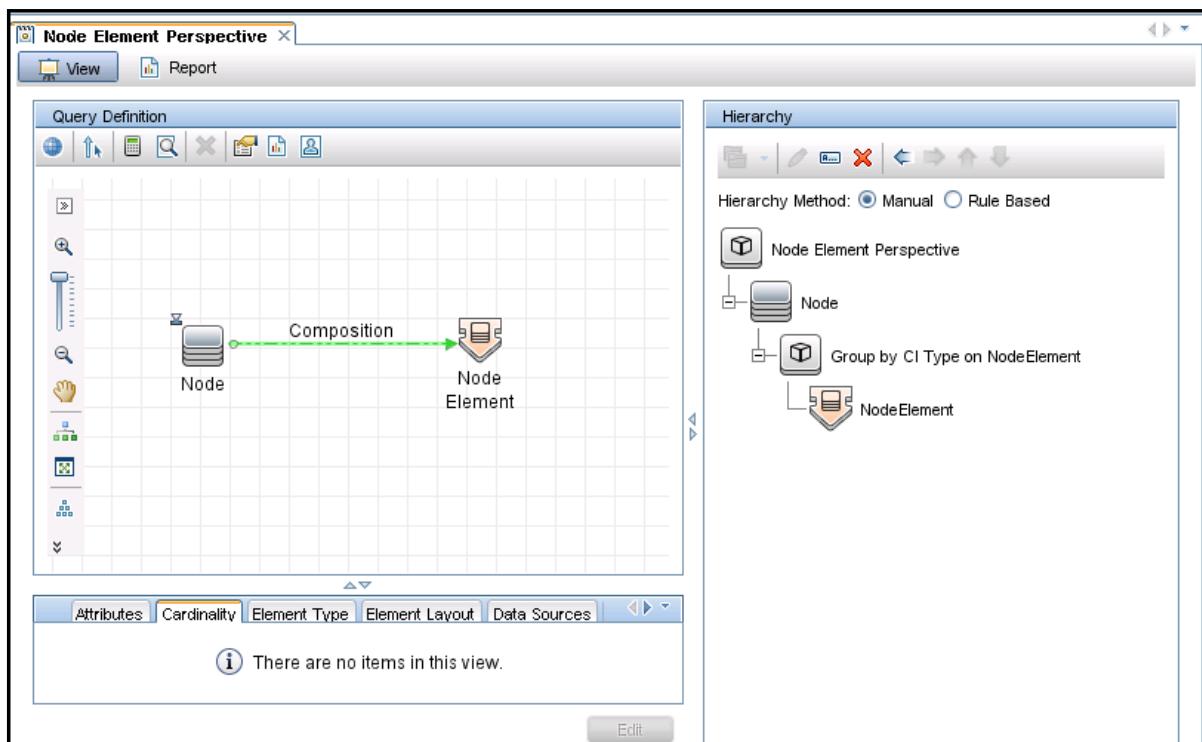


23. Enter the Perspective name in the View name field as **Node Element Perspective**.

24. Click the OK button to save the perspective, as shown in the following screenshot:



Ensure that your perspective looks similar to the following screenshot:



25. Test your perspective by using it to create a new perspective-based view based on the Advantage Banking LOB model.

26. Save the view as **Advantage Banking LOB with Node Elements**.

## Exercise 4 – Creating the Running Software Perspective

The Node Element perspective, when applied to Node Cls, automatically adds the Running Software Cls if they exist in the UCMDB.

### **Notes:**

- This perspective should return any Running Software on a Node; that is, where there is a composition relationship Node → Running Software.
- Use appropriate cardinality to ensure that nodes are not excluded from the results simply because they have no related Running Software Cls.
- Running Software (where it exists) should be grouped by CI Type.

There are no step-by-step instructions for this exercise. You are working without the aid of step-by-step instructions, so ask the instructor for help or hints if you need them.

As with the Node Elements Perspective in Exercise 3, use your perspective to create a new view based on the Advantage Banking LOB model. Save the view as Advantage Banking LOB with Running Software.

---

# Lab 9 – UCMDB Browser

## Objectives

After completing this lab, you should be able to:

- Access the UCMDB browser
- Work with browser search/refocus and the Environment widget
- Expose the Impact Simulation, Policy, and Properties widgets

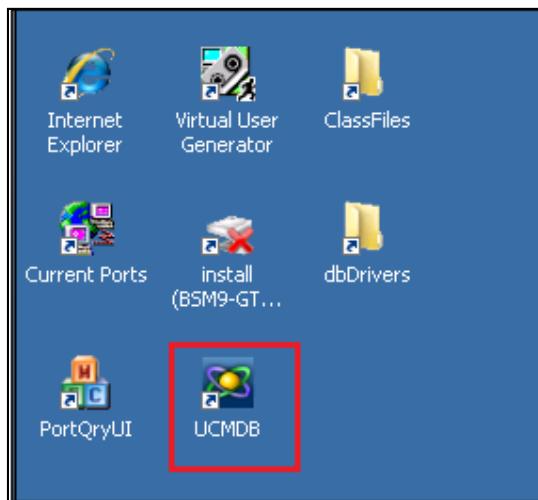
## Introduction

The Enhanced CI search engine introduced with UCMDB translates free text queries to TQLs, with much better performance and accuracy than the legacy search engine and flexible searching language. The syntax of the search queries is based on the class model. The UCMDB browser can be used OOTB without initial configuration of the search engine.

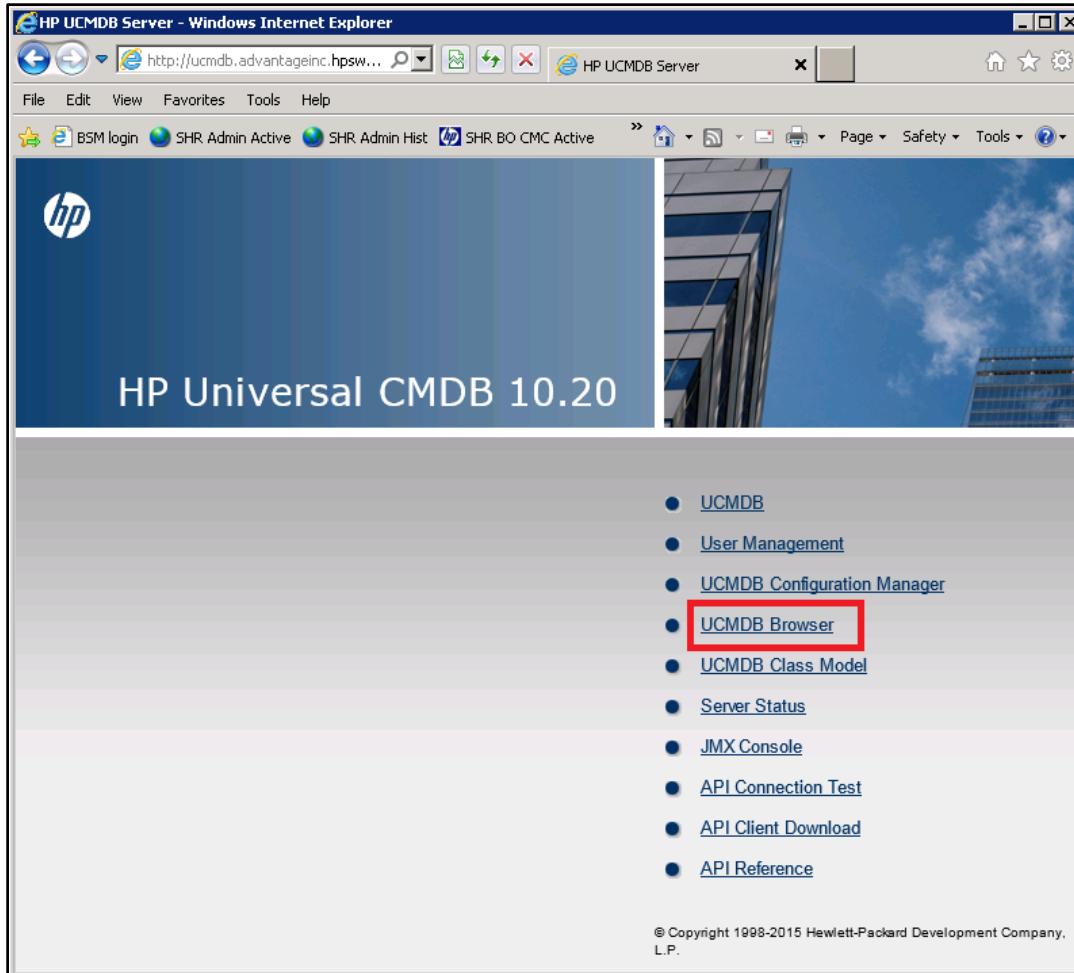
## Exercise 1 – Accessing the UCMDB Browser

To access the UCMDB browser, perform the following steps:

1. From the AVM, double-click the UCMDB shortcut to open the home page, as shown in the following screenshot:



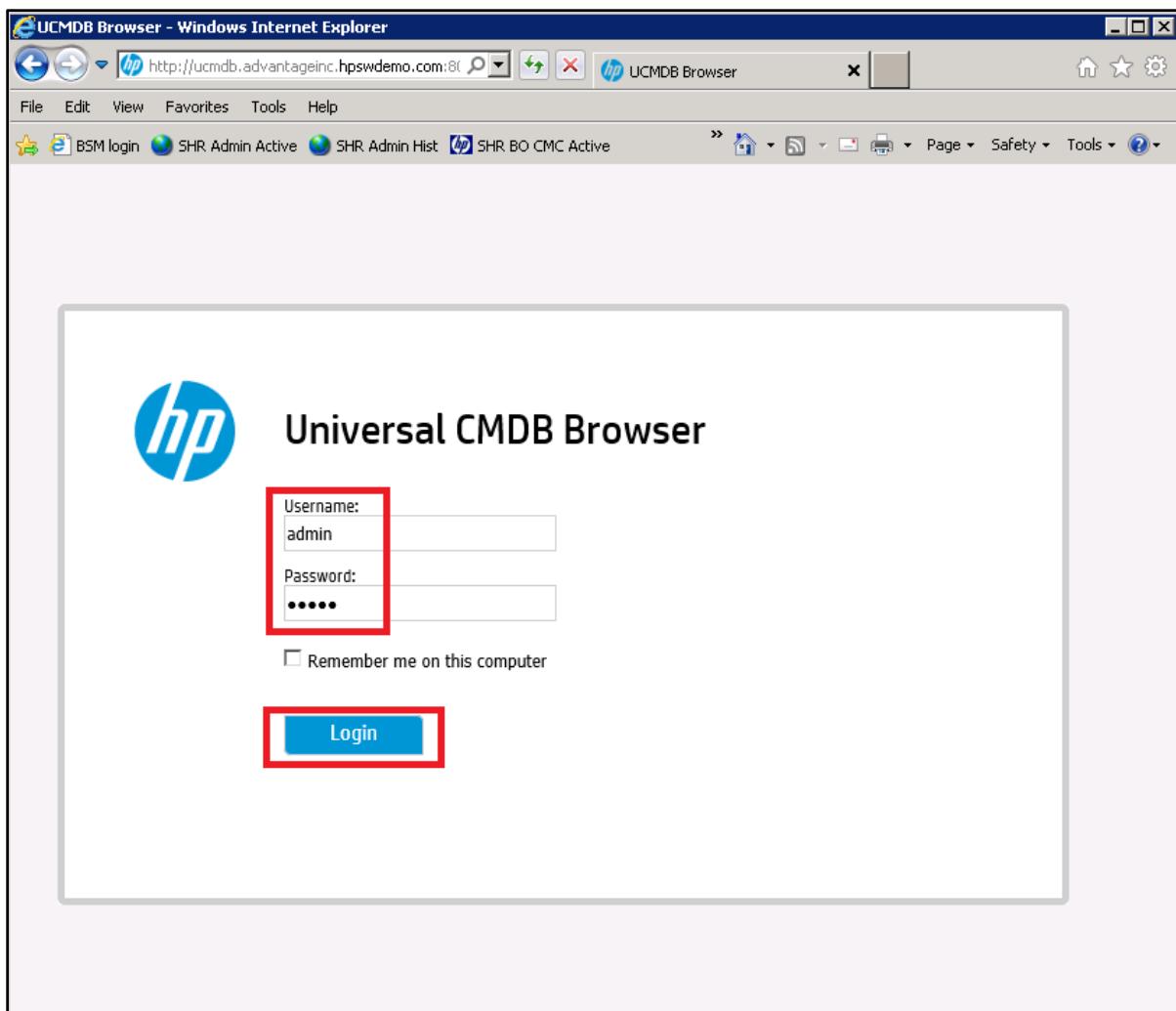
2. Click the UCMDB Browser link available on the home page, as shown in the following screenshot:



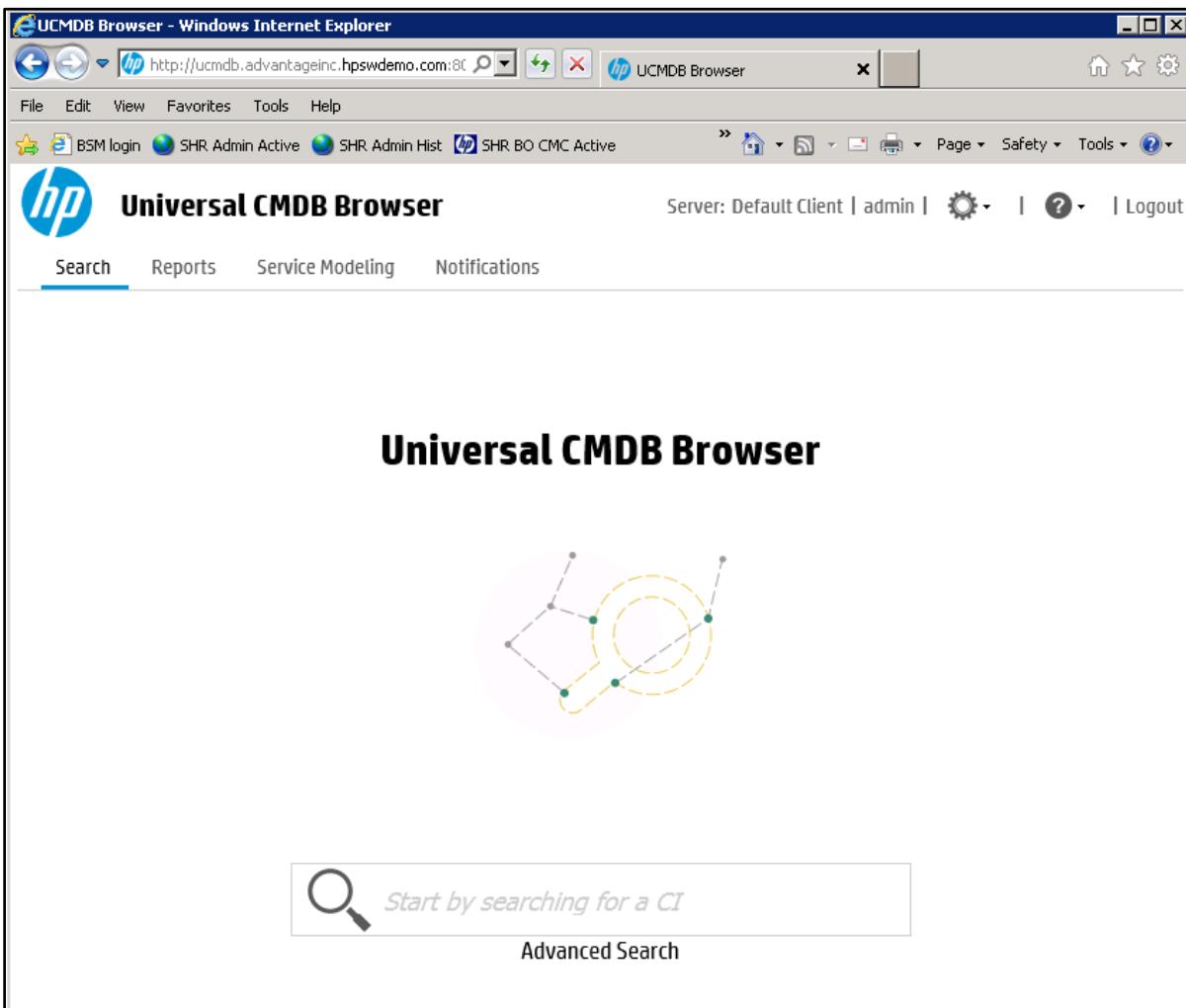
**Note:** Alternatively, you can open an Internet Explorer page from the AVM and type the following URL into the address bar

**http://ucmdb.advantageinc.hpswdemo.com:8080/ucmdb-browser** to open UCMDB browser.

3. In the UCMDB login page, log in with Username as **admin** and Password as **admin**, as shown in the following screenshot:



4. The UCMDB Browser screen is displayed, as shown in the following screenshot:



## Exercise 2 – Working with Browser Search/Refocus and Environment Widget

To work with browser search/refocus and the Environment widget, perform the following steps:

1. To search for all Windows machines, type **all windows** in the search text box and press the Enter key.

The screenshot shows a Microsoft Internet Explorer window displaying the Universal CMDB Browser. The title bar reads "UCMDB Browser - Windows Internet Explorer". The address bar shows the URL "http://ucmdb.advantageinc.hpswdemo.com:80". The page header includes the HP logo, a navigation bar with links like "BSM login", "SHR Admin Active", "SHR Admin Hist", and "SHR BO CMC Active", and a user session info bar with "Server: Default Client | admin | Logout". Below the header, there's a menu bar with "File", "Edit", "View", "Favorites", "Tools", and "Help". A toolbar follows with icons for "Home", "Star", and "Settings". The main content area has tabs for "Search" (which is selected), "Reports", "Service Modeling", and "Notifications". The search results for "all windows" are listed:  
all windows  
all c:\windows  
all windows defender  
all windows defender  
all windows media player  
all windows defender  
all windows server  
all windows  
A search input field at the bottom contains "all Windows" with a magnifying glass icon, and a link "Advanced Search" is visible below it. The entire screenshot is enclosed in a red border.

2. The results page is displayed. Select server VMAMRND26 by clicking it, as shown in the following screenshot:

The screenshot shows the Universal CMDB Browser interface. The top navigation bar includes links for Search, Reports, Service Modeling, and Notifications. The top right corner displays the server information: Default Client | admin | Logout. A search bar at the top right contains the query "all Windows". Below the search bar, a message indicates "1200 Search results for 'all Windows'".

On the left side, there are several filter options: "Special filters" (Main CI Type: No CI Type Selected), "Name" (Name Attribute (optional)), and "Related CI Type" (No CI Type Selected). A prominent blue button labeled "Select Attributes for Report" is located below these filters.

The main content area displays a grid of 16 search results, each representing a Windows system. The results are arranged in four rows of four. The first result, "vmamrnd26", is highlighted with a red border. Each result card includes the CI name, a small icon, and the type information: "Type: Infrastructure > Windows".

At the bottom of the results grid, a message states "1 - 16 items of 1200". To the right of this message is a page navigation bar with numbers from 1 to 75, indicating the total number of pages in the search results.

3. The widgets page is displayed, as shown in the following screenshot:

The screenshot shows the UCMDB Browser interface for a Configuration Item (CI) named "vmamrnd26". The window is divided into several sections:

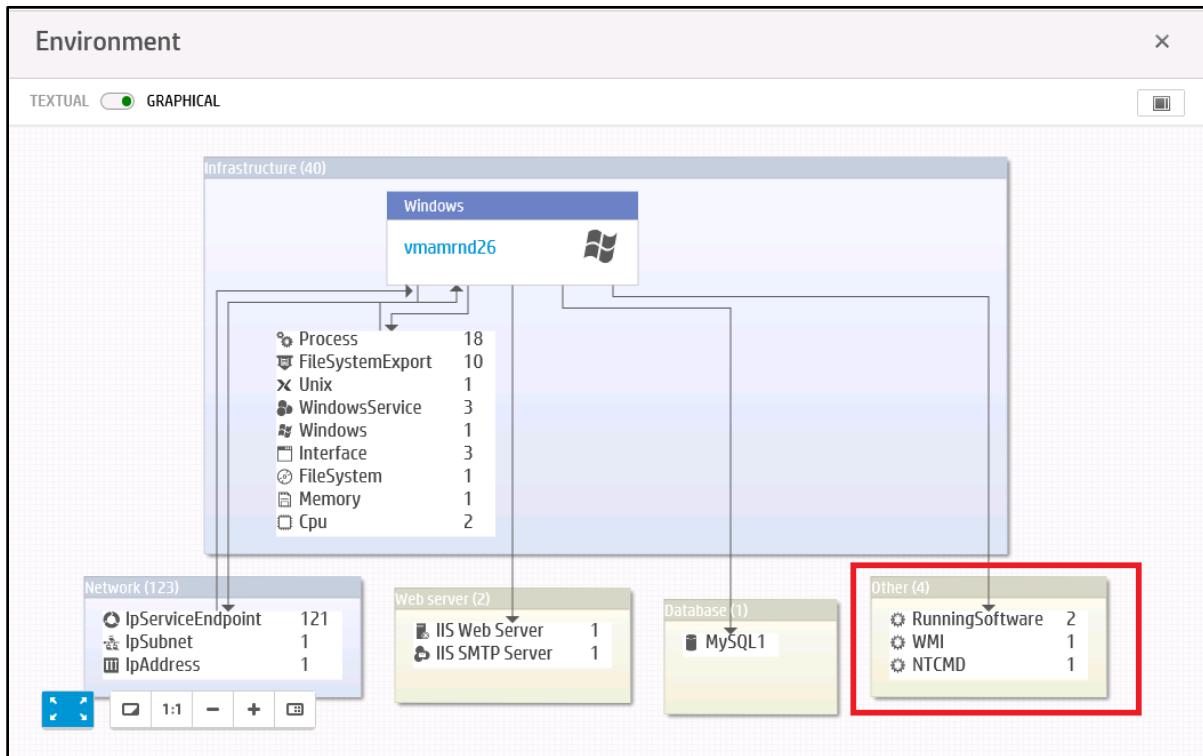
- PROPERTIES**: Displays basic information:
  - IP Address: 16.59.61.77
  - MemorySize: 4096
  - DiscoveredModel: VMware Virtual Platform
- ENVIRONMENT**: Shows the environments associated with the CI:

Environment Type	Count
Database	1
Web Server	2
Infrastructure	40
Network	123
Other	4
- IMPACT SIMULATION**: A note stating: "Severity trigger is set to none. Expand widget to change severity trigger".
- HISTORY**: A section titled "CI Changes: No changes" with a count of 0.

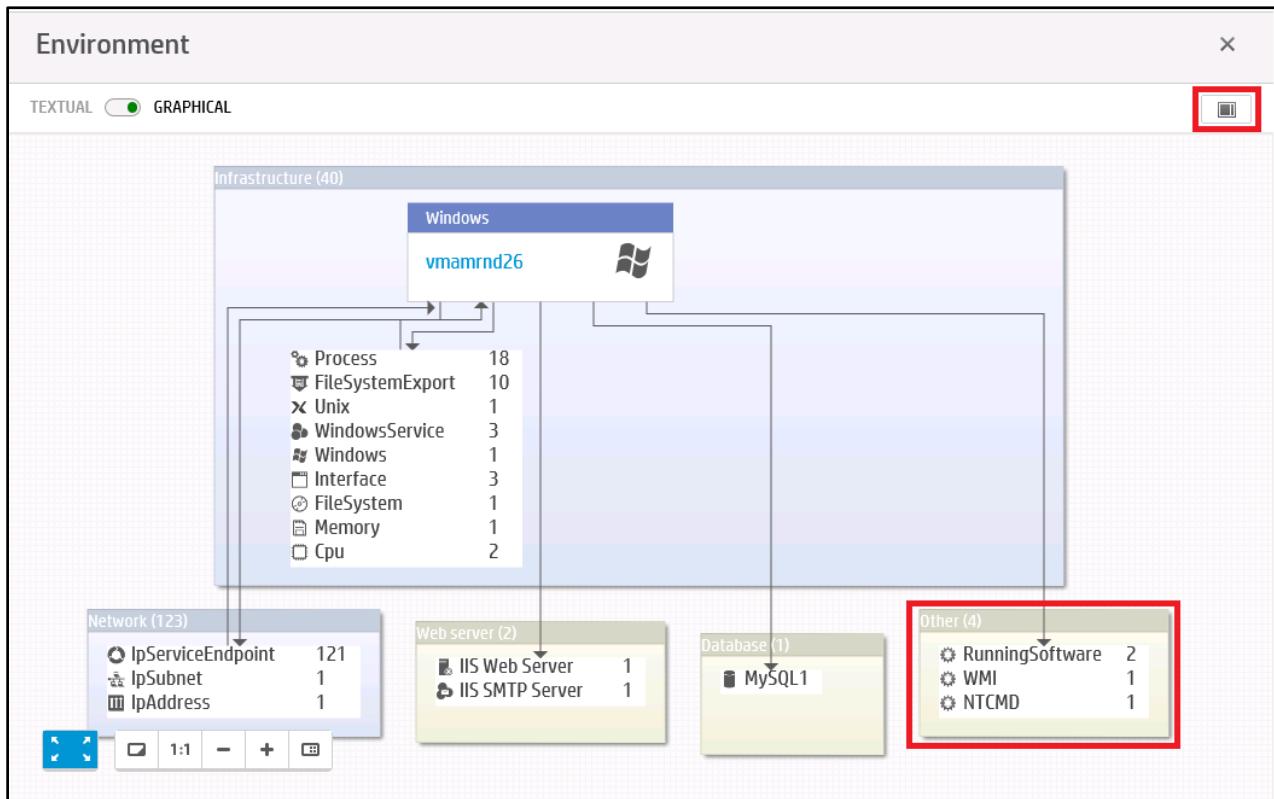
4. Move your mouse into the Environment widget on the right side. Observe the items displayed in the widget. Click the title link Environment in the widget, as shown in the following screenshot:

ENVIRONMENT	
Database	1
Web Server	2
Infrastructure	40
Network	123
Other	4

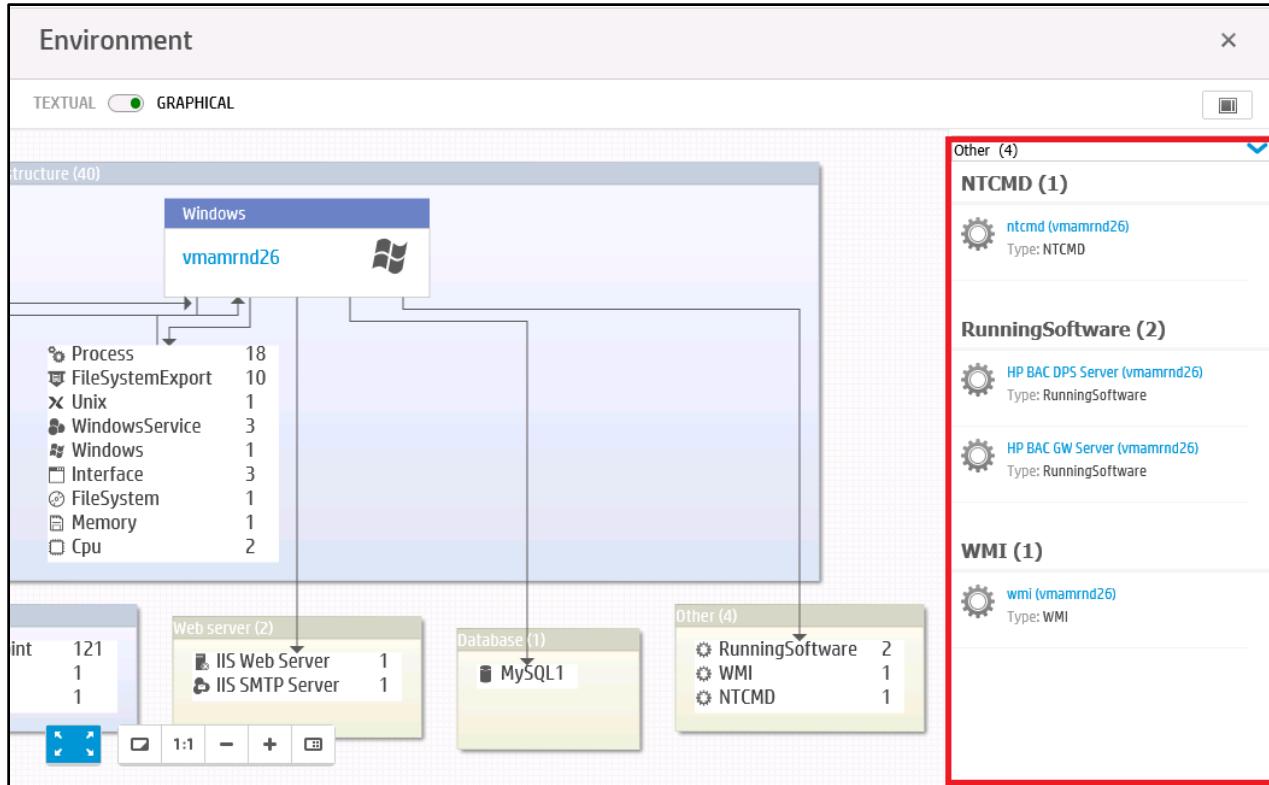
5. The Environment widget exposes the details and topology of the selected CI, as shown in the following screenshot:



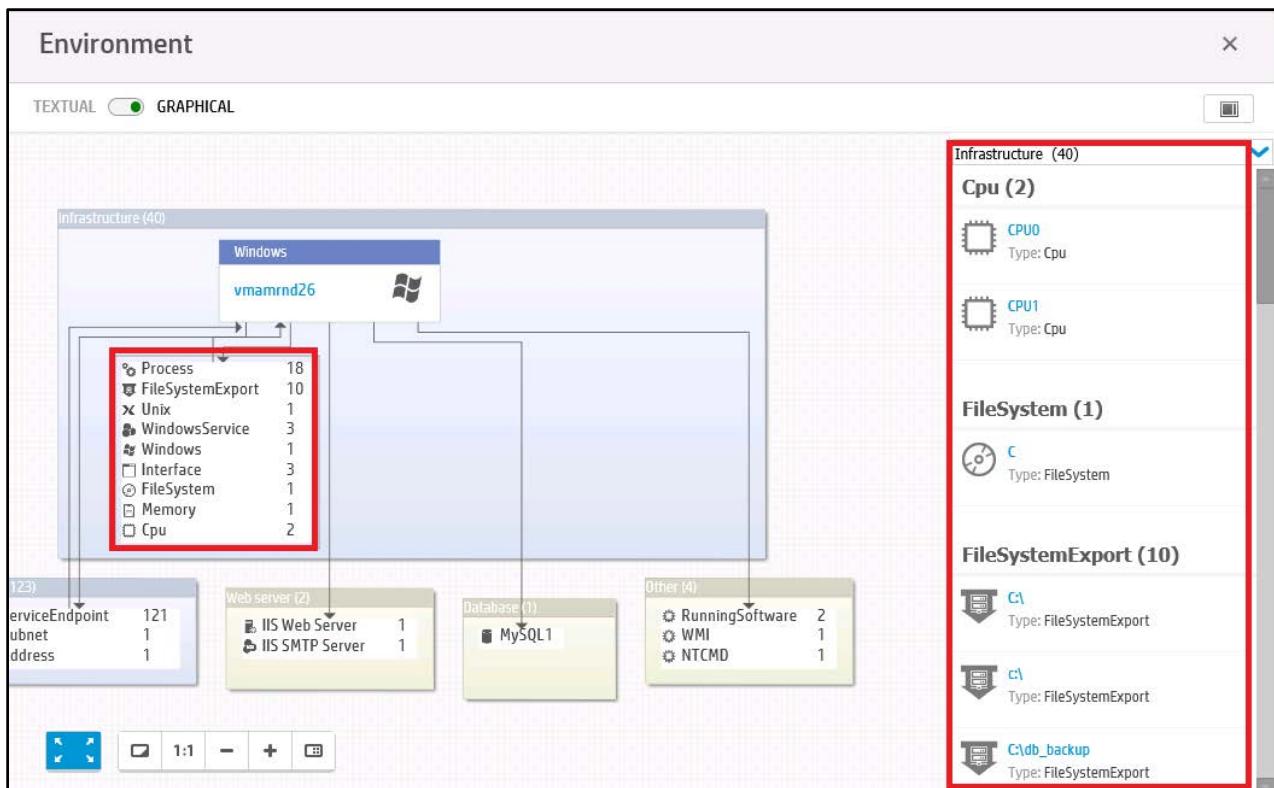
6. Click the Others group container, then click the Open Cls List View button, as shown in the following screenshot:



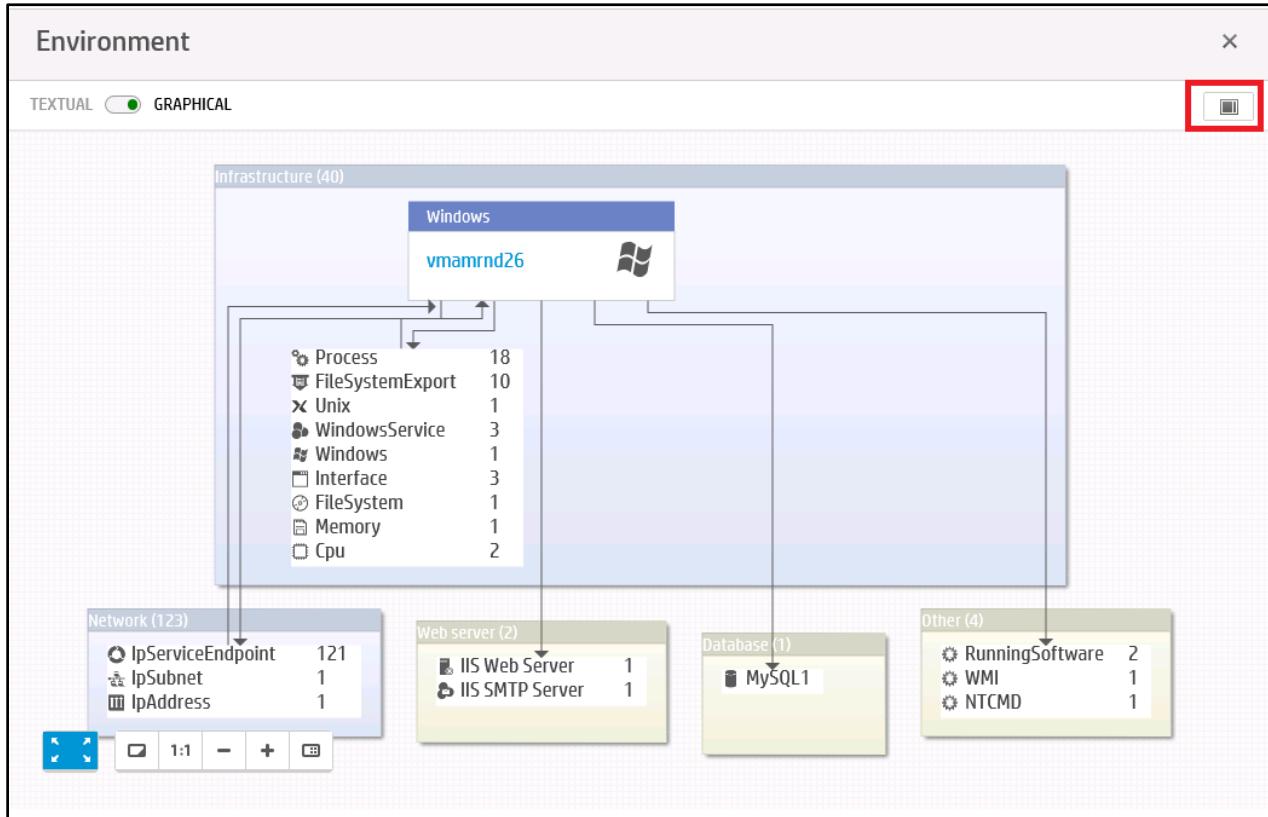
7. The details list view pane is displayed, as shown in the following screenshot:



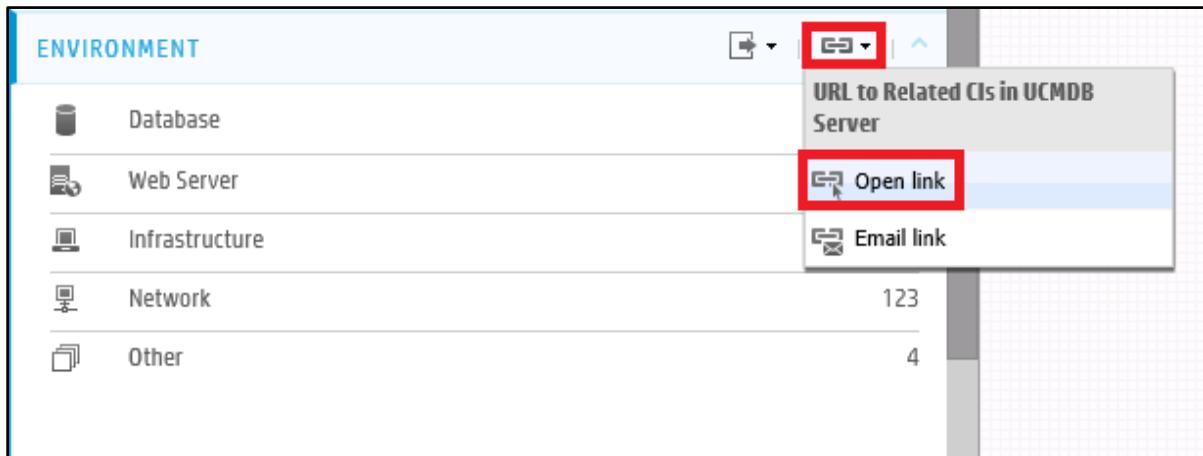
8. Inspect the details of the related CIs.
9. Click the Infrastructure group container and observe the details list view displayed on the right side, as shown in the following screenshot:



10. Click the Close Cls List View button to close the List View pane, as shown in the following screenshot:

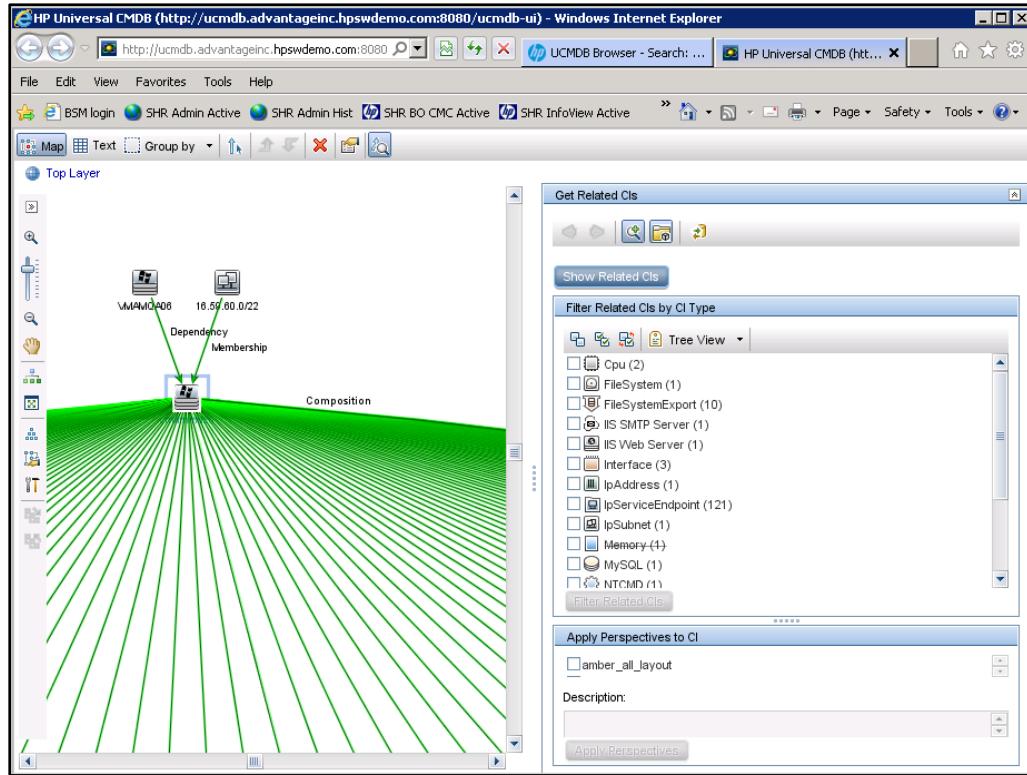


11. Click the URL to Related Cls in UCMDB Server button in the top-right corner. Select the Open link menu item, as shown in the following screenshot:

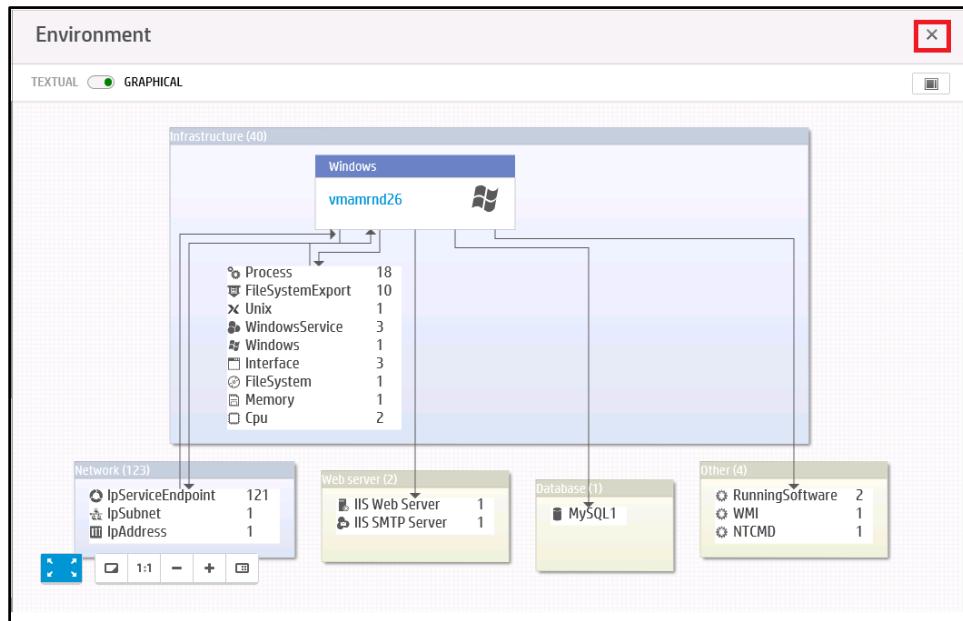


This opens a separate new UCMDB interface page, which shows the same CI with all related Cls in the UCMDB.

12. Close the page after verifying the details by clicking the X button of the window, as shown in the following screenshot:



13. Click the Close button to go back to the CI Widgets page, as shown in the following screenshot:



14. Click the Close (X) button on the right side to close the Widgets page of the selected CI.

15. This takes you back to the search results page, as shown in the following screenshot. Click the “Close (X) button on the right side to close the Search Results page.

The screenshot shows a UCMDB browser window with the title "vmamrnd26". The window has a standard OS X-style interface with a close button in the top right corner. It contains four main sections:

- PROPERTIES**: Displays basic information:
  - IP Address: 16.59.61.77
  - MemorySize: 4096
  - DiscoveredModel: VMware Virtual Platform
- ENVIRONMENT**: Shows associations with other components:

Environment Type	Count
Database	1
Web Server	2
Infrastructure	40
Network	123
Other	4
- IMPACT SIMULATION**: A note stating: "Severity trigger is set to none. Expand widget to change severity trigger".
- HISTORY**: A section titled "CI Changes: No changes" with a count of 0.

16. Select Search and then Most Searched to display item-wise search details, as shown in the following screenshot:

The screenshot shows the Universal CMDB Browser interface. At the top, there is a large blue HP logo followed by the text "Universal CMDB Browser". Below the logo, there is a navigation bar with four tabs: "Search" (which is highlighted with a red box), "Reports", "Service Modeling", and "Notifications". Under the "Search" tab, there are three main sections: "Quick Search" (with a magnifying glass icon), "Advanced Search" (with a dropdown arrow icon), and "Most Visited" (with a blue downward arrow icon). Below these, a button labeled "Most Searched" is also highlighted with a red box.

17. To drill down, click the first group container.

The screenshot shows the Universal CMDB Browser interface with the "Search" tab selected. The main area displays a grid of asset groups. The first group, "obaapp1", is highlighted with a red box. Each group card contains the group name, a small icon, the type (e.g., Infrastructure > Windows), and the last visited date. Below the groups, there is a section with a single group card for "obaapp2". At the bottom, there are four summary cards showing counts for different categories: Web server (5), Other (2), Infrastructure (2), Infrastructure (1200), Database (1), Database (3), Other (1), and Infrastructure (1).

Category	Count
Web server	5
Other	2
Infrastructure	2
Infrastructure	1200
Database	1
Database	3
Other	1
Infrastructure	1

18. This opens the CIs available in the selected category. You can drill down further for individual CIs by clicking it.

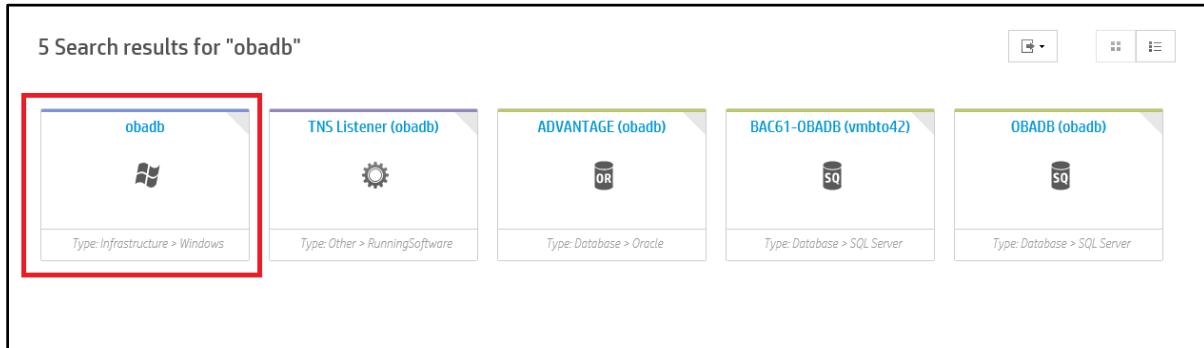
**Note:** In the same way, try different searches using natural language. Try the following searches by entering the given phrase in the search box of the UCMDB browser:

- Because Windows is a call name synonym for NT, if you enter **all Windows** a search by class type is triggered for all Windows PCs in the system. (You already tried this in Exercise 2 Step1.)
- If you enter **all Unix or all business application**, this triggers a search by class name because Unix and business application are class names.
- Because version is a synonym of the discovered\_os\_name property, if you enter **Windows version 2008**, this triggers a search for all Windows PCs where the property discovered\_os\_name= 2008.
- Because memory is a synonym of the memory\_size property, if you enter **Windows with more than 4GB of memory**, this triggers a search by property condition for all Windows PCs with the attribute memory\_size>4GB.
- Certain words or phrases, such as *more than* or *less than*, trigger a cardinality search. If you enter **Windows with more than 2 CPUs**, this triggers a search that yields results of all Windows PCs with at least two CIs of type CPU connected to them.
- If you enter **Oracle 16.55.245**, the search engine yields search results with all Oracle servers in the 16.55.245.\* IP address range.

## Exercise 3 – Exposing the Impact Simulation, Policy, and Properties Widgets

To expose the Impact Simulation, Policy, and Properties widgets, perform the following steps:

1. Enter **obadb** in the search box of the UCMDB browser and press the Enter key.
2. The search result page displays all CIs with obadb in their names. Click the first obadb Windows CI displayed, as shown in the following screenshot:



5 Search results for "obadb"

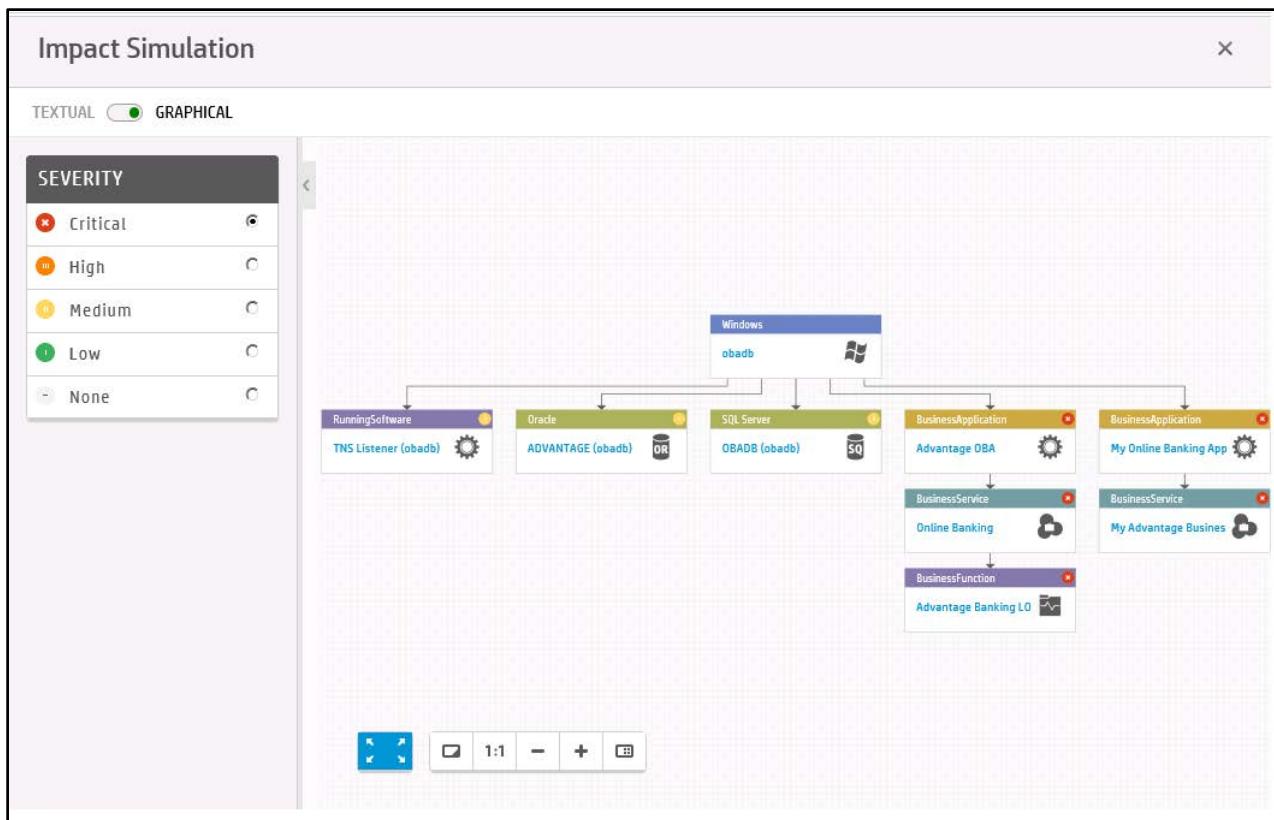
Type	Object Name	Description
Infrastructure > Windows	obadb	Windows operating system instance
Other > RunningSoftware	TNS Listener (obadb)	Oracle Network Listener
Database > Oracle	ADVANTAGE (obadb)	Oracle Database instance
Database > SQL Server	BAC61-OBADB (vmbto42)	Microsoft SQL Server instance
Database > SQL Server	OBADB (obadb)	Microsoft SQL Server instance

3. The Widgets page is displayed for the selected CI. Scroll down and click the IMPACT SIMULATION link of the Impact simulation widget, as shown in the following screenshot:

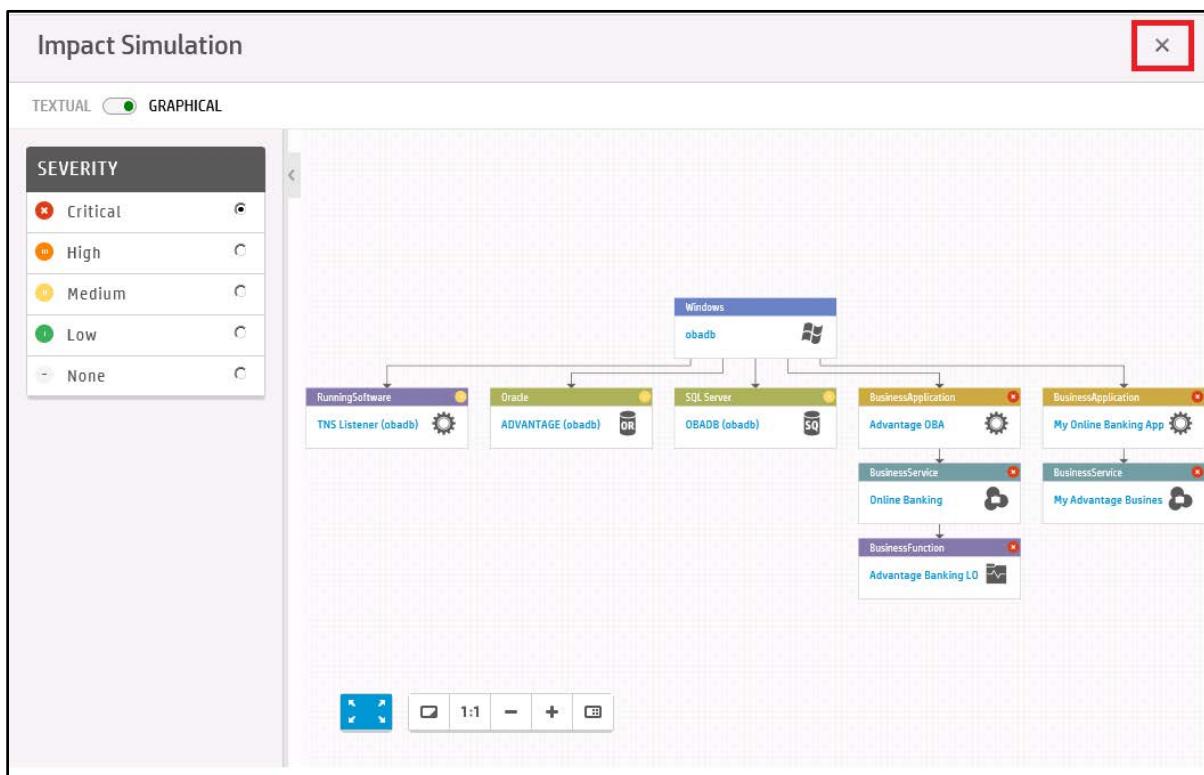
The screenshot shows the UCMDB Browser interface for the CI 'obadb'. The window is divided into several sections:

- PROPERTIES**: Displays basic information:
  - IP Address: 172.16.239.198, 192.168.0.53
  - DiscoveredModel: VMware Virtual Platform
  - DiscoveredOsName: Windows 2008 R2
- ENVIRONMENT**: Shows related CI counts:
  - Business Application: 2
  - Database: 2
  - Infrastructure: 37
  - Network: 8
  - Other: 5
- IMPACT SIMULATION**: A horizontal bar chart showing impact status. The bar is divided into two segments: red (Critical) and yellow (Medium).
  - Critical (5)
  - Medium (3)A blue button labeled "Details" is overlaid on the bar.
- HISTORY**: Shows CI Changes: No changes.

4. The Impact Simulation widget is displayed. Observe the impact status displayed on various related CIs, as shown in the following screenshot:



5. Click the Close button to return to the Widgets page, as shown in the following screenshot:



6. In the Widgets page, click the PROPERTIES link button of the Properties widget, as shown in the following screenshot:

The screenshot shows the UCMDB Browser interface with the 'obadb' object selected. The 'PROPERTIES' tab is active and highlighted with a red box. Below it, the 'ENVIRONMENT' tab is also highlighted with a red box. The 'IMPACT SIMULATION' and 'HISTORY' tabs are visible but not active.

**PROPERTIES**

- IP Address: 172.16.239.198, 192.168.0.53
- DiscoveredModel: VMware Virtual Platform
- DiscoveredOsName: Windows 2008 R2

**Details**

**ENVIRONMENT**

Category	Count
Business Application	2
Database	2
Infrastructure	37
Network	8
Other	5

**IMPACT SIMULATION**

Critical (5)      Medium (3)

**HISTORY**

**CI Changes:** No changes

7. The Properties widget page displays the attributes and values of the selected CI. Scroll down the list and observe the properties and values of the CI, as shown in the following screenshot. (Here you can edit the properties of the CI.)

**Properties**

**VIEW MODE**  **EDIT MODE**

**CORE**

DiscoveredOsName:	Windows 2008 R2
DiscoveredOsVersion:	6.1.7601
DiscoveredVendor:	VMware, Inc.
DomainName:	WORKGROUP
Global Id:	aef0ee01cf6cdcd1c65bfa301fdbb24b
Node Operating System Installation type:	Server Enterprise
SerialNumber:	VMWARE-56 4D 15 FE F4 DD FC 69-09 B9 D1 3C 4F ED 4C 77

**COMPLEMENTARY**

Updated By:	UCMDBDiscovery: Host Applications by Shell
Node Is Virtual:	true
Node Boot Time:	Friday, April 26, 2013 2:13:14 AM UTC-7
LastModifiedTime:	Friday, April 26, 2013 5:12:50 PM UTC-7

**ADDITIONAL PROPERTIES**

IP Address:	172.16.239.198, 192.168.0.53
BiosUuid:	564D15FE-F4DD-FC69-09B9-D13C4FED4C77
DefaultGatewayIpType:	IPv4
DiscoveredModel:	VMware Virtual Platform
DiscoveredOsVendor:	Microsoft
ExtendedNodeFamily:	virtual_machine
ExtendedOsFamily:	win_2008_server

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# Lab 10 – UCMDB Configuration Manager

## Objectives

After completing this lab, you should be able to:

- Perform baseline analysis
- Identify policy breaches through policy management
- Authorize changes through state management
- Perform daily work with UCMDB Configuration Manager (CM)

**Note:**

For reasons of efficiency, UCMDB CM is not up and running in this class until it is needed. You must start the UCMDB CM service on the UCMDB VM before beginning this lab. You can do this from your VM by running the following script: `C:\scripts\Start_CM_Server`.

You should be prepared for UCMDB CM to take as long as 10 minutes to be ready to use.

When you've completed this lab, you should stop the UCMDB CM service. You can do this from the command line from your VM by running the following script:

`C:\scripts\Stop_CM_Server`

## Exercise 1 – Performing Baseline Analysis

The Baseline Analysis provides an environment for comparing composite CIs in the managed views with a configuration model. A configuration model is a description of a composite CI, and includes its topology/hierarchy and the attributes of its component CIs.

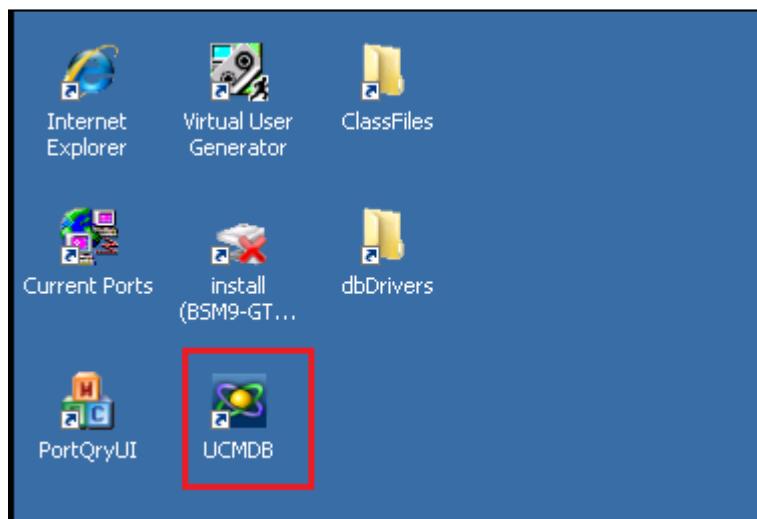
After you run the comparison, the panel displays a bar graph for each composite CI in the comparison, showing the degree to which it matches the model. The closeness of the match is determined by comparing the composite CIs to the model with regard to the topology and to the attributes of each component CI. If no attributes are selected for comparison in a particular CI of the model, the comparison for that CI is based purely on the topology of the model.

A composite CI is considered to be in breach of the model if any of the attributes in its CI hierarchy do not match the model's requirements.

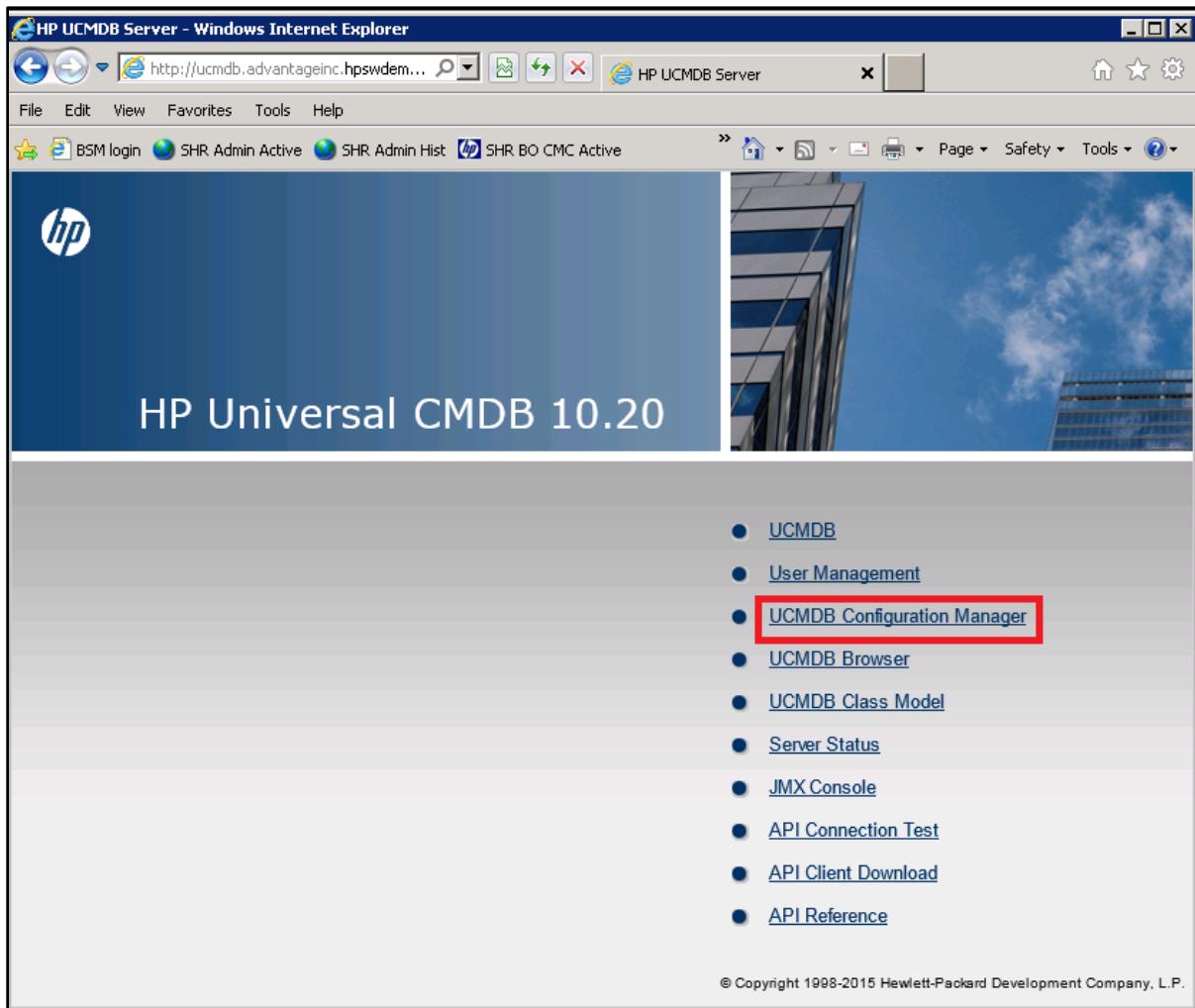
The CI to be used as the reference for comparing all other CIs of the same type (model CI) is defined by selecting a specific composite CI from one of the managed views. This serves as the configuration model.

To perform baseline analysis, complete the following steps:

1. From the AVM, double-click the UCMDB shortcut to open the home page, as shown in the following screenshot:

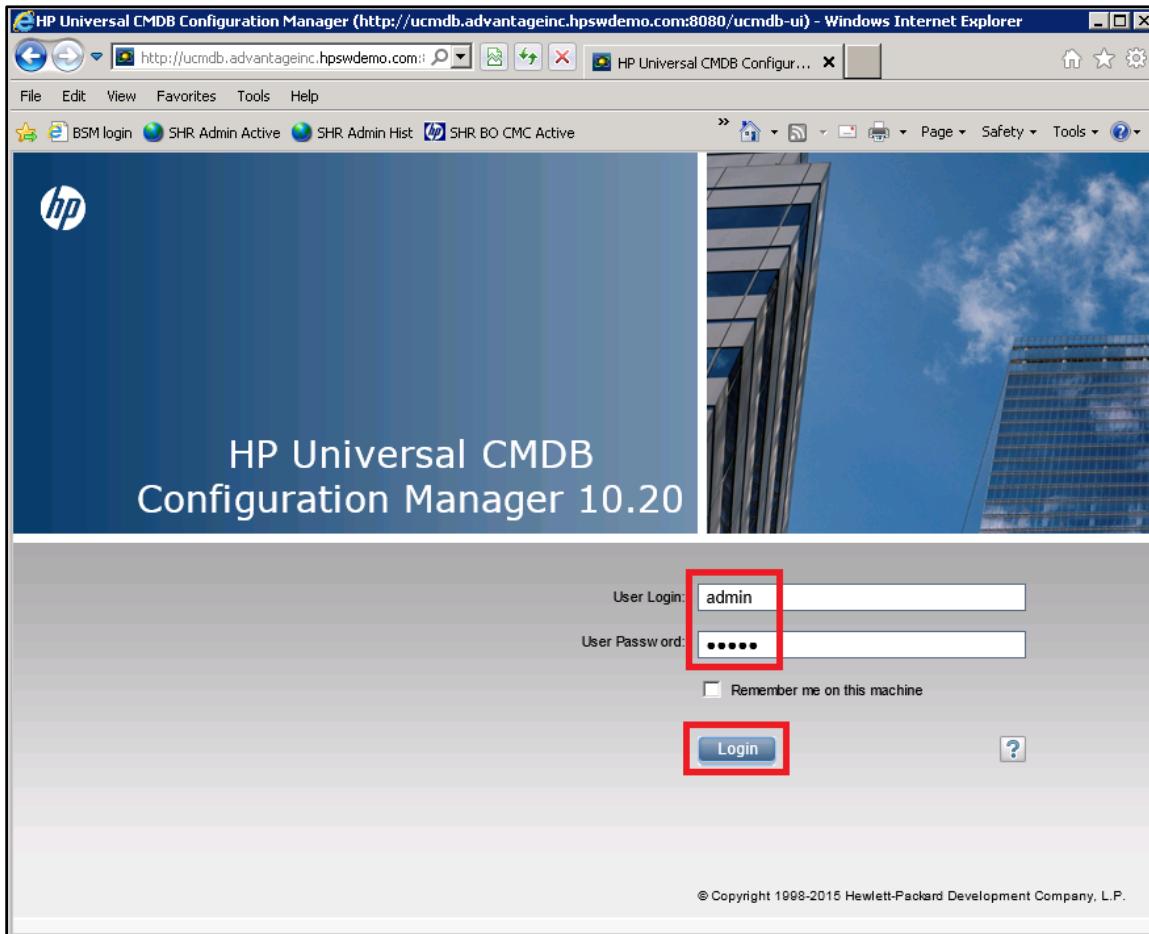


2. Click the UCMDB Configuration Manager link to open the UCMDB CM interface, as shown in the following screenshot:

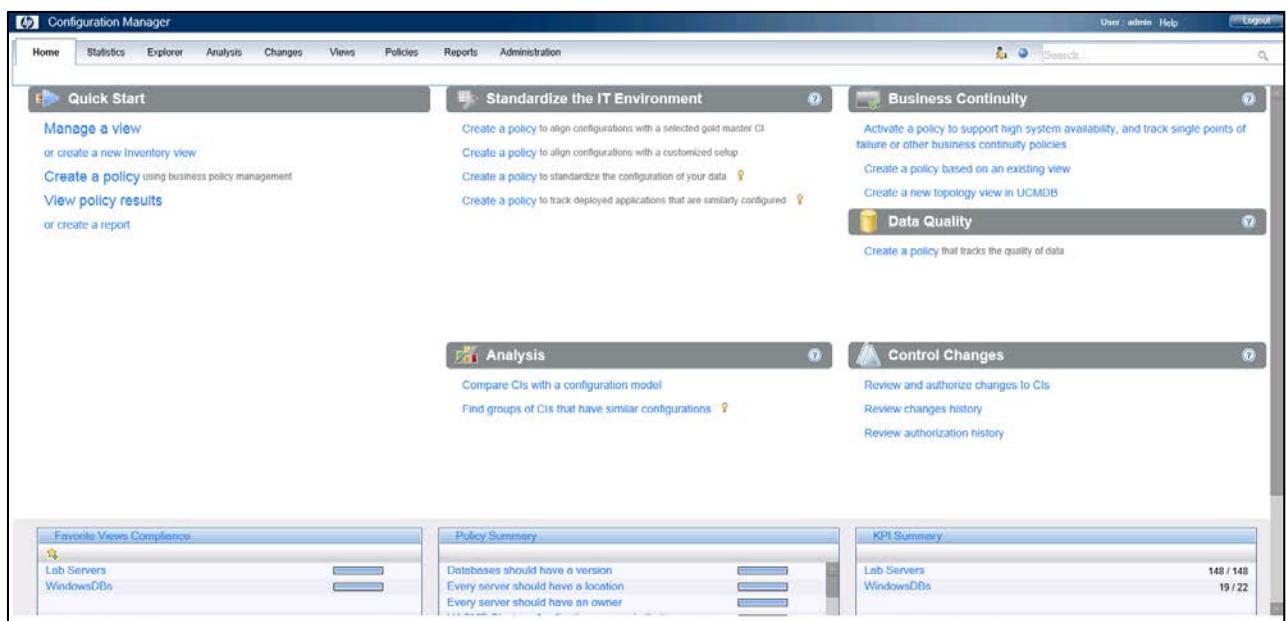


3. The CM login page is displayed. Log in to the application using the following details, as shown in the following screenshot:

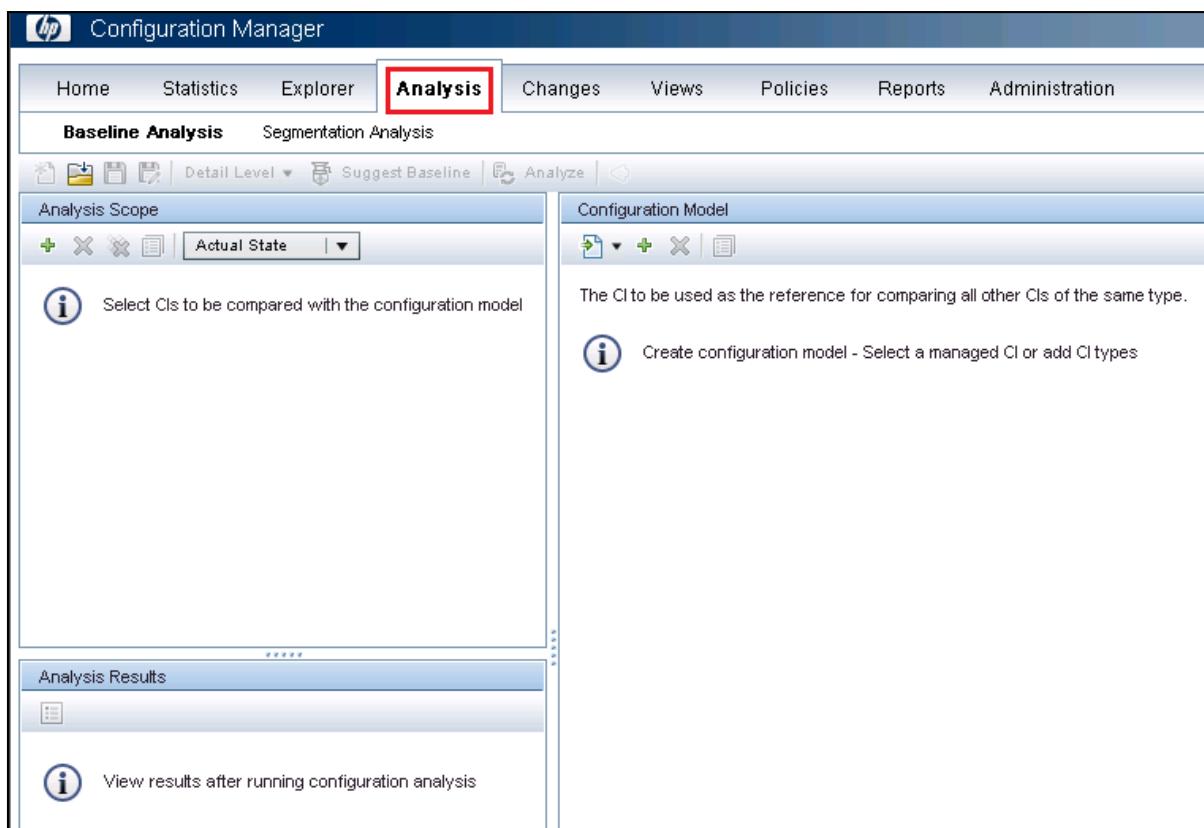
- Username: **admin**
- Password: **admin**



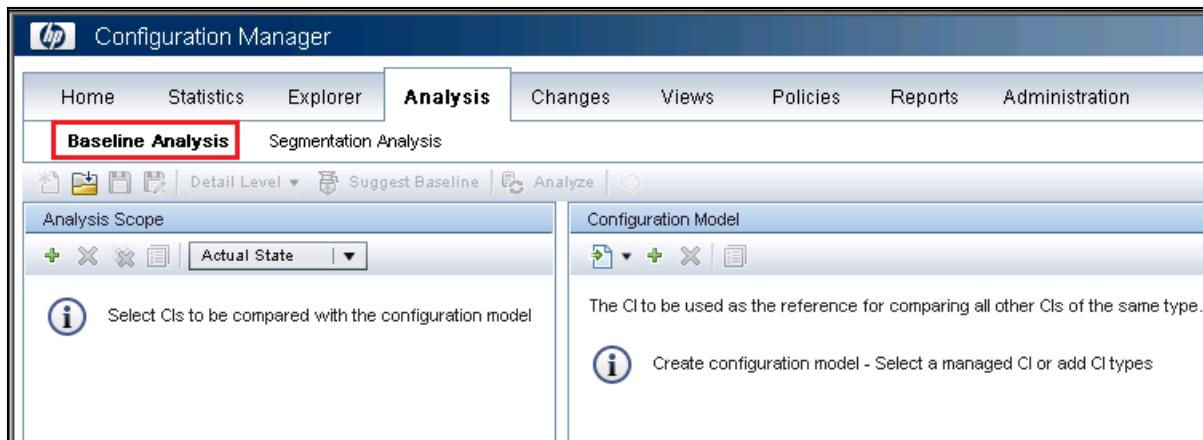
4. The logged in screen should look similar to the following:



5. From the UCMDB CM home page, click the Analysis menu, as shown in the following screenshot:

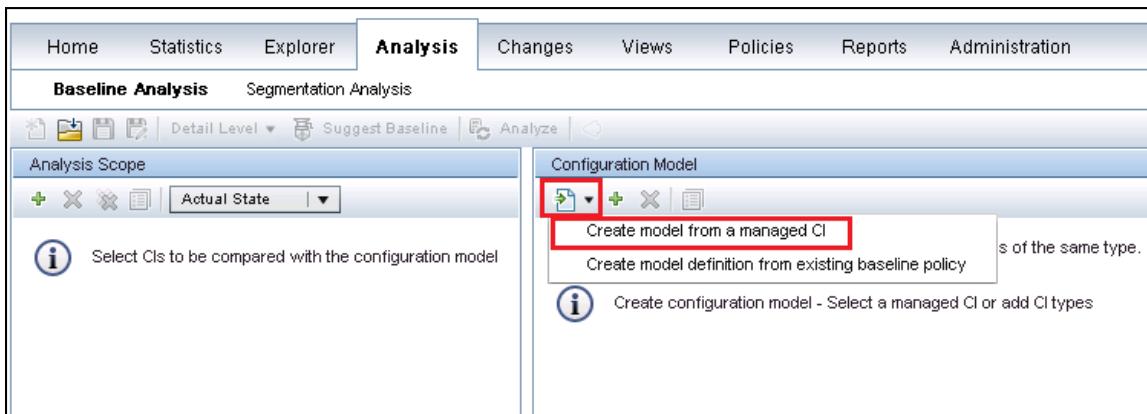


6. Ensure that you are in Baseline Analysis by clicking it, as shown in the following screenshot:

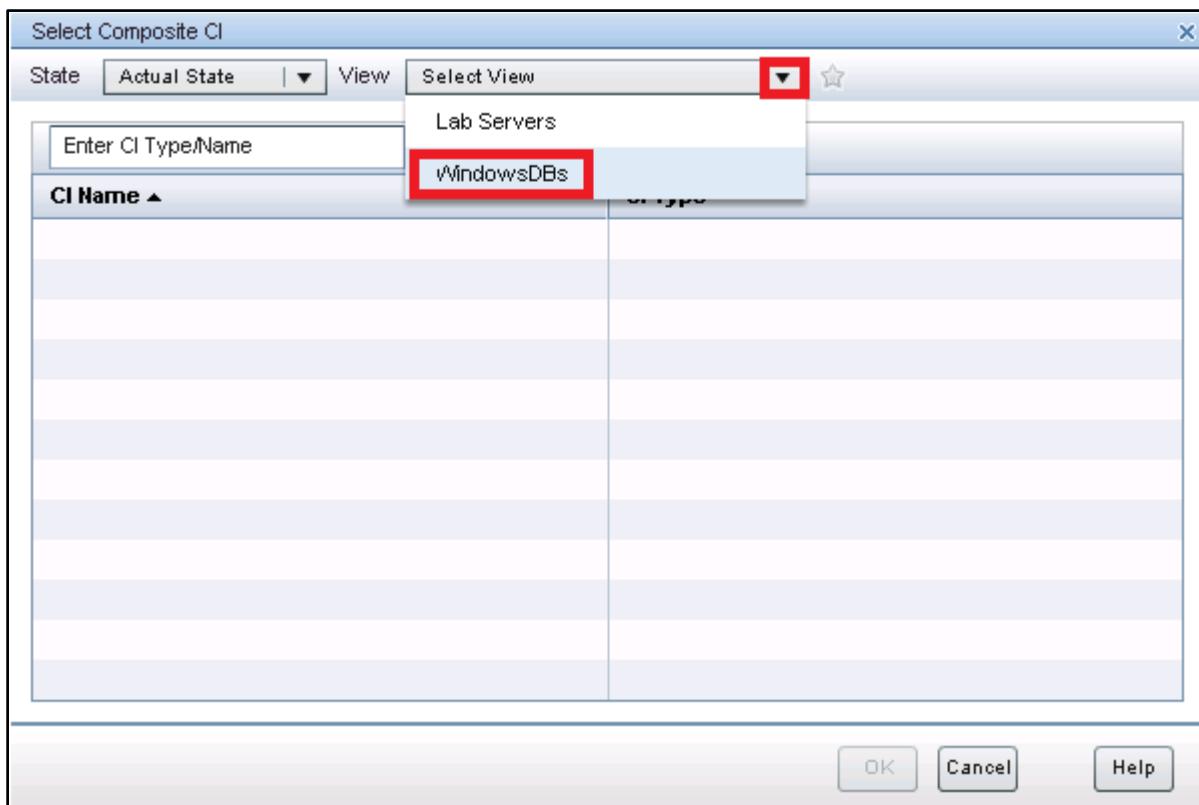


7. Here you define the model by selecting a specific composite CI from one of the managed views to serve as the configuration model. To create a model based on any managed CI, click Select predefined configuration  in the Configuration Model pane.

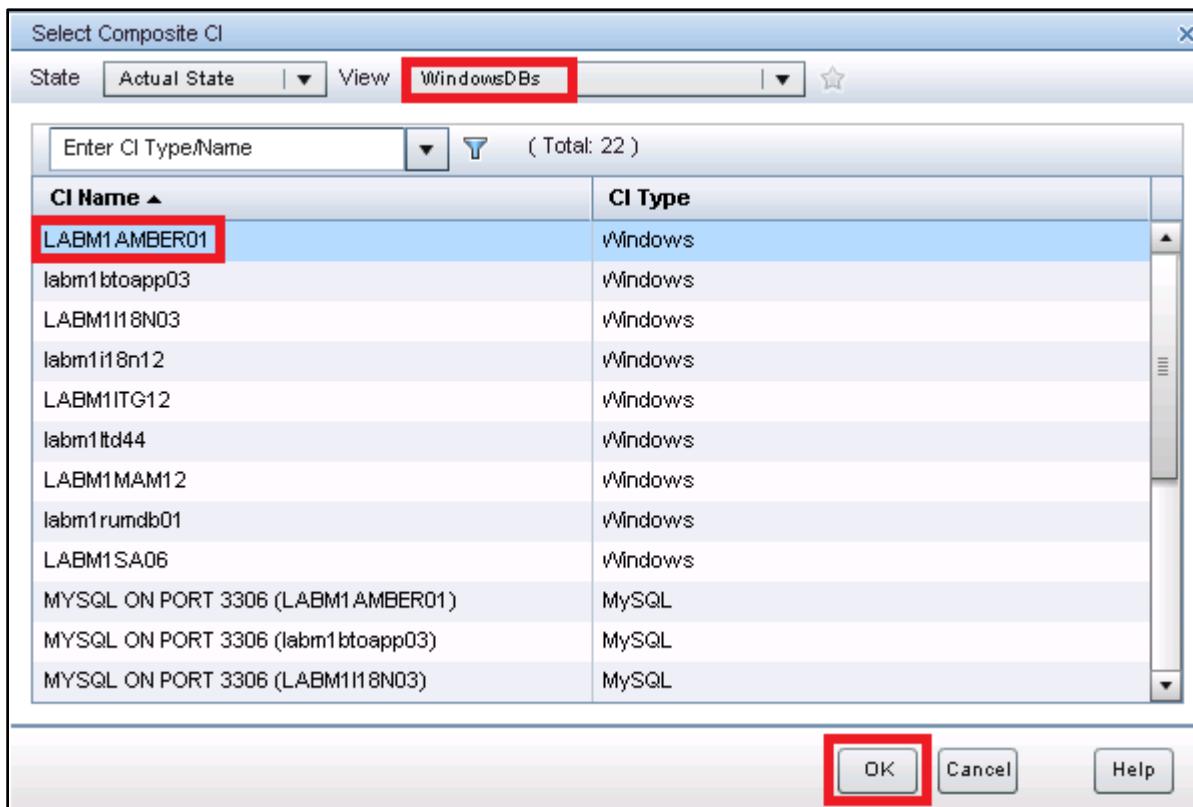
8. Select Create model from a managed CI menu item from the drop-down menu, as shown in the following screenshot:



9. On the Select Composite CI window, select the WindowsDBs view, as shown in the following screenshot:



10. From the CIs list, scroll down and select labm1amber01 CI and click the OK button, as shown in the following screenshot:



11. The Configuration Model pane should look similar to the following:

The screenshot shows the 'Configuration Model' pane with two main sections: 'Matching CI Results' and 'Attribute Comparison'.

**Matching CI Results:**

CI Type	Matching CI Results
labm1amber01 (Windows)	[Empty]
CPU1 (Cpu)	[Empty]
CPU0 (Cpu)	[Empty]
C (FileSystem)	[Empty]
D (FileSystem)	[Empty]
FileSystemExport	[Empty]
Interface	[Empty]

**Attribute Comparison:**

Attribute Name	Not	Operator	Attribute Value	Matching Results
BiosAssetTag	<input type="checkbox"/>	=		
BiosData	<input type="checkbox"/>	=		
BiosSerialNumber	<input type="checkbox"/>	=		
BiosSource	<input type="checkbox"/>	=		
BiosUuid	<input type="checkbox"/>	=	24B49404-24F8-7422-24F9-742226	
BiosVersion	<input type="checkbox"/>	=		
<input checked="" type="checkbox"/> DefaultGatewayIpAddress	<input type="checkbox"/>	=	16.55.248.1	
DiscoveredLocation	<input type="checkbox"/>	=		
<input checked="" type="checkbox"/> DiscoveredModel	<input type="checkbox"/>	=	ProLiant DL140 G2	
<input checked="" type="checkbox"/> DiscoveredOsName	<input type="checkbox"/>	=	Windows 2003	
<input checked="" type="checkbox"/> DiscoveredOsVendor	<input type="checkbox"/>	=	Microsoft	
<input checked="" type="checkbox"/> DiscoveredOsVersion	<input type="checkbox"/>	=	5.2.3790	
<input checked="" type="checkbox"/> DiscoveredVendor	<input type="checkbox"/>	=	HP	
<input checked="" type="checkbox"/> DomainName	<input type="checkbox"/>	=	devlab.ad	
<input checked="" type="checkbox"/> MemorySize	<input type="checkbox"/>	=	2048	
Name	<input type="checkbox"/>	=	labm1amber01	
Node Is Desktop	<input type="checkbox"/>	=		
Node Is Virtual	<input type="checkbox"/>	=		
<input checked="" type="checkbox"/> Node Operating System Installation	<input type="checkbox"/>	=	Server Enterprise Edition	
<input checked="" type="checkbox"/> Node Operating System Release	<input type="checkbox"/>	=	3790	
<input checked="" type="checkbox"/> NodeModel	<input type="checkbox"/>	=		
<input checked="" type="checkbox"/> NodeRole	<input type="checkbox"/>	=	[server]	
<input checked="" type="checkbox"/> OS Architecture	<input type="checkbox"/>	=		
<input checked="" type="checkbox"/> OsFamily	<input type="checkbox"/>	=	windows	

12. You must select the CIs to be compared with the Configuration Model. From the Analysis Scope pane on the left side, select the state of the view from which you want to select composite CIs (actual for this exercise). Ensure that the state selected in the drop-down list is Actual State.

13. Click the Add composite Cls button (+) to open the Add Composite Cls dialog box, as shown in the following screenshot:

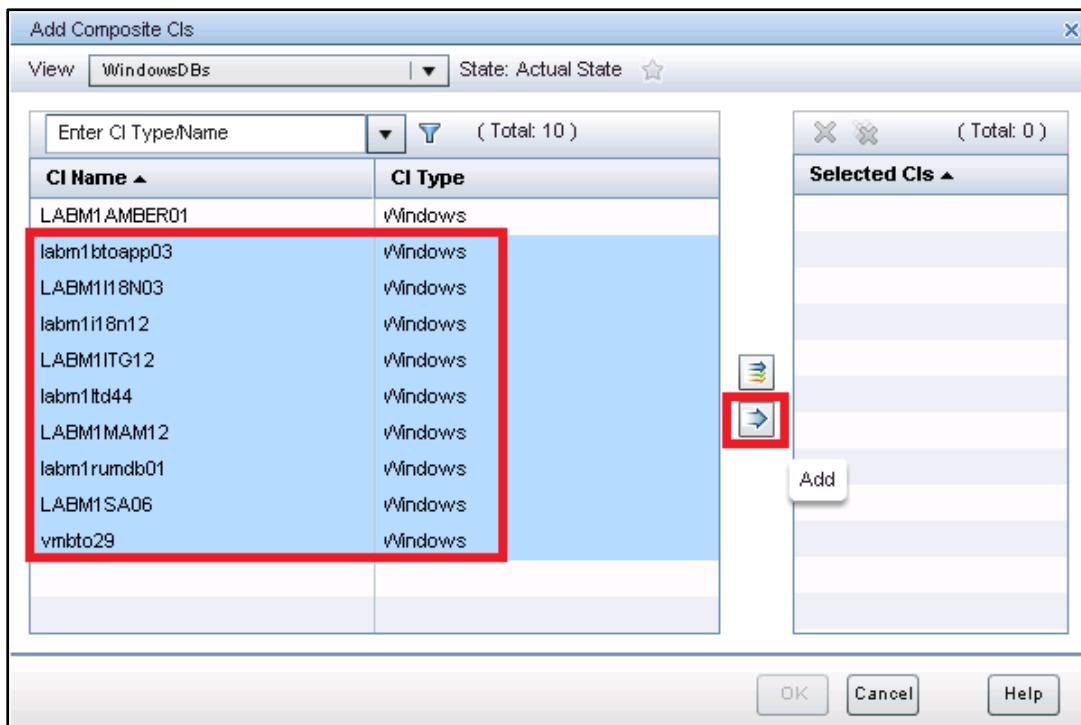
The screenshot shows the UCMDB Analysis Baseline Analysis interface. The 'Analysis' tab is selected. On the left, under 'Analysis Scope', there is a button with a green plus sign (+) which is highlighted with a red box. Below it, an information icon (i) says 'Select Cls to be compared with the configuration model'. On the right, under 'Configuration Model', there is a table titled 'Matching CI Results' with three rows: 'obaapp1 (Windows)', 'Interface', and '172.16.239.196 (I..)'.

14. In the Add Composite Cls dialog box, select the view WindowsDBs, which contains the Cls you want to compare, as shown in the following screenshot:

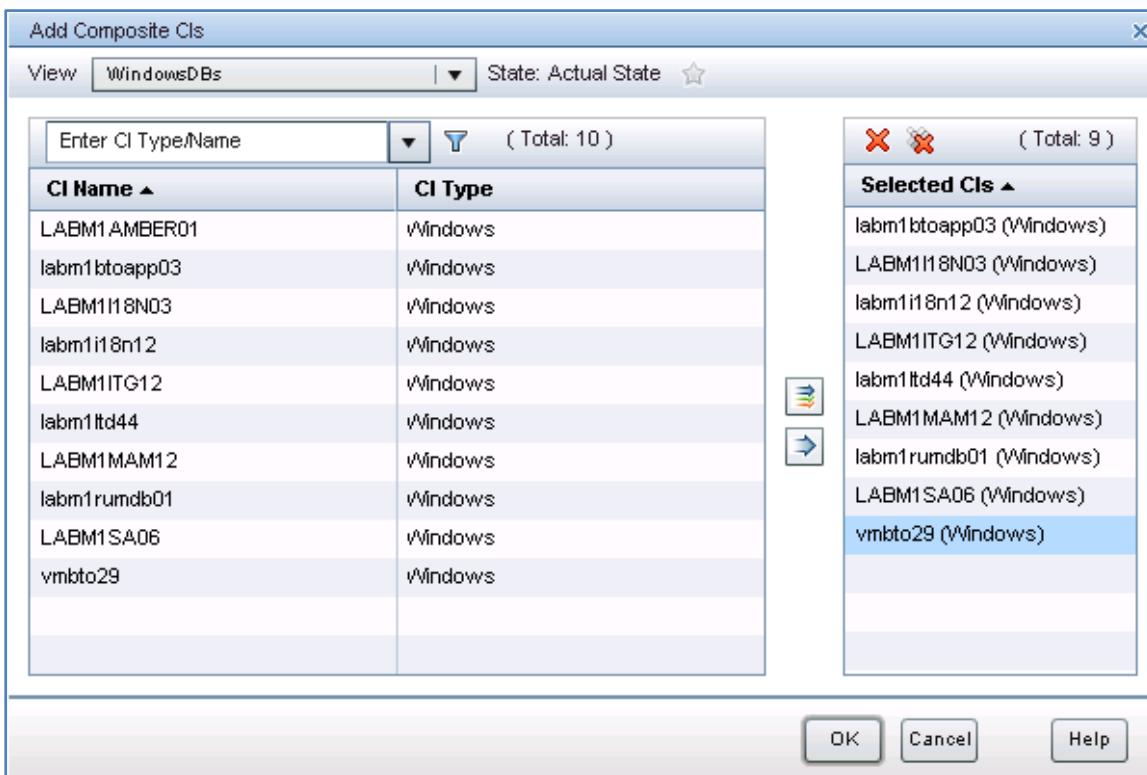
The screenshot shows the 'Add Composite Cls' dialog box. The 'View' dropdown is set to 'Select View' and has a red box around it. Below it, the 'State: Actual State' button is also highlighted with a red box. The main area shows a list of views: 'Lab Servers' and 'WindowsDBs', with 'WindowsDBs' highlighted with a red box. To the right, there is a 'Selected Cls' list which is currently empty, indicated by '( Total: 0 )'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

15. Select all Windows Cls except labm1amber01.

16. Move the CIs to the Selected CIs column using the right pointing arrow, as shown in the following screenshot:



17. Click the OK button to close the Add Composite CIs dialog box, as shown in the following screenshot:



18. Now the CM screen should look similar to the following screenshot.

The screenshot shows the Configuration Manager interface with the Analysis tab selected. On the left, there's a tree view under Analysis Scope with nodes like 'Baseline Analysis' and 'Segmentation Analysis'. Below it, a 'Find' bar and a 'Composite CI' list are shown. The Composite CI list contains several items, including 'Intern1t00pc03 (Windows)', 'LABMT11M043 (Windows)', 'Intern1t01n12 (Windows)', 'LABMT1012 (Windows)', 'Intern1t0042 (Windows)', 'LABMT1MAM12 (Windows)', 'Intern1trnd01 (Windows)', 'LABMTSA06 (Windows)', and 'vm0t029 (Windows)'. To the right, a 'Configuration Model' section displays a 'Matching CI Results' table. This table has columns for 'Attribute Name', 'Not', 'Operator', 'Attribute Value', and 'Matching Results'. It lists various system properties like BiosAssetTag, BiosSerialNumber, BiosVersion, DefaultGatewayIpAddress, DiscoverableLocation, DiscoverableModel, Discoverer0Name, Discoverer0Vendor, Discoverer0Version, DomainName, MemorySize, Name, NodeIsDesktop, NodeIsVirtual, NodeOperatingSystemInstalled, NodeOperatingSystemRelease, NodeModel, NodeName, NodePath, OSArchitecture, and OsFamily, each with their corresponding values and matching results.

19. In the Configuration Model pane on the right, select the attributes to participate in the comparison by selecting the check boxes next to the required attributes. Here, retain the default attribute selections.

20. Retain the default values for the selected attributes in the Attribute Value column and operators in the Operator column.

Check Consider additional internal CIs as breach. Verify your screen with the following screenshot.

CI Type	Matching CI Results		Attribute Name	Not	Operator	Attribute Value	Matching Results
labm1amber01 (Windows)			BiosAssetTag		=		
CPU1 (Cpu)			BiosDate		=		
CPU0 (Cpu)			BiosSerialNumber		=		
C (FileSystem)			BiosSource		=		
D (FileSystem)			BiosUuid		=	24B49404-24F8-7422-24F9-742225	
FileSystemExport			BiosVersion		=		
FileSystemExport			DefaultGatewayIpAddress		=	16.55.248.1	
FileSystemExport			DiscoveredLocation		=		
FileSystemExport			DiscoveredModel		=	ProLiant DL140 G2	
FileSystemExport			DiscoveredOsName		=	Windows 2003	
FileSystemExport			DiscoveredOsVendor		=	Microsoft	
FileSystemExport			DiscoveredOsVersion		=	5.2.3790	
FileSystemExport			DiscoveredVendor		=	HP	
FileSystemExport			DomainName		=	devlab.ad	
FileSystemExport			MemorySize		=	2048	
FileSystemExport			Name		=	labm1amber01	
FileSystemExport			Node is Desktop		=		
FileSystemExport			Node is Virtual		=		
FileSystemExport			Node Operating System Installatio...		=	Server Enterprise Edition	
Interface			Node Operating System Release		=	3790	
Interface			NodeModel		=		
Interface			NodeRole		=	[server]	
Interface			OS Architecture		=		
Interface			OsFamily		=	windows	

- Click the Analyze button in the main toolbar to run the comparison. The results are displayed in the Composite CIs Analysis Results pane, as shown in the following screenshot:

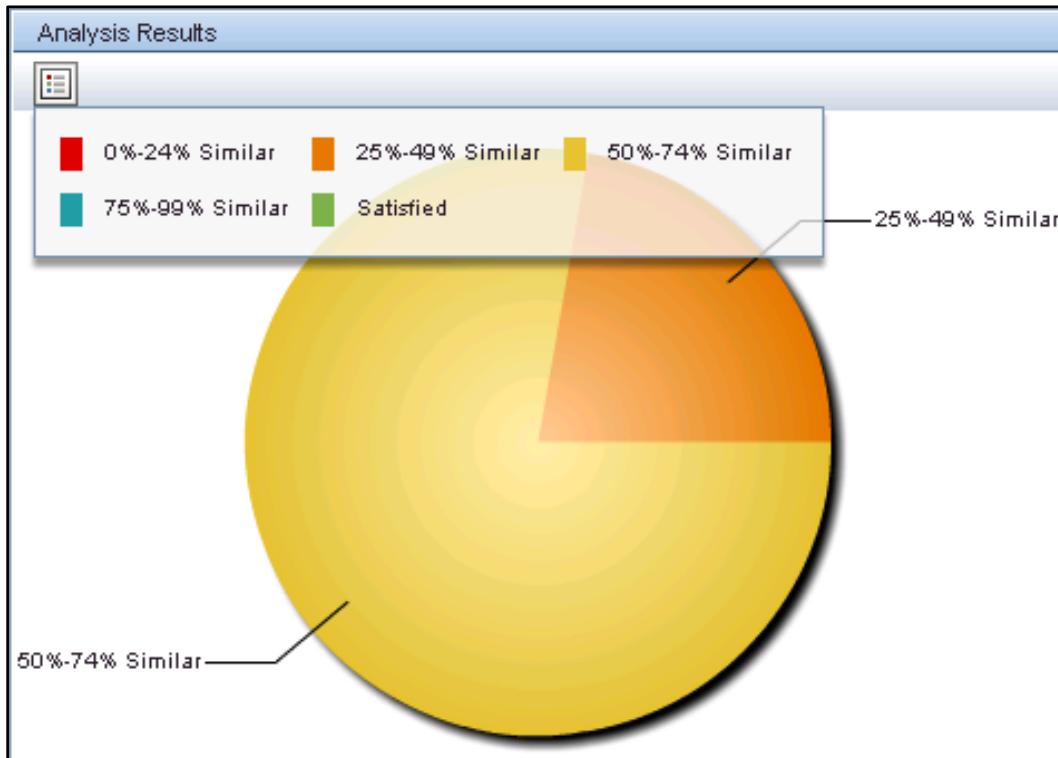
The screenshot shows the UCMD Configuration Manager interface. The top navigation bar includes Home, Statistics, Explorer, Analysis (which is selected), Changes, Views, and Policies. Below the navigation is a toolbar with icons for file operations and a 'Suggest Baseline' button. A red box highlights the 'Analyze' button. The main area is titled 'Baseline Analysis' and 'Segmentation Analysis'. It features an 'Analysis Scope' section with a 'Find' field and a 'Composite CI' table. The 'Composite CI' table lists various Windows hosts, each with a 'Similarity Results' bar chart. The 'Similarity Results' table on the right shows detailed attribute comparisons for the selected host.

22. The resultant screen should look similar to the following screenshot:

This screenshot shows a more detailed view of the analysis results for a selected host. The interface includes a navigation bar with Home, Statistics, Explorer, Analysis, Changes, Views, Policies, Reports, and Administration. The Analysis tab is selected. The main area displays a 'Composite CI' table and a 'Similarity Results' table. The 'Similarity Results' table is expanded to show a detailed comparison of attributes between the selected host and a reference host. A pie chart at the bottom left indicates a similarity range of 50%-74%. The detailed table shows various attributes like BIOS Asset Tag, BIOS Date, and Memory Size, along with their matching percentages and details.

Attribute Name	Not	Operator	Attribute Value	Matching Results
BiosAssetTag	<input type="checkbox"/>	=		
BiosDate	<input type="checkbox"/>	=		
BiosSerialNumber	<input type="checkbox"/>	=		
BiosSource	<input type="checkbox"/>	=		
DiskUuid	<input type="checkbox"/>	=	24D49404-24F0-7422-24F9-74222	
BiosVersion	<input type="checkbox"/>	=		
DefaultGatewayIpAddress	<input checked="" type="checkbox"/>	=	16.55.248.1	67% <a href="#">Details</a>
DiscoverableLocation	<input type="checkbox"/>	=		
DiscoveredModel	<input checked="" type="checkbox"/>	=	ProLiant DL110 G2	30% <a href="#">Details</a>
DiscoveredOnName	<input checked="" type="checkbox"/>	=	Windows 2003	89% <a href="#">Details</a>
DiscoveredOsVendor	<input checked="" type="checkbox"/>	=	Microsoft	100% <a href="#">Details</a>
DiscovererOsVersion	<input checked="" type="checkbox"/>	=	5.2.3790	100% <a href="#">Details</a>
DiscovererVendor	<input checked="" type="checkbox"/>	=	HP	78% <a href="#">Details</a>
DomainName	<input checked="" type="checkbox"/>	=	devlab.ad	89% <a href="#">Details</a>
MemorySize	<input type="checkbox"/>	=	2048	44% <a href="#">Details</a>
Name	<input type="checkbox"/>	=	labintember01	
Node Is Desktop	<input type="checkbox"/>	=		
Node Is Virtual	<input type="checkbox"/>	=		
Node Operating System Installation	<input checked="" type="checkbox"/>	=	Server Enterprise Edition	44% <a href="#">Details</a>
Node Operating System Release	<input checked="" type="checkbox"/>	=	3790	100% <a href="#">Details</a>
Node Model	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
Node Role	<input checked="" type="checkbox"/>	=	[server]	100% <a href="#">Details</a>
OS Architecture	<input checked="" type="checkbox"/>	=		
OsFamily	<input checked="" type="checkbox"/>	=	windows	100% <a href="#">Details</a>

**Note:** On the Results pane, you are able to see the matching results in percentage for each one of the attributes you chose to compare. The lower-left frame shows a pie graph with the total percentage (number) of CIs that satisfy or breach the standards you selected. To the right of the pie graph is a breakdown for each CI and its similarity results.



23. From the Configuration Model pane, click the Details link for **DiscoveredOsName** under the Matching Result column on the right-side pane. This should be 89%, as shown in the following screenshot:

	Attribute Name	Not	Operator	Attribute Value	Matching Results
	BiosAssetTag		=		
	BiosDate		=		
	BiosSerialNumber		=		
	BiosSource		=		
	BiosUuid		=	24B49404-24F8-7422-24F9-74222	
	BiosVersion		=		
<input checked="" type="checkbox"/>	DefaultGatewayIpAddress		=	16.55.248.1	67% <a href="#">Details</a>
	DiscoveredLocation		=		
<input checked="" type="checkbox"/>	DiscoveredModel		=	ProLiant DL140 G2	33% <a href="#">Details</a>
<input checked="" type="checkbox"/>	DiscoveredOsName		=	Windows 2003	89% <a href="#">Details</a>
<input checked="" type="checkbox"/>	DiscoveredOsVendor		=	Microsoft	100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	DiscoveredOsVersion		=	5.2.3790	100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	DiscoveredVendor		=	HP	78% <a href="#">Details</a>
<input checked="" type="checkbox"/>	DomainName		=	devlab.ad	89% <a href="#">Details</a>
<input checked="" type="checkbox"/>	MemorySize		=	2048	44% <a href="#">Details</a>
	Name		=	labm1amber01	
	Node is Desktop		=		
	Node Is Virtual		=		
<input checked="" type="checkbox"/>	Node Operating System Installatio...		=	Server Enterprise Edition	44% <a href="#">Details</a>
<input checked="" type="checkbox"/>	Node Operating System Release		=	3790	100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	NodeModel		=		100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	NodeRole		=	[server]	100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	OS Architecture		=		100% <a href="#">Details</a>
<input checked="" type="checkbox"/>	OsFamily		=	windows	100% <a href="#">Details</a>

24. The Matching Cls window pops up, listing the matching Cls. Click the Close button after verification, as shown in the following screenshot:

Matching Cls	
Matching Cls for Attribute 'DiscoveredOsName' in 'Windows'	
Composite CI Name	Current Value
▼ In-breach (1 Composite Cls)	
labm1bt0app03	\Windows 2003 R2
▼ Satisfied (8 Composite Cls)	
LABM1I18N03	\Windows 2003
LABM1ITG12	\Windows 2003
LABM1MAM12	\Windows 2003
LABM1SA06	\Windows 2003
labm1i18n12	\Windows 2003
labm1ltd44	\Windows 2003
labm1rundb01	\Windows 2003
vmbt029	\Windows 2003

25. Again, from the Configuration Model pane, click the Details link for DiscoveredOsVersion under the Matching Result column on the right-side pane, as shown in the following screenshot:

CI Type	Matching CI Results	Attribute Name	Not	Operator	Attribute Value	Matching Results
labm1amber01 (Windows)		BiosAssetTag	<input type="checkbox"/>	=		
CPU1 (Cpu)		BiosDate	<input type="checkbox"/>	=		
CPU0 (Cpu)		BiosSerialNumber	<input type="checkbox"/>	=		
C (FileSystem)		BiosSource	<input type="checkbox"/>	=		
D (FileSystem)		BiosUuid	<input type="checkbox"/>	=	24B49404-24F8-7422-24F9-74222	
FileSystemExport		BiosVersion	<input type="checkbox"/>	=		
FileSystemExport		DefaultGatewayIpAddress	<input checked="" type="checkbox"/>	=	16.55.248.1	67% <a href="#">Details</a>
FileSystemExport		DiscoveredLocation	<input type="checkbox"/>	=		
FileSystemExport		DiscoveredModel	<input checked="" type="checkbox"/>	=	ProLiant DL140 G2	33% <a href="#">Details</a>
FileSystemExport		DiscoveredOsName	<input checked="" type="checkbox"/>	=	Windows 2003	89% <a href="#">Details</a>
FileSystemExport		DiscoveredOsVendor	<input checked="" type="checkbox"/>	=	Microsoft	100% <a href="#">Details</a>
FileSystemExport		DiscoveredOsVersion	<input checked="" type="checkbox"/>	=	5.2.3790	100% <a href="#">Details</a>
FileSystemExport		DiscoveredVendor	<input type="checkbox"/>	=	HP	78% <a href="#">Details</a>
FileSystemExport		DomainName	<input type="checkbox"/>	=	devlab.ad	89% <a href="#">Details</a>
FileSystemExport		MemorySize	<input type="checkbox"/>	=	2048	44% <a href="#">Details</a>
FileSystemExport		Name	<input type="checkbox"/>	=	labm1amber01	
FileSystemExport		Node Is Desktop	<input type="checkbox"/>	=		
FileSystemExport		Node Is Virtual	<input type="checkbox"/>	=		
FileSystemExport		Node Operating System Installation	<input checked="" type="checkbox"/>	=	Server Enterprise Edition	44% <a href="#">Details</a>
Interface		Node Operating System Release	<input checked="" type="checkbox"/>	=	3790	100% <a href="#">Details</a>
Interface		NodeModel	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
Interface		NodeRole	<input checked="" type="checkbox"/>	=	[server]	100% <a href="#">Details</a>
Interface		OS Architecture	<input type="checkbox"/>	=		100% <a href="#">Details</a>
Interface		OsFamily	<input type="checkbox"/>	=	windows	100% <a href="#">Details</a>

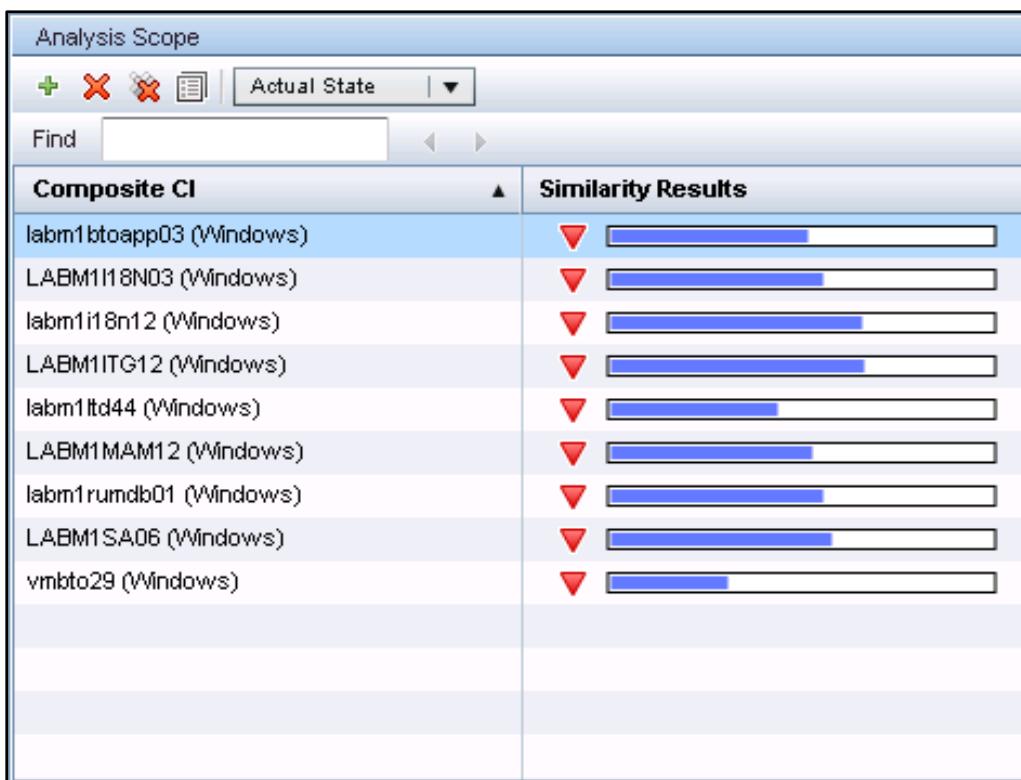
26. The Matching Cls window pops up, listing the matching Cls, as shown in the following screenshot:

Matching Cls	
Matching Cls for Attribute 'DiscoveredOsVersion' in 'Windows'	
Composite CI Name	Current Value
▼ Satisfied (9 Composite Cls)	
LABM1H8N03	5.2.3790
LABM1ITG12	5.2.3790
LABM1MAM12	5.2.3790
LABM1SA06	5.2.3790
labm1btoapp03	5.2.3790
labm1i18n12	5.2.3790
labm1ltd44	5.2.3790
labm1rumdb01	5.2.3790
vmbto29	5.2.3790

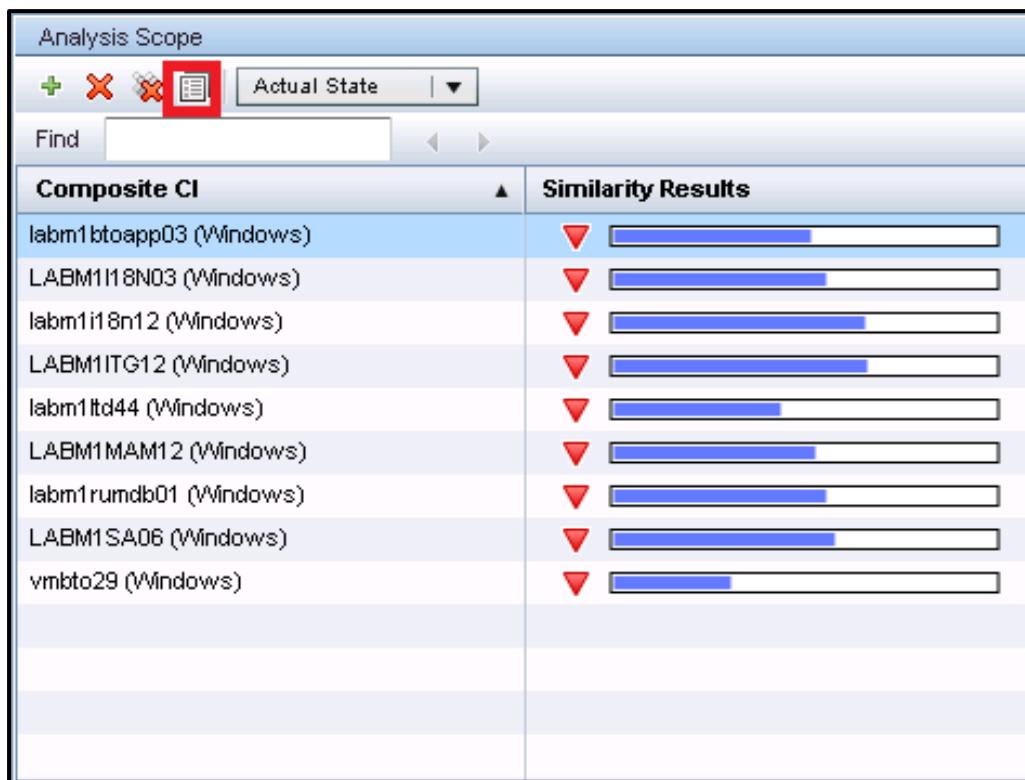
[Close](#)

**Note:** This information shows the Composite Cls that have different attribute values from the selected Cl. You can drill down to matching results details for a specific attribute, get specific information about the Cls that satisfy or breach this attribute condition, and view the current attribute value for each Cl. You do this by clicking the Details link next to the attribute matching results.

27. From Analysis Scope, select the labm1btoapp03 CI under Composite CI in the left pane, as shown in the following screenshot:



28. Click the Show comparison details button to display the comparison details, as shown in the following screenshot:



29. The Comparison Details window pops up, displaying the satisfied attributes as well as the attributes in breach, as shown in the following screenshot:

Comparison details for 'labm1bt0app03 (Windows)' from Actual State

CI Name	Model		Attribute Name	CI Value	N.	Operator	Baseline Value
labm1bt0app03 (Windows)	vWindows	▼	BiosAssetTag				
CPU0 (Cpu)	Cpu	▼	BiosDate				
CPU1 (Cpu)	Cpu	▼	BiosSerialNumber				
C (FileSystem)	FileSystem	▼	BiosSource				
N/A	FileSystem	▼	BiosUuid	34343737-3037-4742-..			
C:\ (FileSystemExport)	FileSystemExport	●	BiosVersion				
c:\ (FileSystemExport)	FileSystemExport	●	DefaultGatewayIpAddress	16.59.56.1	=		16.55.248.1
C:\WINDOWS (FileSystemExport)	FileSystemExport	●	DiscoveredLocation				
c:\windows (FileSystemExport)	FileSystemExport	●	DiscoveredModel	ProLiant BL460c G1	=		ProLiant DL140 G2
N/A	FileSystemExport	▼	DiscoveredOsName	vWindows 2003 R2	=		vWindows 2003
N/A	FileSystemExport	▼	DiscoveredOsVendor	Microsoft	=		Microsoft
N/A	FileSystemExport	▼	DiscoveredOsVersion	5.2.3790	=		5.2.3790
N/A	FileSystemExport	▼	DiscoveredVendor	HP	=		HP
N/A	FileSystemExport	▼	DomainName	devlab.ad	=		devlab.ad
N/A	FileSystemExport	▼	MemorySize	16384	=		2048
N/A	FileSystemExport	▼	Name	labm1bt0app03			
N/A	FileSystemExport	▼	Node Is Desktop				
N/A	FileSystemExport	▼	Node Is Virtual				
N/A	FileSystemExport	▼	Node Operating System Installation t...	Server Enterprise Editi...	=		Server Enterprise Edition
001E0BEBEEA8 (Interface)	Interface	●	Node Operating System Release	3790	=		3790
001E0BEBEEA8 (Interface)	Interface	●	NodeModel		=		
33506F453030 (Interface)	Interface	●	NodeRole	server1	=		server1

The selected CI has attributes that do not match the configuration model baseline

OK Help

30. Click the Show only Breaches button in the top-left corner of the window to display only the breached attributes, as shown in the following screenshot. This is a toggle button which can be used to show all the details by clicking it again. After verifying, click the OK button to close the window.

The screenshot shows a comparison dialog for the CI 'labbm1bt0app03 (Windows)'. The table lists various attributes and their values. Several attributes are marked as breached (indicated by red downward-pointing triangles): DefaultGatewayIpAddress, DiscoveredModel, DiscoveredOsName, and MemorySize. A warning message at the bottom states: 'The selected CI has attributes that do not match the configuration model baseline'. The dialog includes 'OK' and 'Help' buttons.

CI Name	Model		Attribute Name	CI Value	N.	Operator	Baseline Value
labbm1bt0app03 (Windows)	\Windows	▼	DefaultGatewayIpAddress	16.59.56.1		=	16.55.248.1
CPU0 (Cpu)	Cpu	▼	DiscoveredModel	ProLiant BL460c G1		=	ProLiant DL140 G2
CPU1 (Cpu)	Cpu	▼	DiscoveredOsName	\Windows 2003 R2		=	\Windows 2003
C (FileSystem)	FileSystem	▼	MemorySize	16384		=	2048
N/A	FileSystem	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	FileSystemExport	▼					
N/A	Interface	▼					
N/A	IpAddress	▼					
N/A	IpAddress	▼					

**⚠️** The selected CI has attributes that do not match the configuration model baseline

OK Help

31. In the Configuration Model pane, click the heading on the Matching Results column at the extreme right to sort the results according to matching results percentage, as shown in the following screenshot:

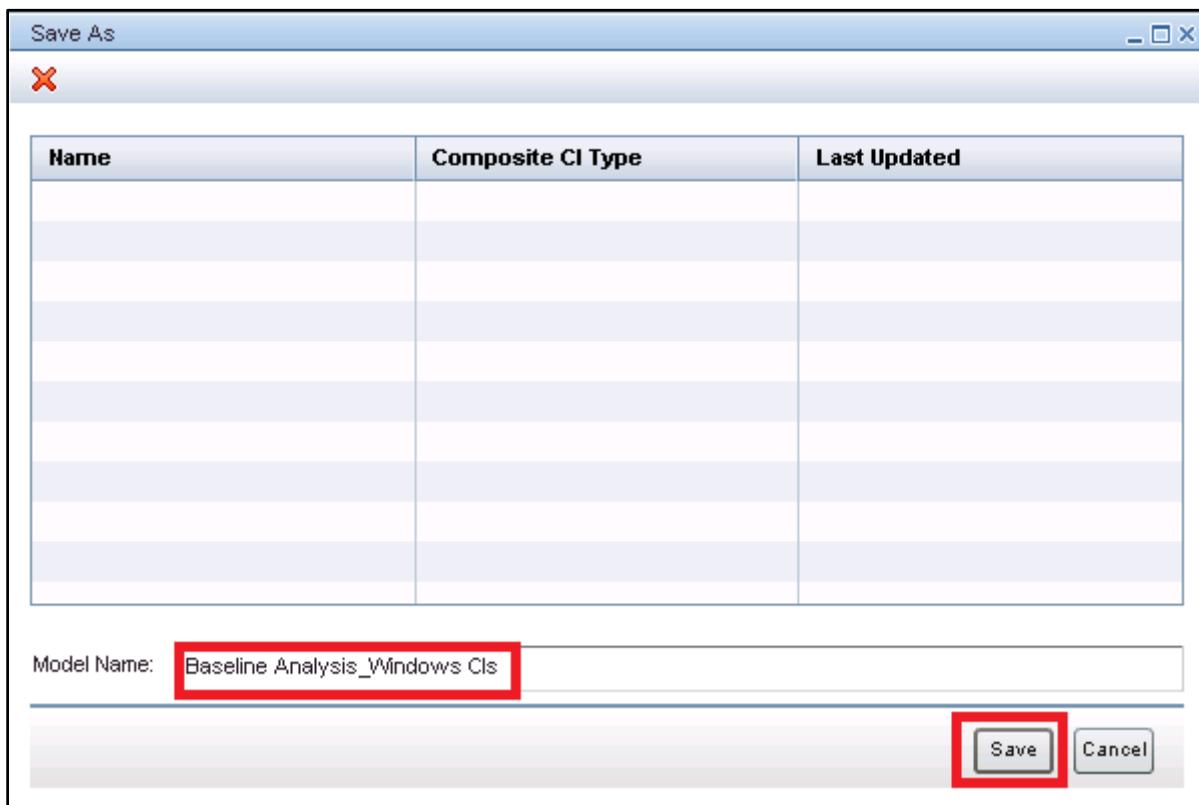
The screenshot shows the UCMDB Configuration Model interface. On the left, there is a tree view of 'Matching CI Results' for 'labm1amber01 (Windows)'. On the right, there is a detailed table comparing attributes between 'labm1amber01 (Windows)' and various other CI types like CPU1 (Cpu), CPU0 (Cpu), C (FileSystem), D (FileSystem), FileSystemExport, etc. The table includes columns for Attribute Name, Not, Operator, Attribute Value, and Matching Results (with a red highlight box).

CI Type	Matching CI Results	Attribute Name	Not	Operator	Attribute Value	Matching Results
labm1amber01 (Windows)	Red	SerialNumber	<input type="checkbox"/>	=	CN653409D4	
CPU1 (Cpu)	Green	SnmpSysName	<input type="checkbox"/>	=		
CPU0 (Cpu)	Red	UdUniqeld	<input type="checkbox"/>	=		
C (FileSystem)	Green	Windows Registered Organization	<input type="checkbox"/>	=	HP	
D (FileSystem)	Red	Windows Registered Owner	<input type="checkbox"/>	=	HP	
FileSystemExport	Red	DiscoveredModel	<input checked="" type="checkbox"/>	=	ProLiant DL140 G2	33% <a href="#">Details</a>
FileSystemExport	Green	MemorySize	<input checked="" type="checkbox"/>	=	2048	44% <a href="#">Details</a>
FileSystemExport	Red	Node Operating System Installation	<input checked="" type="checkbox"/>	=	Server Enterprise Edition	44% <a href="#">Details</a>
FileSystemExport	Green	DefaultGatewayIpAddress	<input checked="" type="checkbox"/>	=	16.55.248.1	67% <a href="#">Details</a>
FileSystemExport	Red	Windows Service Pack	<input checked="" type="checkbox"/>	=	2.0	67% <a href="#">Details</a>
FileSystemExport	Red	DiscoveredVendor	<input checked="" type="checkbox"/>	=	HP	78% <a href="#">Details</a>
FileSystemExport	Green	SwapMemorySize	<input checked="" type="checkbox"/>	=	4092	78% <a href="#">Details</a>
FileSystemExport	Red	DiscoveredOsName	<input checked="" type="checkbox"/>	=	Windows 2003	89% <a href="#">Details</a>
FileSystemExport	Red	DomainName	<input checked="" type="checkbox"/>	=	devlab.ad	89% <a href="#">Details</a>
FileSystemExport	Red	DiscoveredOsVendor	<input checked="" type="checkbox"/>	=	Microsoft	100% <a href="#">Details</a>
FileSystemExport	Red	DiscoveredOsVersion	<input checked="" type="checkbox"/>	=	5.2.3790	100% <a href="#">Details</a>
FileSystemExport	Red	Node Operating System Release	<input checked="" type="checkbox"/>	=	3790	100% <a href="#">Details</a>
FileSystemExport	Red	NodeModel	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
FileSystemExport	Red	NodeRole	<input checked="" type="checkbox"/>	=	[server]	100% <a href="#">Details</a>
FileSystemExport	Red	OS Architecture	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
FileSystemExport	Red	OsFamily	<input checked="" type="checkbox"/>	=	windows	100% <a href="#">Details</a>
FileSystemExport	Red	OsVendor	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
FileSystemExport	Red	PAE Enabled	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>
Interface	Green	Vendor	<input checked="" type="checkbox"/>	=		100% <a href="#">Details</a>

32. Click the Save button to save the configuration model, as shown in the following screenshot:

The screenshot shows the UCMDB interface with two main panes. The left pane is 'Analysis Scope' showing a list of 'Composite CI' entries (e.g., labm1btoapp03, LABM118N03, etc.) with similarity results. The right pane is 'Configuration Model' showing the detailed comparison table from the previous screenshot. A red box highlights the 'Save' button in the top toolbar of the Analysis Scope pane.

33. In the Save As window, in the Model Name field, type **Baseline Analysis\_Windows CIs**. Then click the Save button to save the model, as shown in the following screenshot:



## Exercise 2 – Identifying Policy Breaches through Policy Management

A policy enables you to define the expected configuration of a view. By applying policies to your managed views, you set standards for the views. The policies help to ensure that the views adhere to the standards and make your IT environment more predictable.

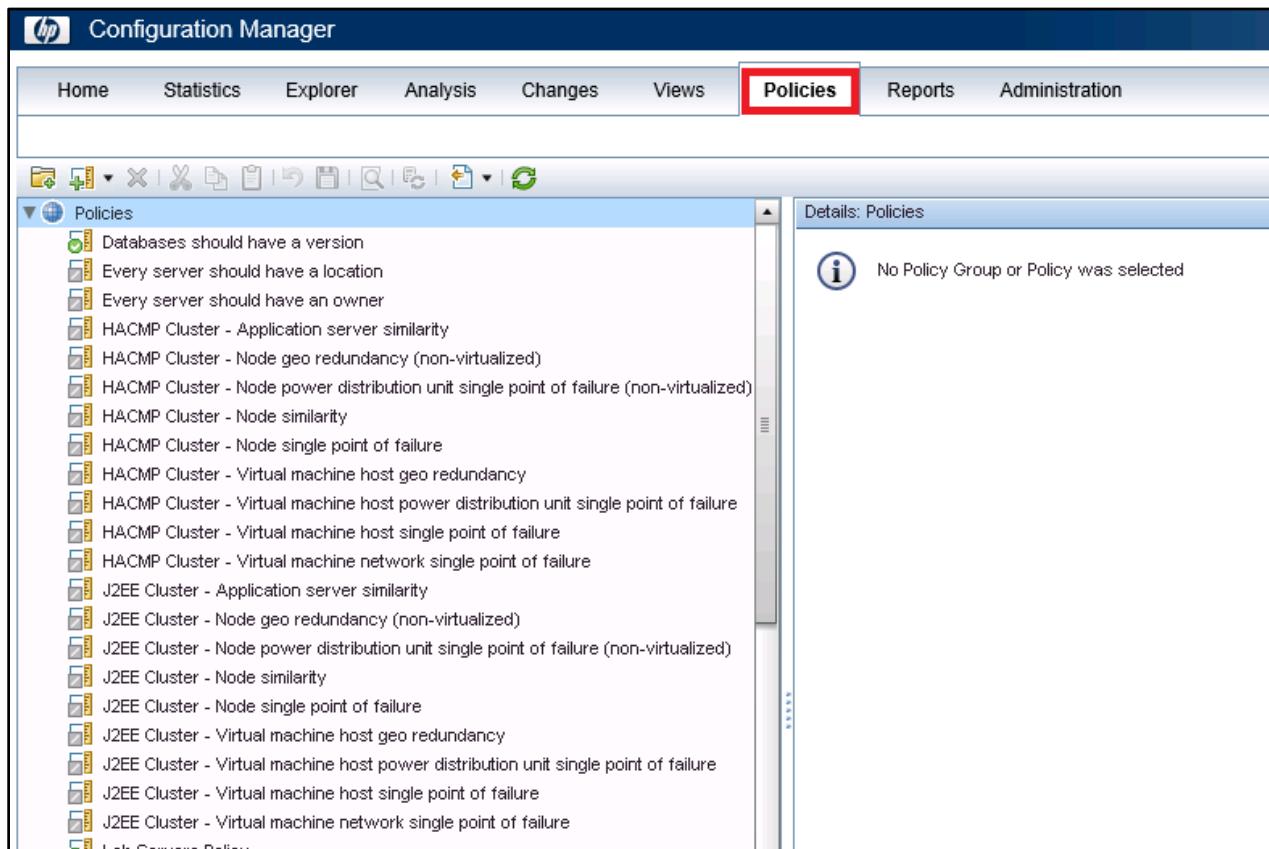
After deciding the standards to go by in the organization, Meg wants to ensure that the views adhere to these standards and, thus, make the IT environment more predictable. She decides to use the configuration policy capabilities of UCMDB CM which enables her to define the expected configuration of a view and apply policies to the views to set the standards.

Meg decides to use both baseline policy and topology policy for the organization views.

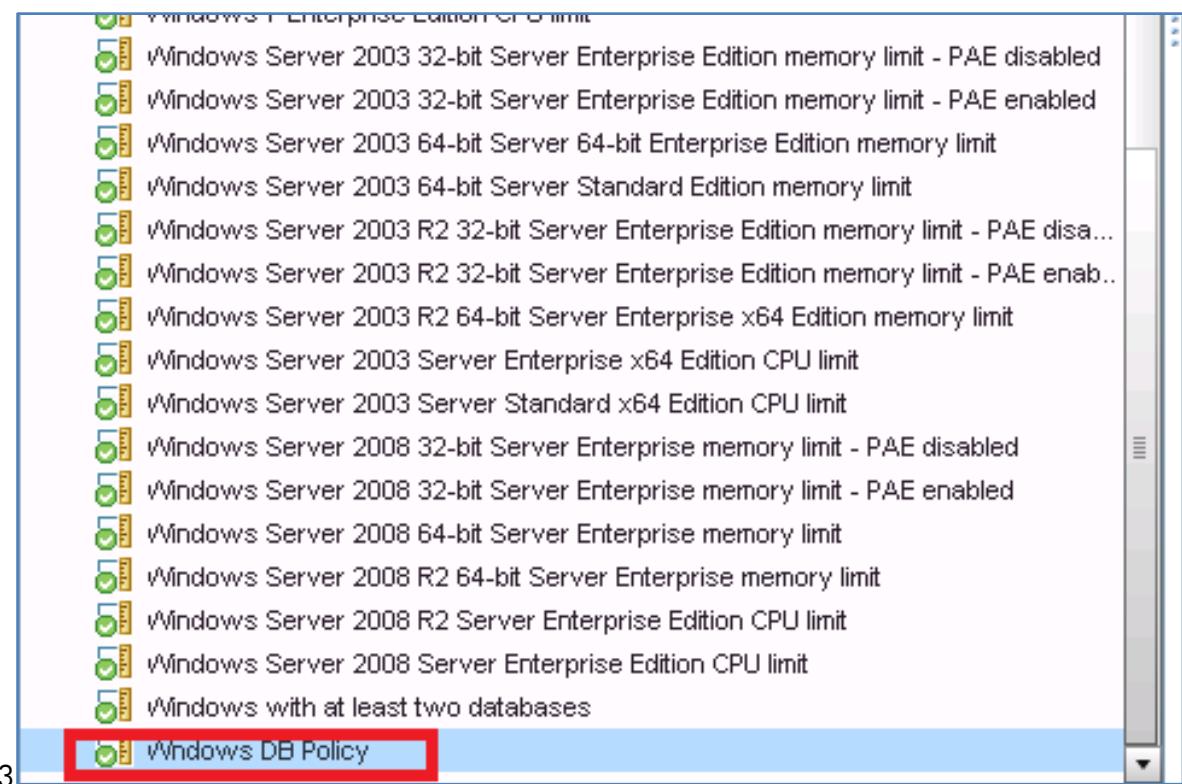
The baseline policy will be based on one of the existing configuration modes that were saved (similar to what was shown earlier).

To identify policy breaches through policy management, perform the following steps:

1. In the Configuration Manager, go to Policies, as shown in the following screenshot:



2. A list of already created policies organized in the Policy Groups folders is displayed.
3. Click Windows DB Policy, as shown in the following screenshot:



4. Under Views, ensure that the WindowsDBs view is shown.

The screenshot shows the configuration details for the 'Windows DB Policy'. It has three tabs: General, Views, and Validity.

**General Tab:**  
Policy name: Windows DB Policy  
Description: (empty)  
Categories: (empty)

**Views Tab:**  
Assign policies to views: WindowsDBs

**Validity Tab:**  
Perform validation:  
Valid From: 07/10/12 05:00 PM  
Valid Until: 05/15/13 12:00 AM

5. Scroll down in the Windows DB Policy pane and open the Filter frame. Observe that it relates only to the Windows CI type, as shown in the following screenshot:

6. Scroll to the bottom and open the Baseline CI frame. Observe that the Composite CI vmbto29 (Windows) is selected as the Baseline under the CI Type column, as shown in the following screenshot:

CI Type	Attribute Name	Not	Operator	Attribute Value
vmbto29 (Windows)	BiosAssetTag	<input type="checkbox"/>	=	
	BiosDate	<input type="checkbox"/>	=	
	BiosSerialNumber	<input type="checkbox"/>	=	
	BiosSource	<input type="checkbox"/>	=	
	BiosUuid	<input type="checkbox"/>	=	
	BiosVersion	<input type="checkbox"/>	=	
	DefaultGatewayIpAddress	<input type="checkbox"/>	=	16.59.60.1
	DiscoveredLocation	<input type="checkbox"/>	=	
	DiscoveredModel	<input type="checkbox"/>	=	
	DiscoveredOsName	<input type="checkbox"/>	=	Windows 2003
	DiscoveredOsVendor	<input type="checkbox"/>	=	Microsoft
	DiscoveredOsVersion	<input type="checkbox"/>	=	5.2.3790
	DiscoveredVendor	<input type="checkbox"/>	=	
	DomainName	<input type="checkbox"/>	=	
	MemorySize	<input checked="" type="checkbox"/>	=	4096

7. You are able to see the defined baseline attributes. Observe that the Memory size attribute is checked and a value (4096) is set as a policy constraint under the Attribute column, as shown in the following screenshot:

Details: Windows DB Policy

Baseline CI

\* The baseline to be used as the reference for comparing all other CIs of the same type.

Consider additional internal CIs as breach

CI Type	Attribute Name	Not	Operator	Attribute Value
vnbt029 (Windows)	BiosAssetTag	<input type="checkbox"/>	=	
CPU1 (Cpu)	BiosDate	<input type="checkbox"/>	=	
CPU0 (Cpu)	BiosSerialNumber	<input type="checkbox"/>	=	
C (FileSystem)	BiosSource	<input type="checkbox"/>	=	
FileSystemExport	BiosUuid	<input type="checkbox"/>	=	
FileSystemExport	BiosVersion	<input type="checkbox"/>	=	
FileSystemExport	DefaultGatewayIpAddress	<input type="checkbox"/>	=	16.59.60.1
Interface	DiscoveredLocation	<input type="checkbox"/>	=	
16.59.62.113 (IpAddress)	DiscoveredModel	<input type="checkbox"/>	=	
	DiscoveredOsName	<input type="checkbox"/>	=	Windows 2003
	DiscoveredOsVendor	<input type="checkbox"/>	=	Microsoft
	DiscoveredOsVersion	<input type="checkbox"/>	=	5.2.3790
	DiscoveredVendor	<input type="checkbox"/>	=	
	DomainName	<input type="checkbox"/>	=	
	MemorySize	<input checked="" type="checkbox"/>	=	4096
	Name	<input type="checkbox"/>	=	vnbt029
	Node is Desktop	<input type="checkbox"/>	=	

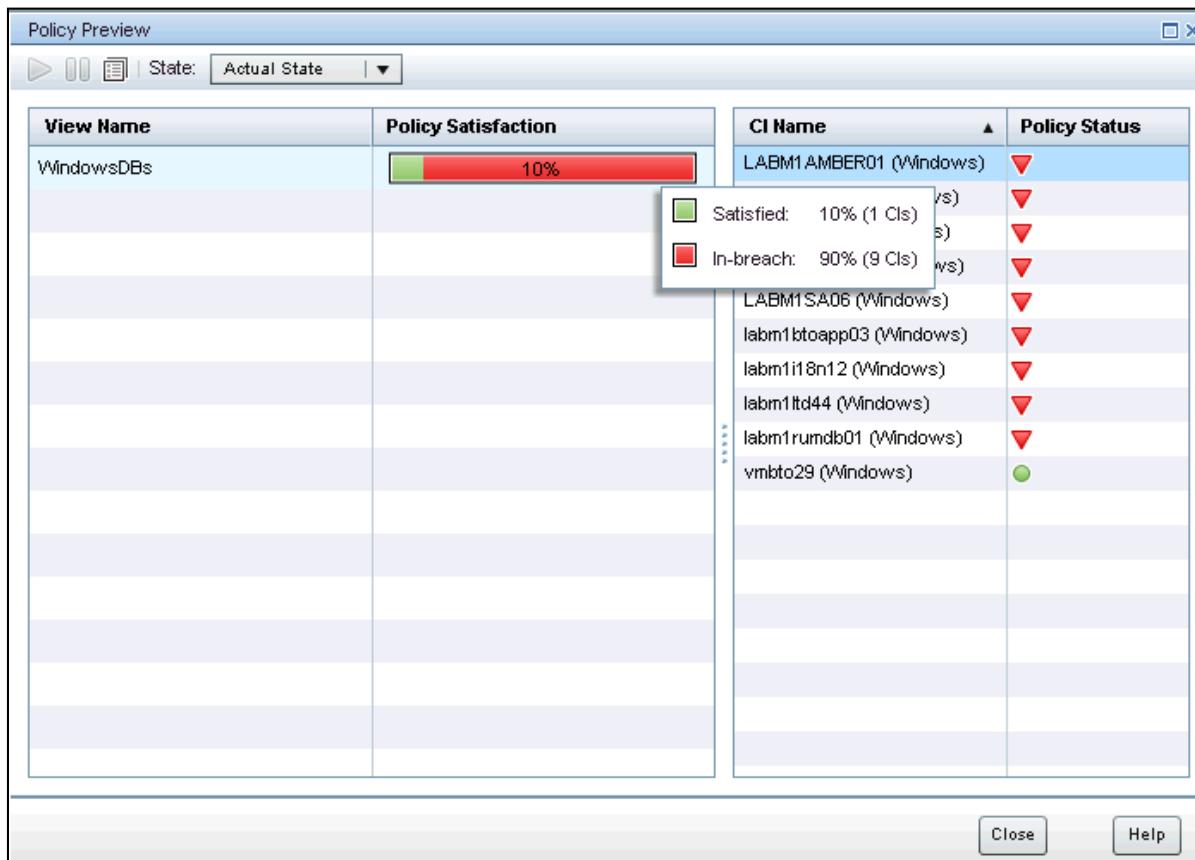
8. Click the extreme end of the value 4096 under the Attribute Value column. Observe that a pop-up list displays all the available values for this attribute and the number of CIs satisfying those values, as shown in the following screenshot:

	Attribute Name	Not	Operator	Attribute Value
	BiosAssetTag		=	
	BiosDate		=	
	BiosSerialNumber		=	
	BiosSource		=	
	BiosUuid		=	
	BiosVersion		=	
<input checked="" type="checkbox"/>	DefaultGatewayIpAddress		=	16.59.60.1
	DiscoveredLocation		=	
<input checked="" type="checkbox"/>	DiscoveredModel		=	
<input checked="" type="checkbox"/>	DiscoveredOsName		=	2048 5
<input checked="" type="checkbox"/>	DiscoveredOsVendor		=	4096 3
<input checked="" type="checkbox"/>	DiscoveredOsVersion		=	12288 1
<input checked="" type="checkbox"/>	DiscoveredVendor		=	16384 1
<input checked="" type="checkbox"/>	DomainName		=	4096
<input checked="" type="checkbox"/>	MemorySize		=	4096
	Name		=	vmbto29
	Node is Desktop		=	

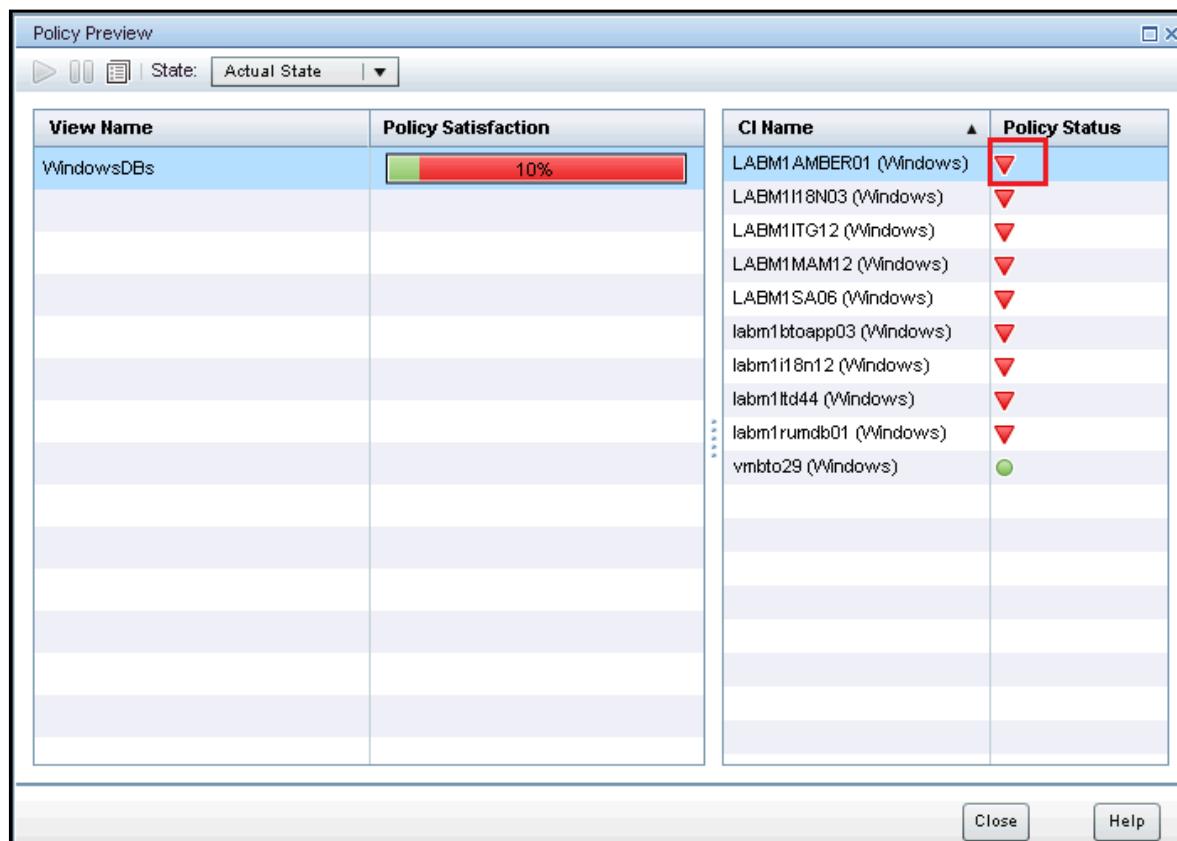
9. To verify the Policy status, click the Preview button to select Windows DB Policy, as shown in the following screenshot:

The screenshot shows the HP Configuration Manager interface. The top navigation bar includes Home, Statistics, Explorer, Analysis, Changes, Views, Policies (which is highlighted in blue), and Reports. Below the navigation bar is a toolbar with various icons, including a magnifying glass icon which is highlighted with a red box. The main content area has a tree view under the 'Policies' category. The 'Windows DB Policy' node is selected and highlighted with a red box. To the right of the tree view is a details panel titled 'Details: Windows DB Policy'. The panel shows a 'Baseline CI' section with a dropdown menu and a note about using it as a reference. It also has a checkbox for considering additional internal CIs as breaches. Below this is a 'CI Type' section listing several items, with 'vmbto29 (Windows)' expanded to show its subtypes: CPU1 (Cpu), CPU0 (Cpu), C (FileSystem), FileSystemExport, FileSystemExport, FileSystemExport, and Interface. At the bottom of the details panel is the IP address '16.59.62.113 (InAddress)'.

10. The Policy Preview window is displayed. Place the mouse pointer on the Policy Satisfaction status bar. It shows the Satisfied and In-breach percentages. Verify your screen with the following screenshot:



11. To display the breach and satisfied details, double-click the red triangle icon under Policy Status against the composite CI LABM1AMBER01(Windows) , as shown in the following screenshot:



12.The Policy Details window is displayed. It shows both breaches and satisfied attributes with red and green status indicators. Observe that the Memory Size attribute on the right-side pane, which has been set for baseline value in the Policy settings, is highlighted with a red triangle icon against it. Verify the value of the attribute in the current CI and the Baseline value, as shown in the following screenshot:

The screenshot shows the 'Windows DB Policy' Policy Details window for 'LABM1AMBER01 (Windows)' from Actual State. The left pane lists Configuration Items (CIs) with their baseline values. The right pane lists attributes with their current values, operators, and baseline values. A red box highlights the 'MemorySize' attribute row, which shows a value of 2048 and a baseline value of 4096. An information message at the bottom states: 'The selected CI has attributes that do not match the baseline'. Buttons for OK and Help are visible at the bottom right.

CI Name	Baseline		Attribute Name	CI Value	Not	Operator	Baseline Value
LABM1AMBER01 (Windows)	\Windows	▼	BiosAssetTag				
CPU0 (Cpu)	Cpu	▼	BiosDate				
CPU1 (Cpu)	Cpu	▼	BiosSerialNumber				
C (FileSystem)	FileSystem	▼	BiosSource				
D (FileSystem)	N/A	●	BiosUuid	24B49404-24F8-7422-2..			
C:\ (FileSystemExport)	FileSystemExport	●	BiosVersion				
c:\ (FileSystemExport)	N/A	●	DefaultGatewayIpAddress	16.55.248.1			
c:\windows (FileSystemExport)	N/A	●	DiscoveredLocation				
C:\WINDOWS (FileSystemExport)	FileSystemExport	●	DiscoveredModel	ProLiant DL140 G2			
d:\ (FileSystemExport)	N/A	●	DiscoveredOsName	Windows 2003			
D:\cmdb 9.0 installer (FileSystemExp...)	N/A	●	DiscoveredOsVendor	Microsoft			
D:\CMDB 9.0 Installer (FileSystemExp...	N/A	●	DiscoveredOsVersion	5.2.3790			
d:\fist (FileSystemExport)	N/A	●	DiscoveredVendor	HP			
D:\FIST (FileSystemExport)	N/A	●	DomainName	devlab.ad			
D:\hp (FileSystemExport)	N/A	●	MemorySize	2048	=	4096	
D:\hp (FileSystemExport)	N/A	●	Name	LABM1AMBER01			

13.Click the Show Only Breaches button in the top-left corner to display only the policy breaches as per the baseline set, as shown in the following screenshot:

The screenshot shows the 'Windows DB Policy' Policy Details window for 'LABM1AMBER01 (Windows)' from Actual State. The top-left corner features a 'Show Only Breaches' button, which is highlighted with a red box. The main pane displays a simplified list of CIs and their baseline values, focusing on the discrepancies.

CI	Show Only Breaches	Baseline
LABM1AMBER01 (Windows)		\Windows
CPU0 (Cpu)		Cpu
CPU1 (Cpu)		Cpu

14.Ensure that the Policy Details window displays only breaches, as shown in the following screenshot:

The screenshot shows the 'Windows DB Policy' Policy Details window for 'LABM1AMBER01 (Windows)' from Actual State. The 'Show Only Breaches' button is highlighted with a red box. The main pane displays a list of CIs and their baseline values, with a red box highlighting the 'MemorySize' attribute row in the right-hand table, indicating a breach where the current value (2048) does not match the baseline (4096).

CI Name	Baseline	Attribute Name	CI Value	Not	Operator	Baseline Value
LABM1AMBER01 (Windows)	\Windows	MemorySize	2048	=	4096	
CPU0 (Cpu)	Cpu					
CPU1 (Cpu)	Cpu					
C (FileSystem)	FileSystem					
D:\ (FileSystemExport)	FileSystemExport					

**Note:** The button is a toggle switch which now returns to the Show All Details screen.

15. To display the Policy breaches of the next component of the composite CI, click the Next Component Breach button on the top left corner. Verify each attribute as per the following screenshot.

CI Name	Baseline	Attribute Name	CI Value	Not	Operator	Baseline Value
LABM1AMBER01 (Windows)	Windows	Core number	2		=	1
CPU0 (Cpu)	Cpu	CpuClockSpeed	2800		=	3000
CPU1 (Cpu)	Cpu	CpuType	x86 Family 15 Model 4 S..		=	x86 Family 6 Model 23 Stepping 6
C (FileSystem)	FileSystem					
D:\FileSystemExport	FileSystemExport					

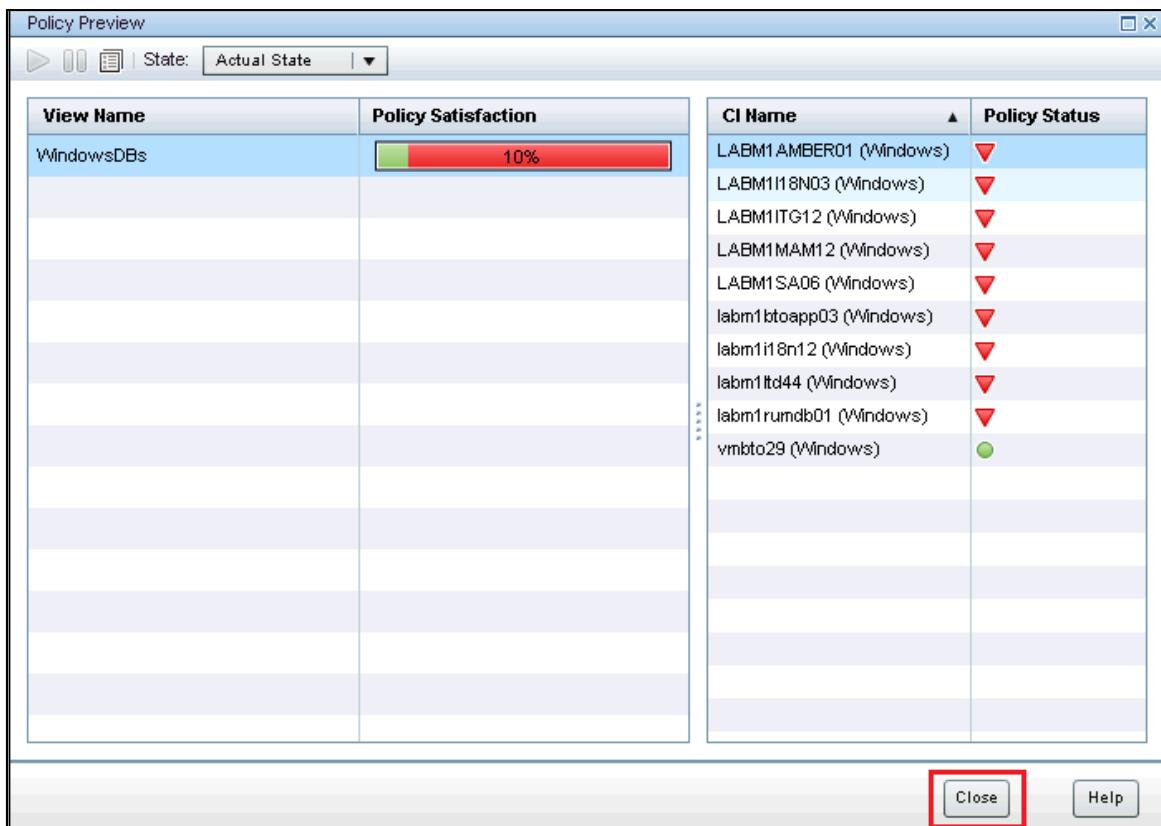
16. Navigate through all component breaches by clicking Next Component Breach. Then click OK to close the Policy Details window, as shown in the following screenshot:

CI Name	Baseline	Attribute Name	CI Value	Not	Operator	Baseline Value
LABM1AMBER01 (Windows)	Windows	FileSystemPath	D:\		=	C:\Documents and Settings\All Use...
CPU0 (Cpu)	Cpu	Share Names	[D\$]		=	[Discovery]
CPU1 (Cpu)	Cpu					
C (FileSystem)	FileSystem					
D:\FileSystemExport	FileSystemExport					

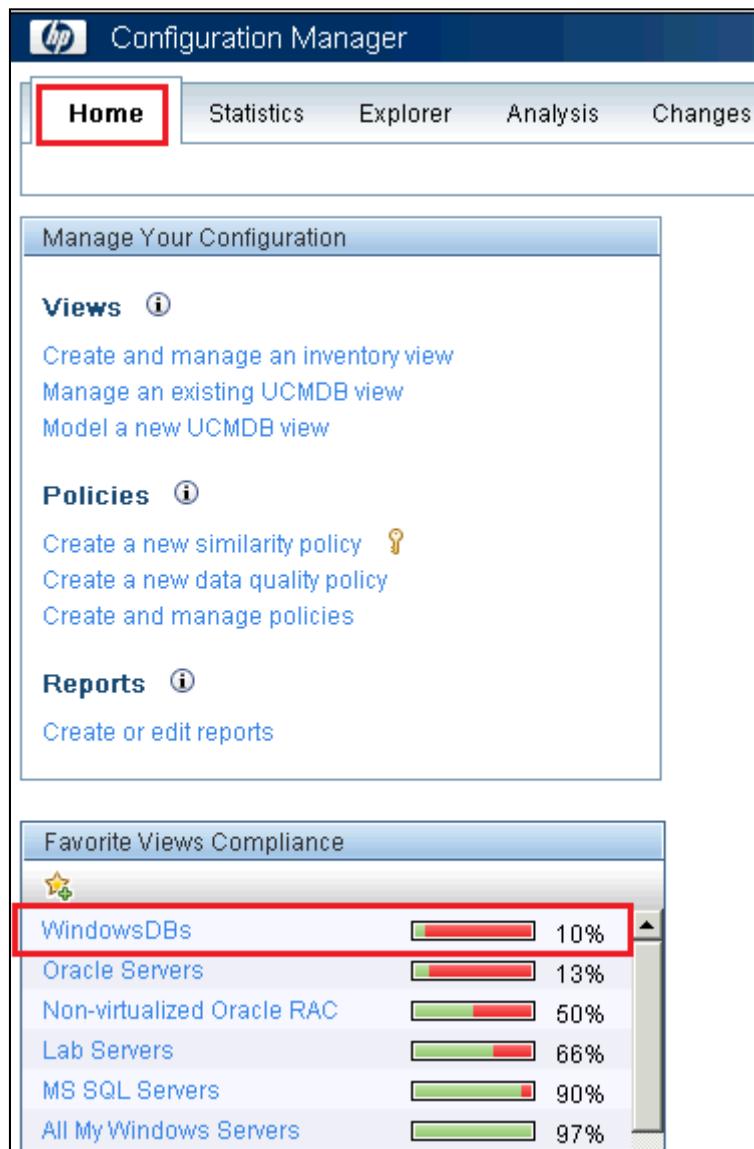
The selected CI has attributes that do not match the baseline

**OK** **Help**

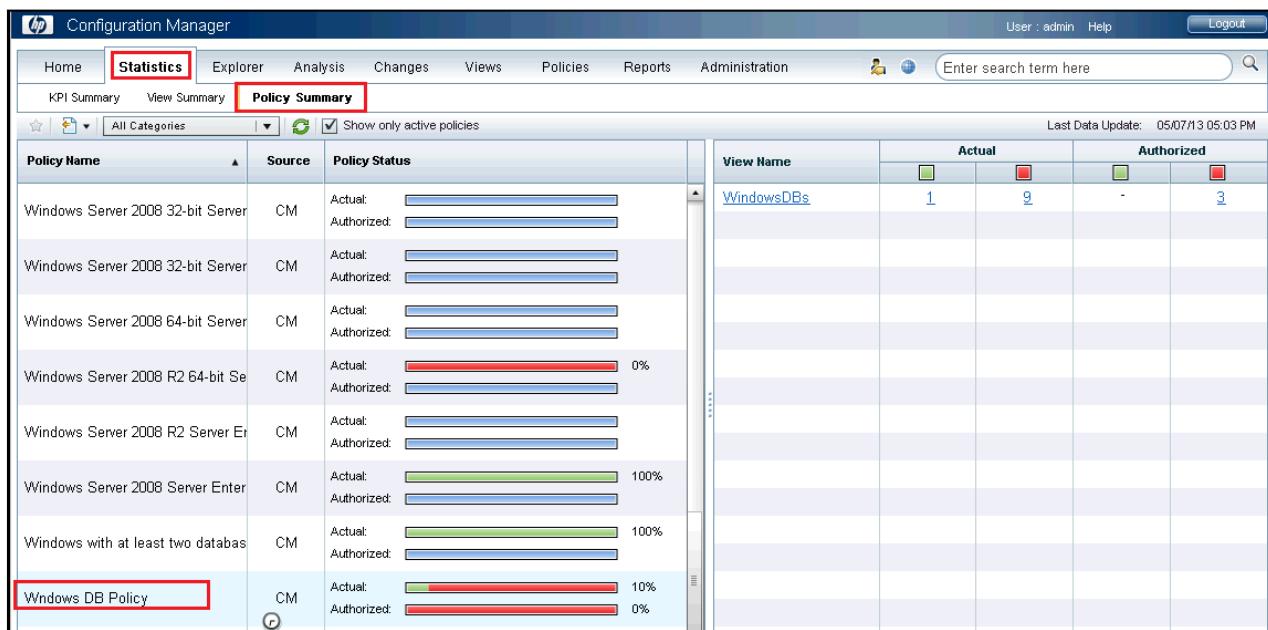
17. Ensure that the Policy Preview window is displayed. Click the Close button to close the window, as shown in the following screenshot:



18. Go to the Home screen of Configuration Manager by clicking the Home menu.  
Observe that under Favorite Views Compliance, the Windows DBs view shows the status color code as 10% satisfied and the rest breached, as shown in the following screenshot:



19. To see the Policy summary, go to the Statistics menu and click the Policy summary tab. Scroll down and select Windows DBs Policy. Observe the policy status details displayed, as shown in the following screenshot:



Additional information – This view is available under UCMDB UI → Modeling → Modeling Studio. From the Resources Selection pane, select Resource Type as Queries from the drop-down box, then navigate the path Root → View → CM Training → WindowsDBs.

**Note:** After these policies are in place, you can ensure that the views that these policies apply to will remain according to the organization's standards and you will be able to find out about any change that causes breaches to the policies you have. You can see the status of the policies on the Policy Summary pane, which provides a general summary of all policies defined in CM. The display enables you to view the policy status of all the CIs for which a given policy is defined.

## Exercise 3 – Authorizing Changes through State Management

After setting the standards and the policies, Meg now wants to make sure that the applications use the data which satisfy the standards and ignore any data which are not authorized. Meg initially selects the changes she wants to authorize from among the CIs marked as changed and authorizes them. This essentially copies the configuration of the Actual state to the Authorized state. She then configures the applications to consume data from the Authorized state of the views, rather than the Actual state.

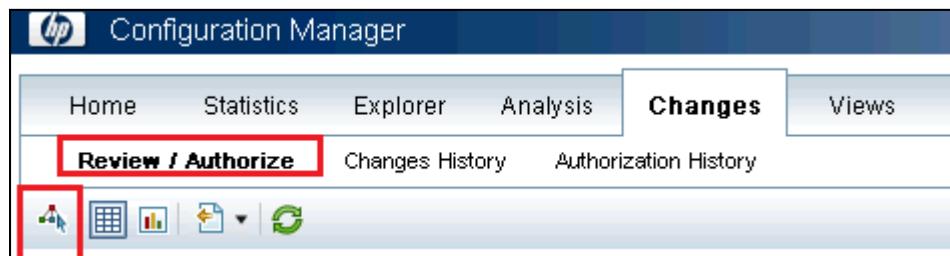
It is also possible to authorize changes of CIs automatically using predefined rules.

To authorize changes through state management, perform the following steps:

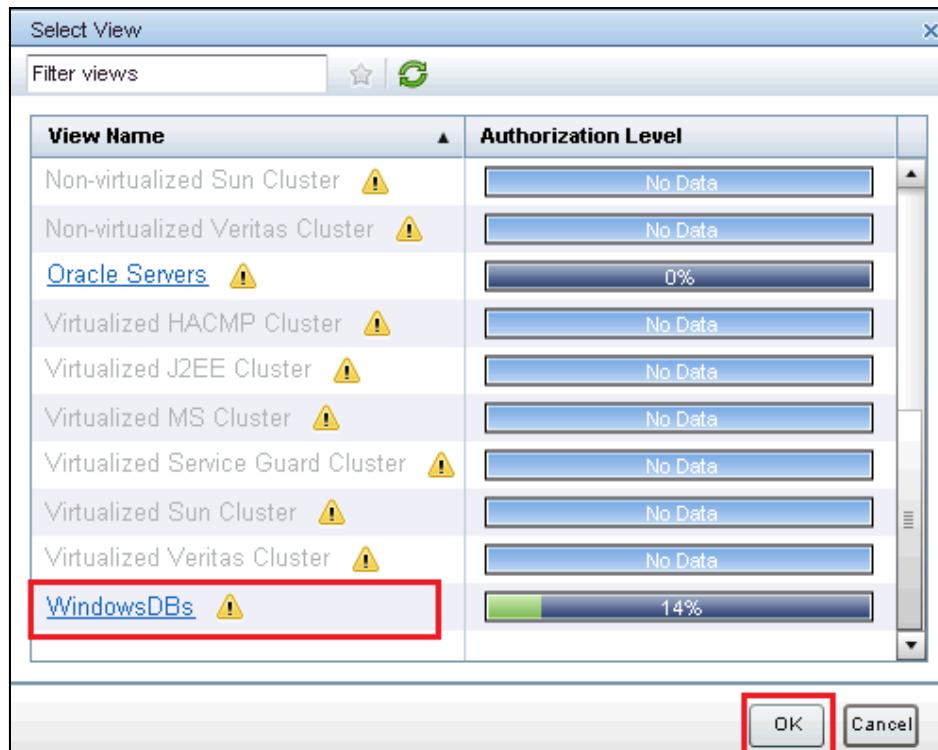
1. Go to the CM UI and click the Changes menu. By default, the Review/Authorize tab is selected, as shown in the following screenshot:



2. Click the Select View button on the shortcut tool bar, as shown in the following screenshot:



3. Select the WindowsDBs view from the Select View window and then click the OK button, as shown in the following screenshot:



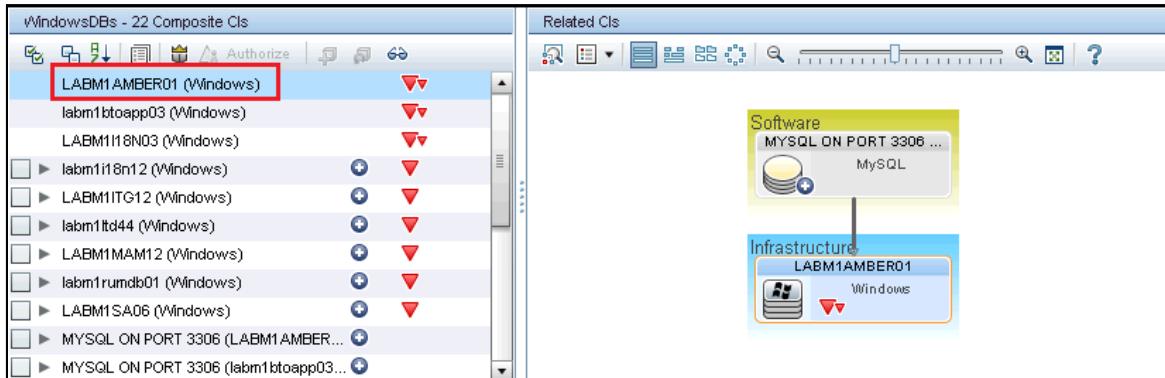
4. The WindowsDBs view opens with its composite CIs listed, as shown in the following screenshot:

Policy Name	Source	Status in Actual	Status in Authorized
Windows DB Policy	CM	▼ In-breach	

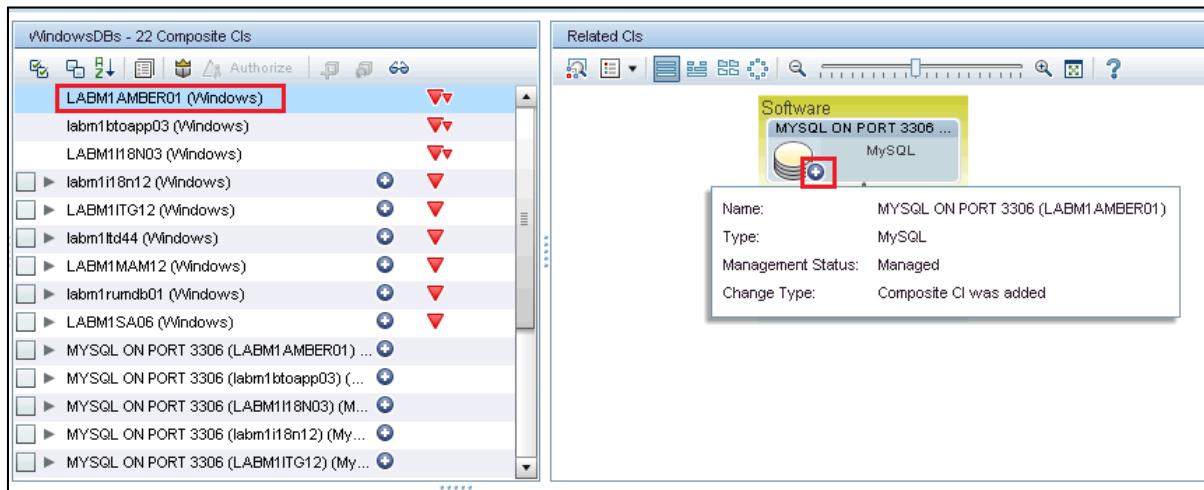
Policy Attribute Name	Value
Policy Name	Windows DB Policy
Description	

**Note:** The CIs of the view are listed in the Composite CIs pane and a Topology map of the view is displayed in the Topology pane. You can specify the layout of the Topology map, including the option to organize the CIs in the map by layer or classification, using the toolbar options in the Related CIs pane. Also note that only the composite CIs of the view appear in the Topology map. However, you can drill down to the component CIs using the CI Details dialog box. This makes the Topology map much simpler and easier to read.

- Click the first composite CI listed, LABM1AMBER01. Observe the right-side Related CI pane for the topology details, as shown in the following screenshot:



- Focus the mouse pointer on the + symbol displayed on the MySQL CI connected to LABM1AMBER01 in the Related CI pane. The message box indicates that the Change Type is Composite CI was added, as shown in the following screenshot:



**Note:** This change involves removing a relationship to a composite CI as can be seen in the status color code below the CI.

7. Click the Policy Details tab available at the bottom right-side of the pane. Observe under the Policy Details tab, the policy details are displayed for this selected composite CI, as shown in the following screenshot:

Policy Name	Source	Status in Actual	Status in Authorized
Windows DB Policy	CM	In-breach	In-breach

Policy Attribute Name	Value
Policy Name	Windows DB Policy
Description	
Policy Source	Configuration Manager
Policy Type	Baseline Policy
Valid From	07/10/12 05:00 PM
Valid Until	

**Note:** The policy details at the bottom also show that this change causes a breach in the topology policy, which breaks the WindowsDBs topology within the organization. You can see this breach on the Topology map as well. So you cannot authorize this change because it will damage the WindowsDBs topology.

8. In the Composite CIs pane of the State Management (middle pane), scroll down and locate the CI MYSQL ON PORT 3306 (LABM1AMBER01) (MySQL). Expand the entries for the CIs with changes by clicking the small arrow to the left of the check box. (This CI was added new and relates to LABM1AMBER01, as shown in the Related CIs pane.)
9. Click the first composite CI displayed in the list, LABM1AMBER01, as shown in the following screenshot:

**Note:** In the case shown in Step 9, for the CI LABM1AMBER01 you can see that there was a change for the selected CI. (Composite CI was added.) In the bottom pane, you can see that this change is in-breach for your IT environment because it shows that the changed CI in the Actual state breaches the policy. This is the case in the Authorized state also where the change in the CI is applied and the policy status is In-breach. This means that what was changed caused this CI to be non-compliant with the standards set by the defined policy on this view. (This change is already being authorized.)

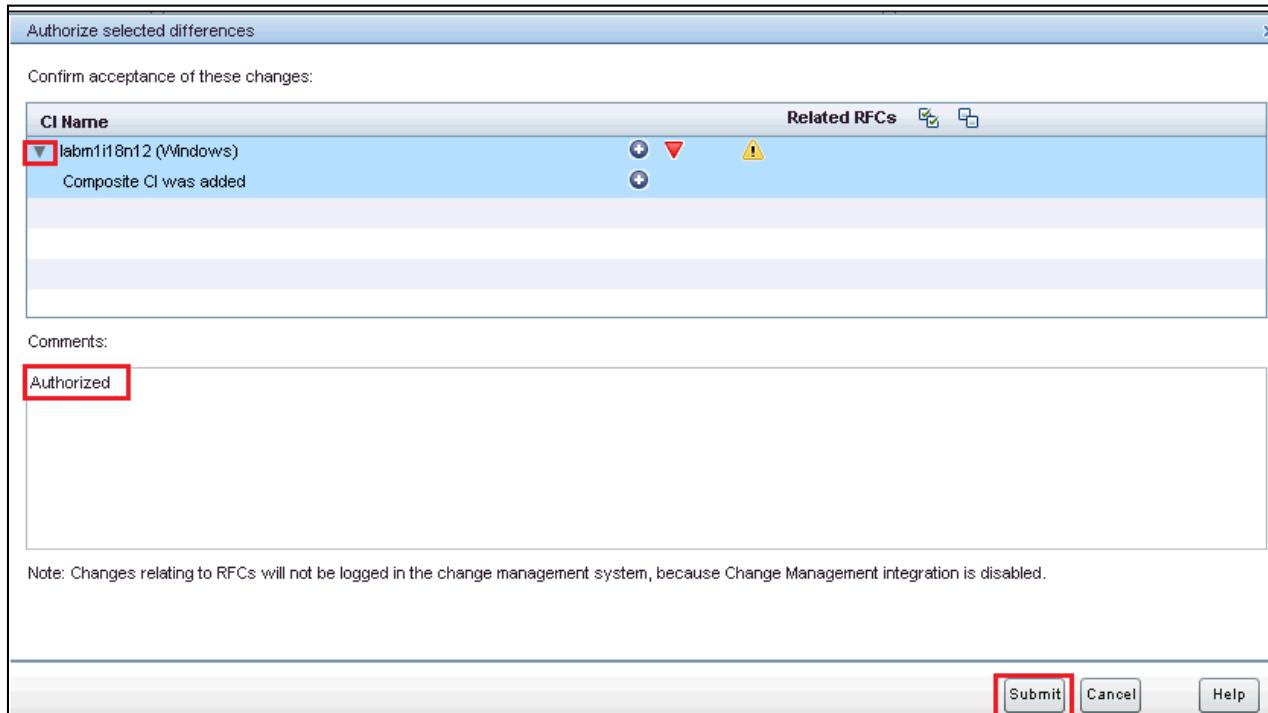
Comparison Details: LABM1AMBER01 (Windows)																							
		Changed Attributes	Changed Outgoing Relationships																				
		Policy Details (*)																					
		Related RFCs																					
<table border="1"> <thead> <tr> <th colspan="4">Policy List</th> </tr> <tr> <th>Policy Name</th> <th>Source</th> <th>Status in Actual</th> <th>Status in Authorized</th> </tr> </thead> <tbody> <tr> <td>Windows DB Policy</td> <td>CM</td> <td>In-breach</td> <td>In-breach</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Policy List				Policy Name	Source	Status in Actual	Status in Authorized	Windows DB Policy	CM	In-breach	In-breach								
Policy List																							
Policy Name	Source	Status in Actual	Status in Authorized																				
Windows DB Policy	CM	In-breach	In-breach																				
<table border="1"> <thead> <tr> <th colspan="2">Details - Windows DB Policy</th> </tr> <tr> <th>Policy Attribute Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Policy Name</td> <td>Windows DB Policy</td> </tr> <tr> <td>Description</td> <td>Policy Source</td> </tr> <tr> <td>Policy Source</td> <td>Configuration Manager</td> </tr> </tbody> </table>				Details - Windows DB Policy		Policy Attribute Name	Value	Policy Name	Windows DB Policy	Description	Policy Source	Policy Source	Configuration Manager										
Details - Windows DB Policy																							
Policy Attribute Name	Value																						
Policy Name	Windows DB Policy																						
Description	Policy Source																						
Policy Source	Configuration Manager																						

10. To authorize another change, select the CI labm1i18n12 (Windows) and click the arrow head on the left side to expand. Then click the check box of this CI.

11. Click the Authorize button on the toolbar, as shown in the following screenshot:

**Note:** Even though this is against the Windows DB Policy of which this CI is a part, you are going to authorize this change; that is, connecting a new MySQL CI linked to labm1i18n12 (Windows) CI.

12. In the Authorized selected differences page, you can create a comment. Expand the CI name by clicking the arrow head, enter a comment, and click the Submit button, as shown in the following screenshot:



**Note:** It will take a few minutes to authorize the changes and you will get a confirmation message window. After the change is authorized, the updated view becomes the new Authorized state of the view.

13. In the Composite CIs pane of State Management (middle pane), observe that the check box option against the labm1i18n12 (Windows) CI is absent because the change has already been authorized, as shown in the following screenshot:

The screenshot shows a list of 22 composite configurations under the heading "WindowsDBs - 22 Composite CIs". The list includes various Windows and MySQL instances. The row for "labm1i18n12 (Windows)" is highlighted with a red box. To the right of each CI name, there are two small red downward-pointing arrows, indicating a state or status.

14. Click the Policy Details tab of the Comparison Details pane at the bottom. Observe that the Status in Actual and Status in Authorized are in breach now, as shown in the following screenshot:

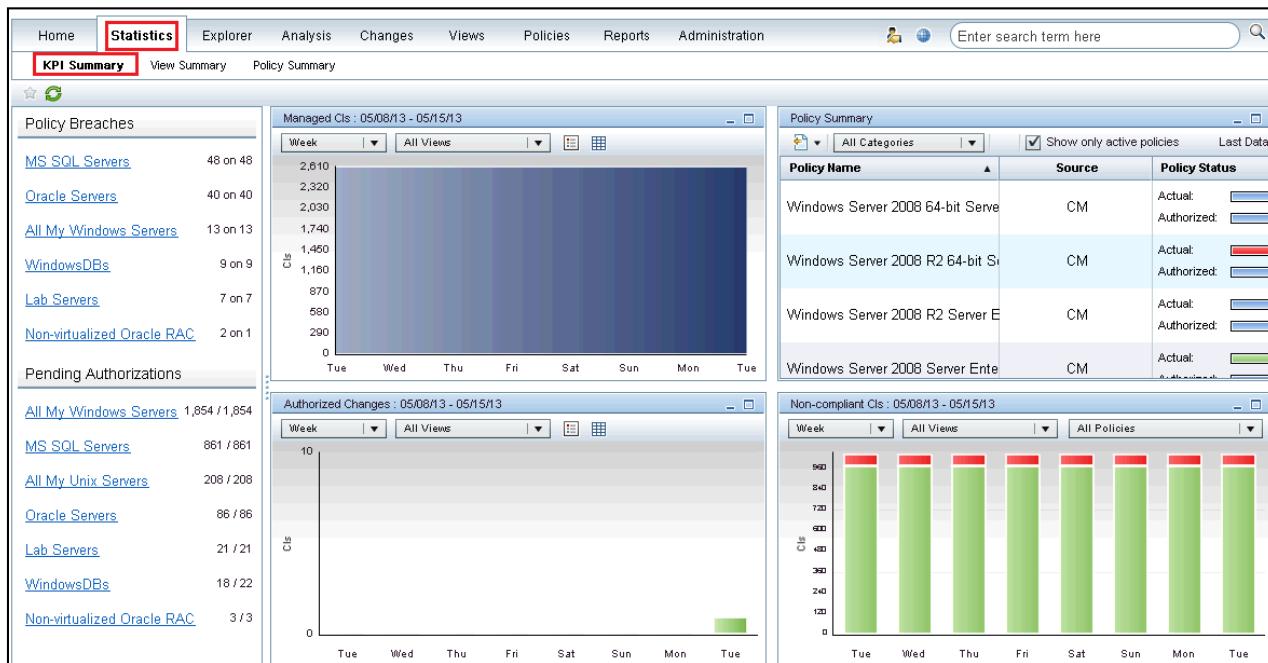
The screenshot shows the "Comparison Details" pane for the CI "labm1i18n12 (Windows)". The "Policy Details" tab is selected. On the left, there is a "Policy List" table with one row: "Whdows DB Policy" (Source: CM). The "Status in Actual" and "Status in Authorized" columns for this row are both marked with a red downward-pointing arrow, indicating a breach. On the right, there is a "Details - Whdows DB Policy" table with three rows: Policy Name (Value: Whdows DB Policy), Description (Value: ), and Policy Source (Value: Configuration Manager).

# Exercise 4 – Performing Daily Work with UCMDB Configuration Manager (CM)

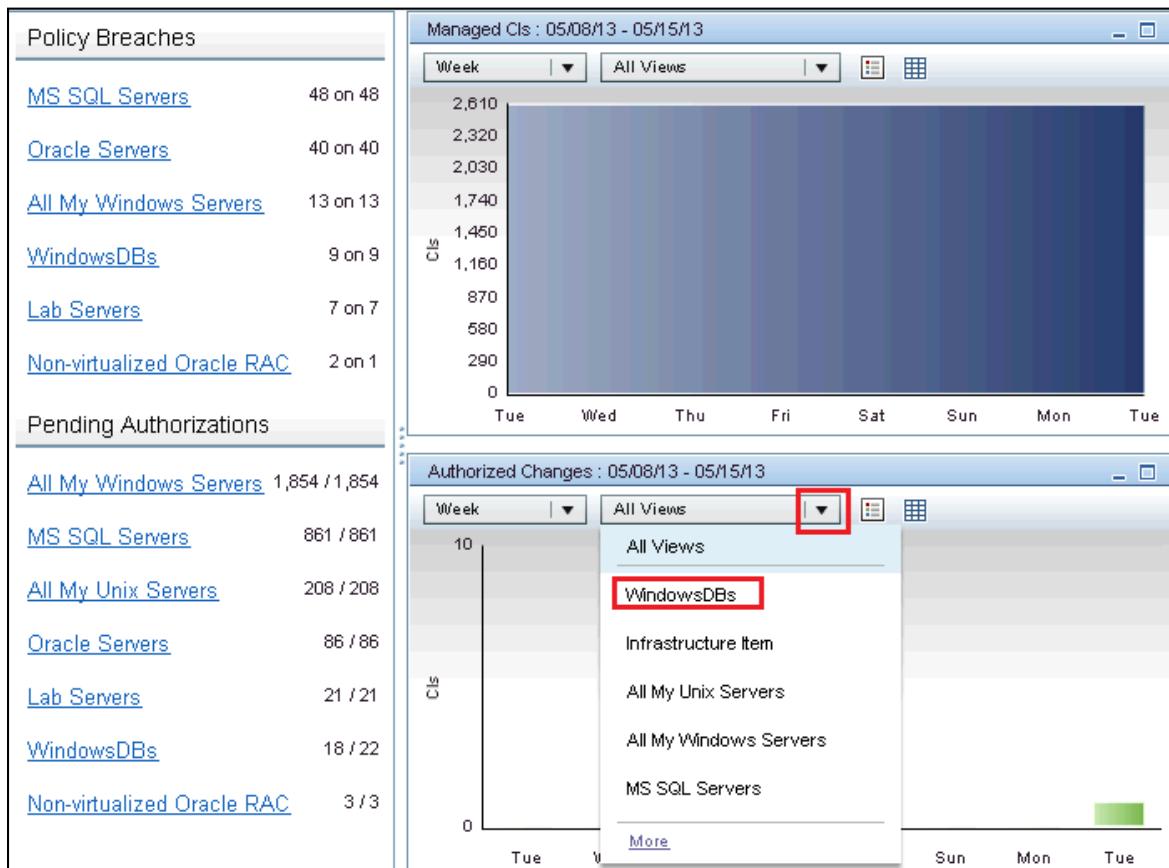
After all standards and policies have been set, the organization's applications are working with the Authorized state of UCMDB. Meg wants to be able to see from the Dashboard any pending authorizations, new policy breaches, policies status, number of managed CIs, and so on.

To perform daily work with UCMDB CM, complete the following steps:

1. Go to the CM UI and click the Statistics menu. By default, the KPI Summary tab is opened, as shown in the following screenshot:



2. Click the All Views drop-down list on the Authorized Changes frame and select Windows DBs, as shown in the following screenshot. (You can do something similar to view different charts and apply various filters.)



3. By using the different links available in the page, navigate through different pages of UCMDB CM.

**Note:** The Statistics page provides a Dashboard view of the key metrics being monitored by CM. The page includes graphical displays of data over time, including the number of managed Cls by authorization status, the number of Cls by policy status, the number of authorized changes, and the number of non-compliant Cls.

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# Lab 11 – Reports

## Objectives

After completing this lab, you should be able to

- Create the Windows with IIS Admin topology report
- Create a Gold Master report
- Create the Windows Details topology report

# Exercise 1 – Creating the Windows with IIS Admin Topology Report

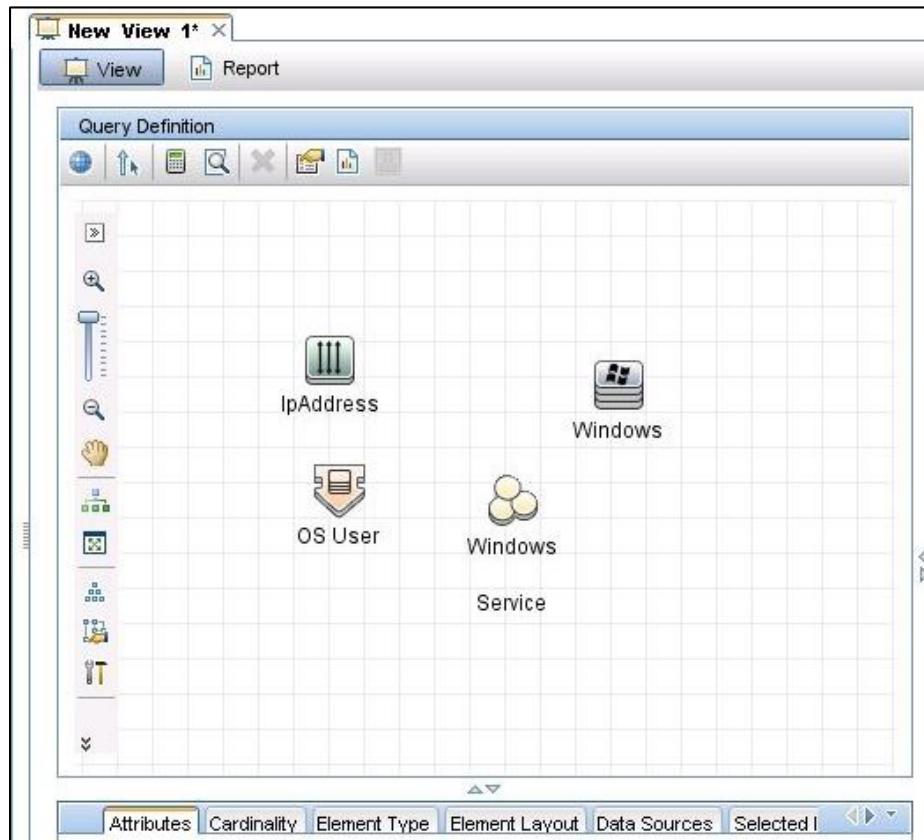
Oscar, the operations bridge manager, wants to get a list of all Windows servers running the IIS Admin Service due to a security risk that was found in the Online Banking application.

Oscar wants to receive the report in comma separated value (CSV) format on a weekly basis.

As a member of Oscar's team, you have been asked to create a topology report named Windows with IIS Admin.

To create this topology report, perform the following steps:

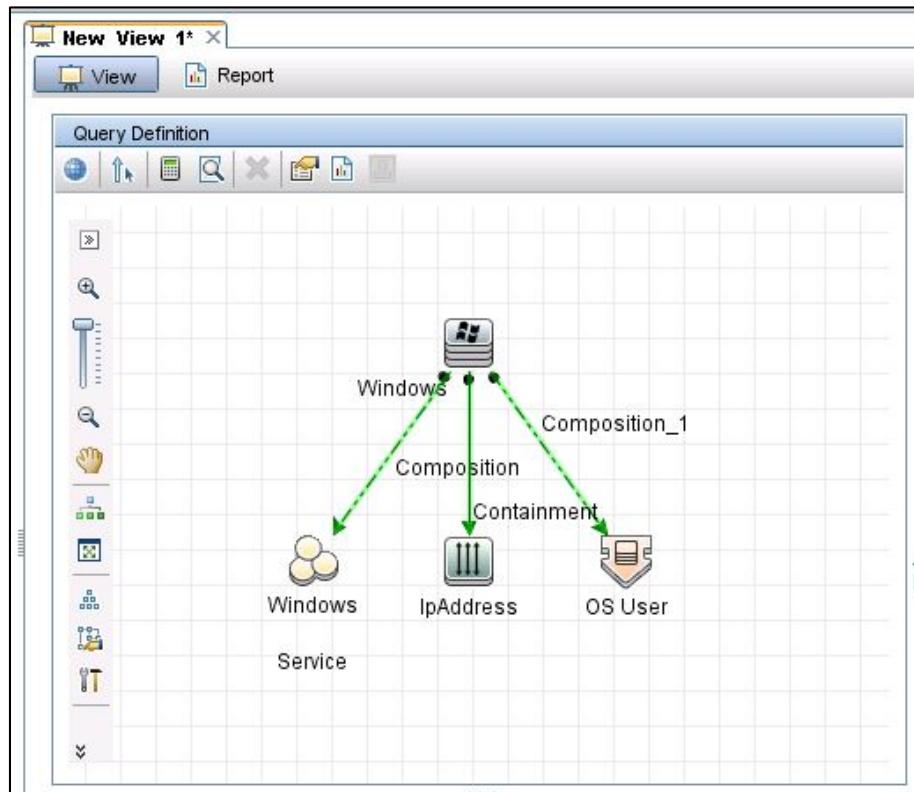
1. Go to Modeling Studio in the Modeling area.
2. Create a new Pattern View based on a new Query.
3. Drag and drop the following CITs into the editor pane:
  - Windows
  - OS User
  - IpAddress
  - WindowsService
4. Verify that your screen looks similar to the following screenshot:



5. Add relationships between the CITs as follows:

- Containment from Windows → IpAddress
- Composition from Windows → OSUser
- Composition from Windows → WindowsService

6. Use the Refresh to get an optimal layout button in the sidebar to tidy things up. Verify that your screen looks similar to the following screenshot:



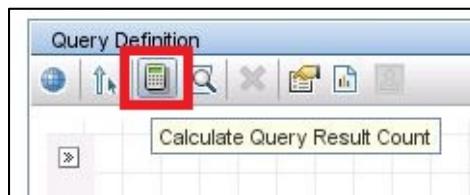
7. Add an Attribute condition to the WindowsService node as follows (note that the value is case-sensitive):

Attribute Name:	Operator:	Value:
<b>Name</b>	<b>Equal</b>	<b>IIS Admin Service</b>

8. As we don't need to see these IIS Admin Service CIs in the results, uncheck the Show element in query results check box in the upper-right side of the window. Click "Yes" in the resulting dialog to make related relationships invisible too, as shown in the following screenshot:



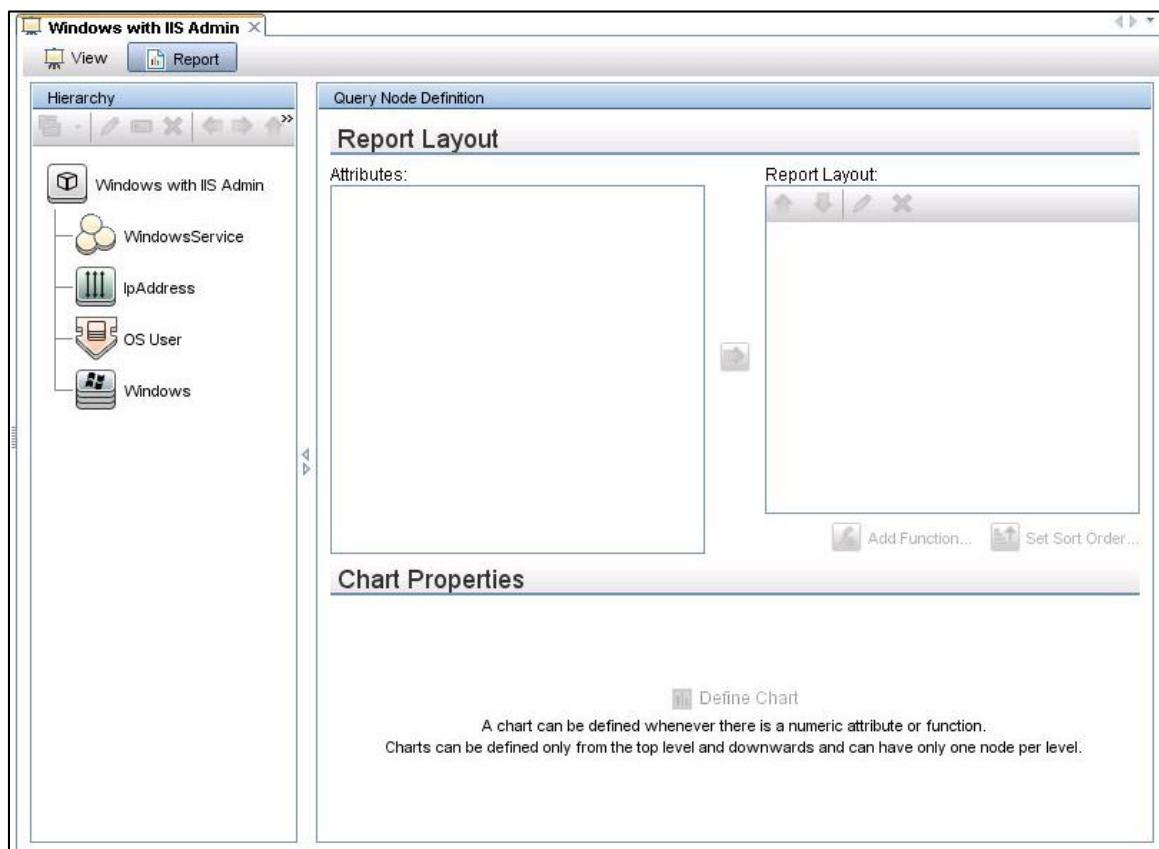
9. Use the Calculate Query Result Count button to verify that there are some CIs meeting the conditions of the query, as shown in the following screenshot:



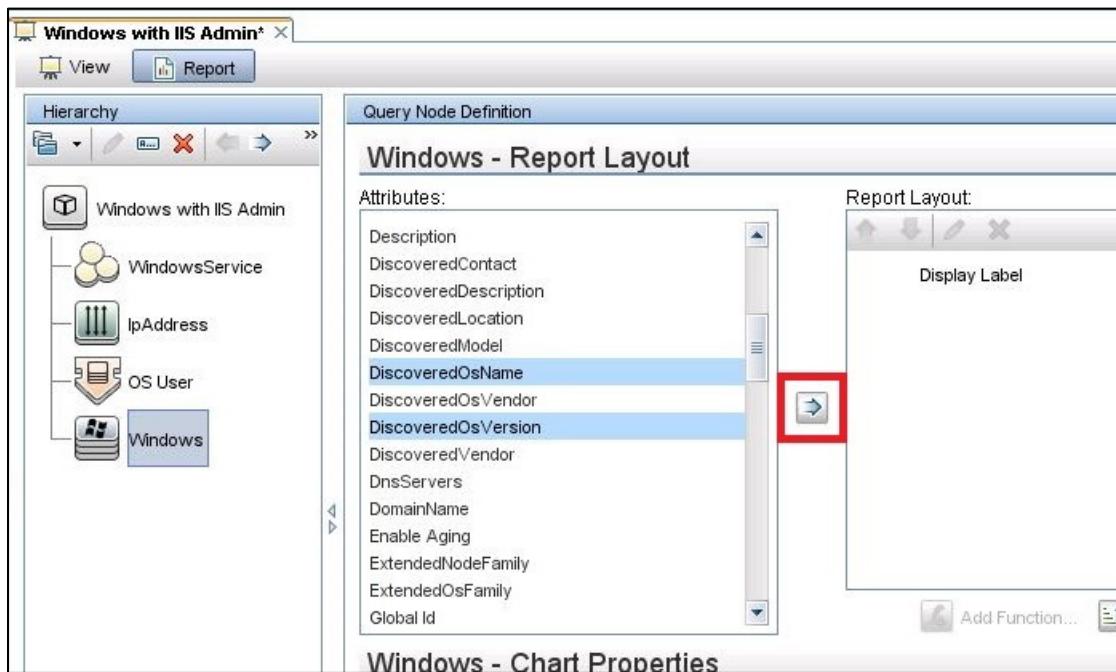
10. Use the Save button to save your view. Name it "Windows with IIS Admin."

11. Click the Report button.

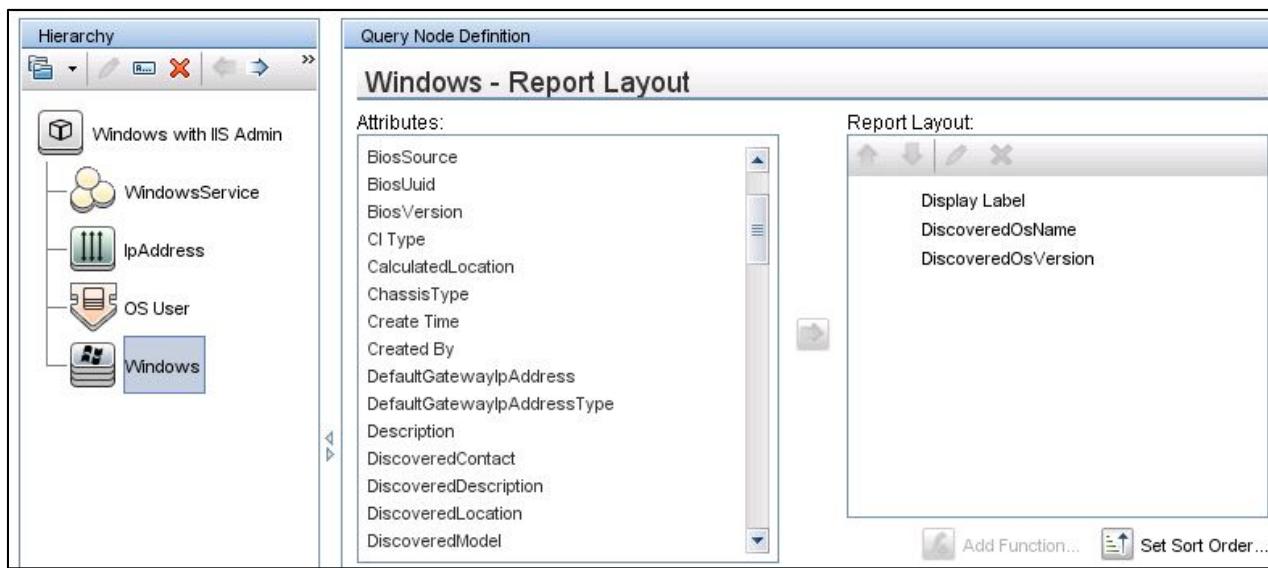
12. The editor switches to Report mode, as shown in the following screenshot:



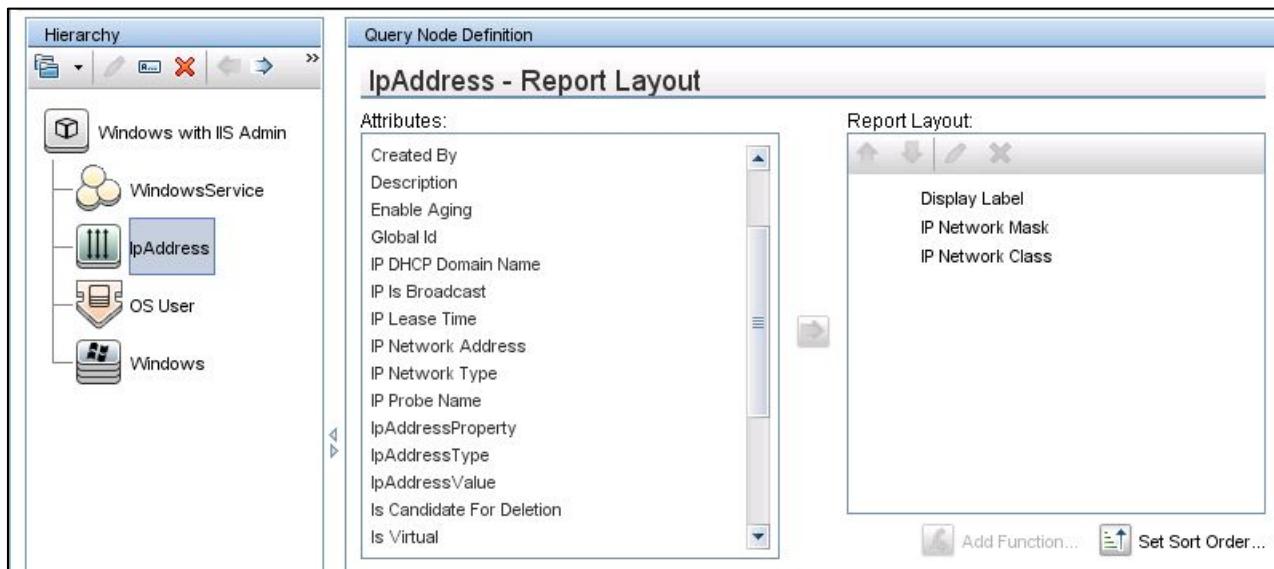
13. Select Windows in the Hierarchy pane, choose DiscoveredOsName and DiscoveredOsVersion from the Attributes list, and click the Add attribute to report layout button, as shown in the following screenshot:



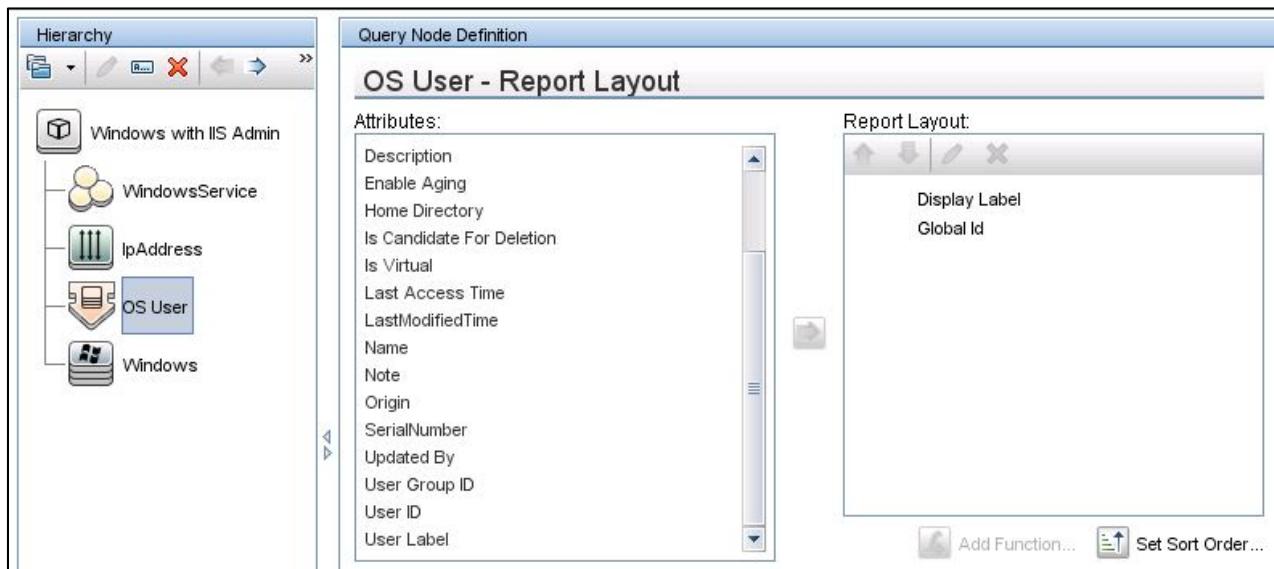
14. Verify your Windows Report Layout against the following screenshot:



15. Select IPAddress in the Hierarchy tree, and add the IP Network Mask and IP Network Class attributes to the report layout. Verify your IPAddress Report Layout against the following screenshot:

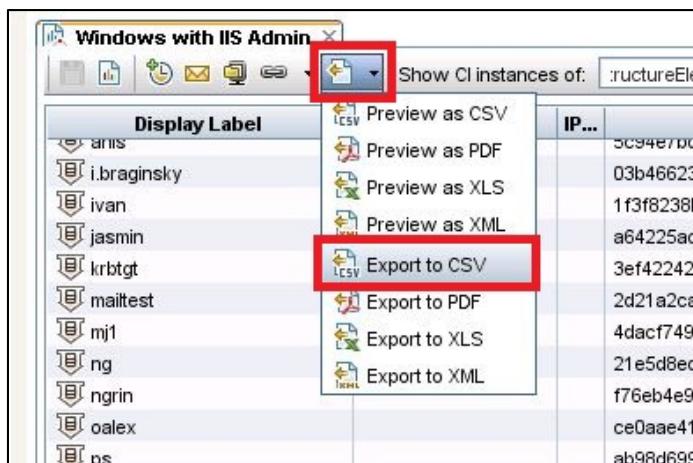


16. Select OS User in the Hierarchy tree, and add the Global ID attribute to the report layout. Verify your OS User Report Layout against the following screenshot:

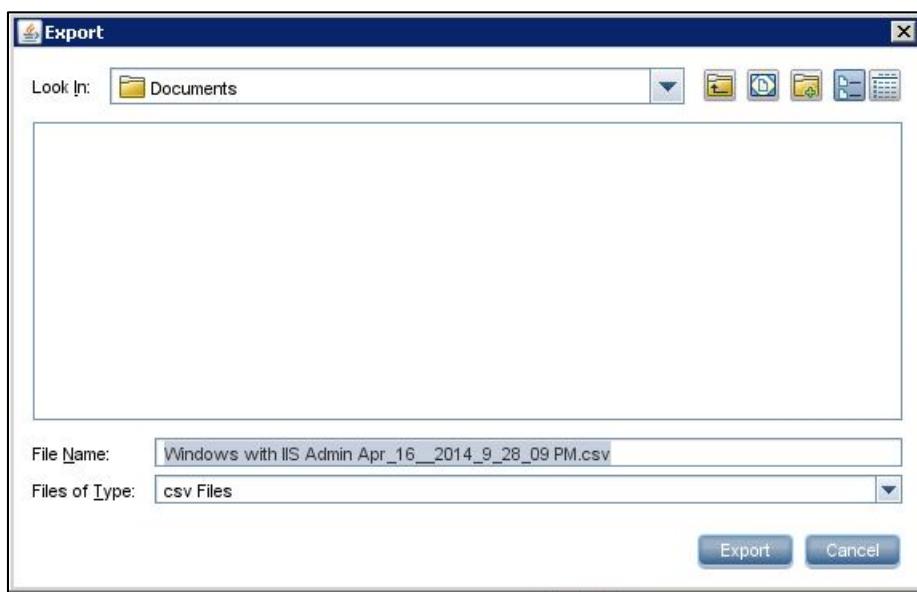


17. Click the Save button.  
 18. Go to Reports in the Modeling area.  
 19. Double-click your new Windows with IIS Admin report to open it in the report pane.

20. Click the Export Report button on the toolbar and select Export to CSV, as shown in the following screenshot:



21. The Export dialog box is displayed, as shown in the following screenshot:

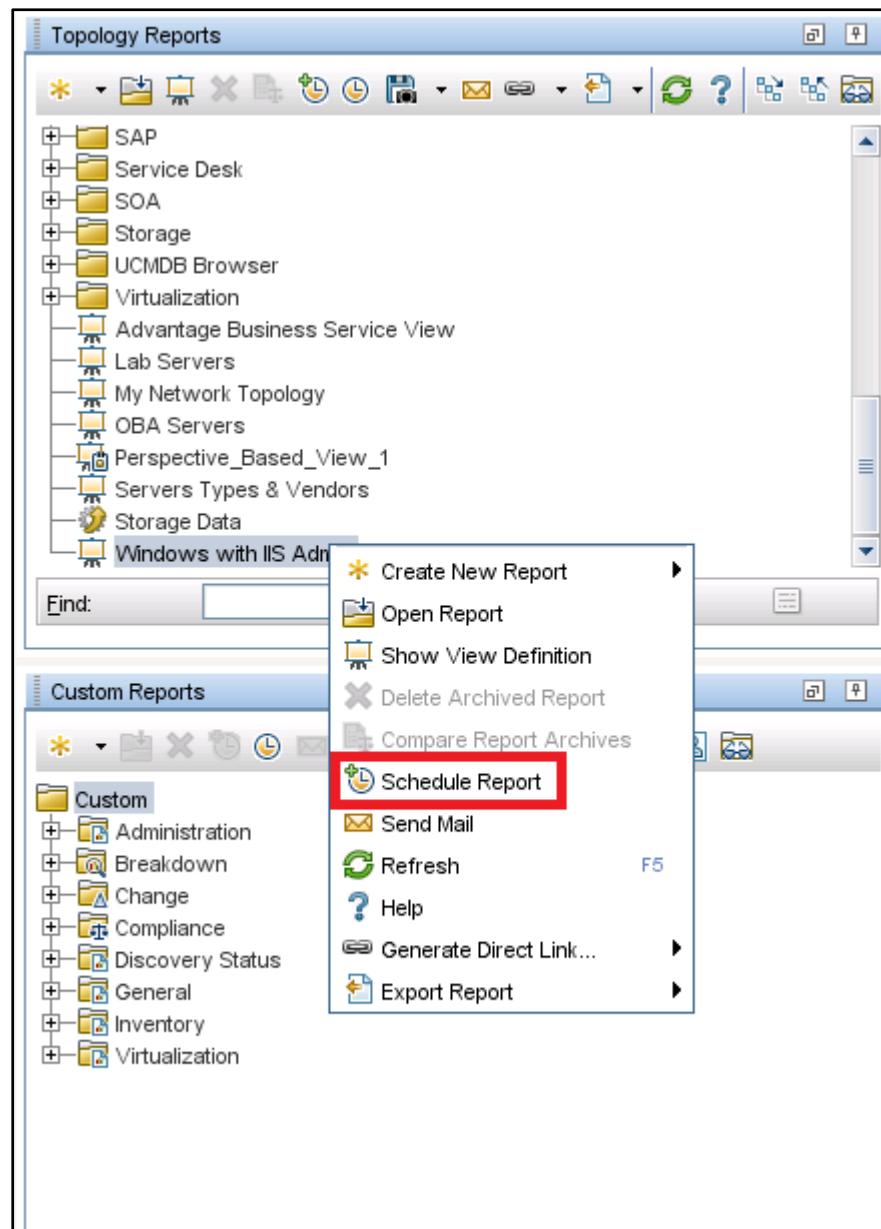


22. Click the Export button to create the CSV file.

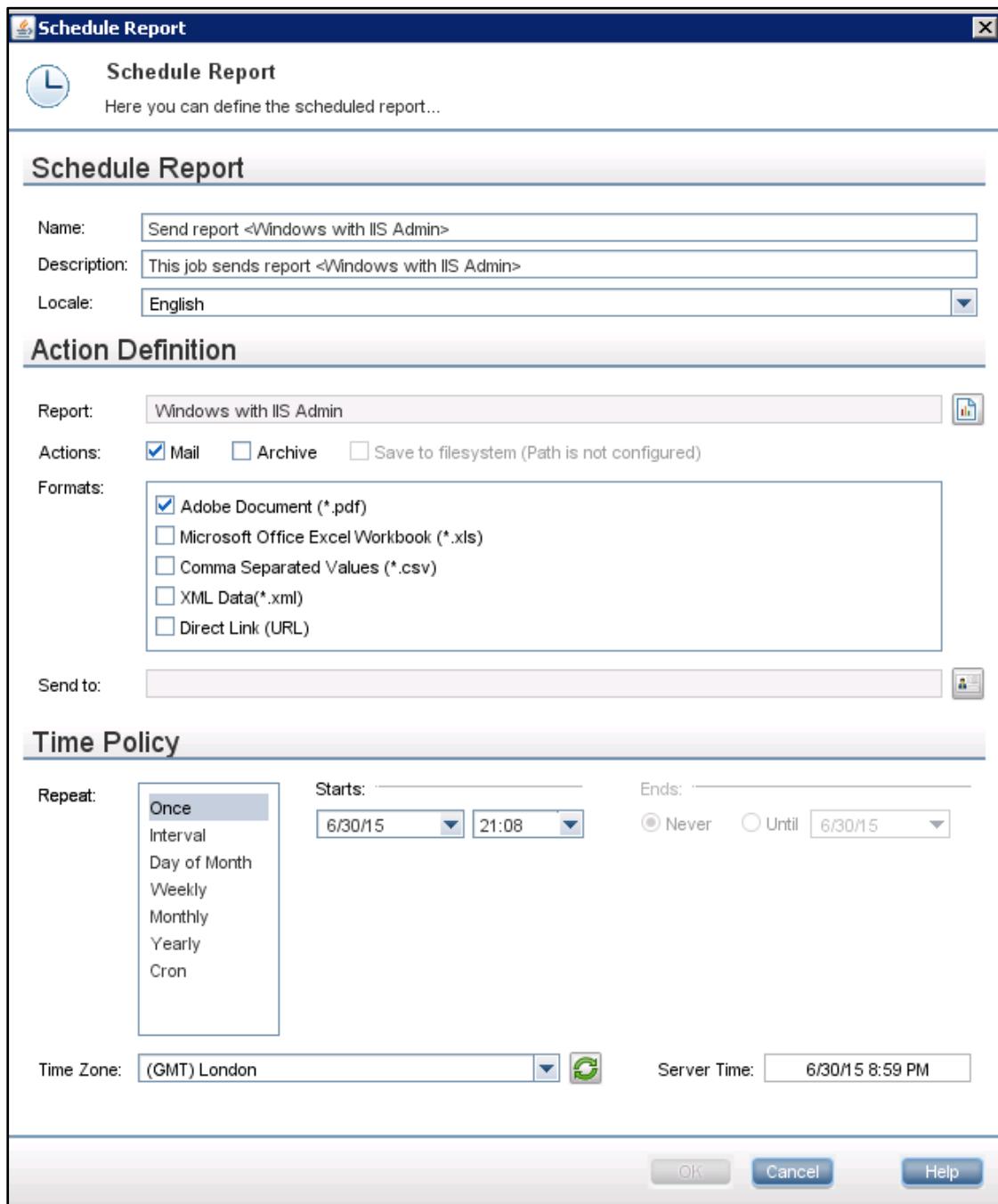
23. The report is saved and a dialog box appears, asking if you want to open the exported file. Click the Yes button, and a Notepad window is displayed containing the resulting CSV file.

24. Close Notepad and go back to the Reports page.

25. Right-click your report in the Topology Reports pane and select Schedule Report, as shown in the following screenshot:



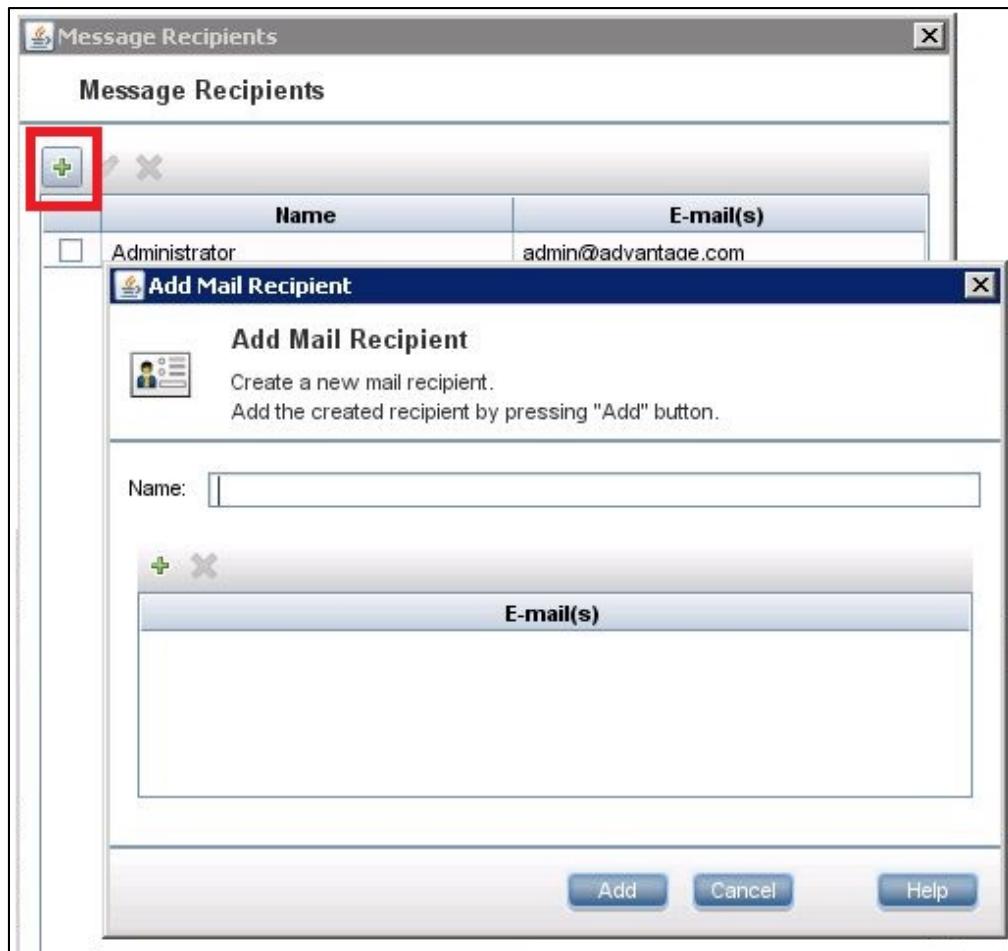
26. The Schedule Report window is displayed, as shown in the following screenshot:



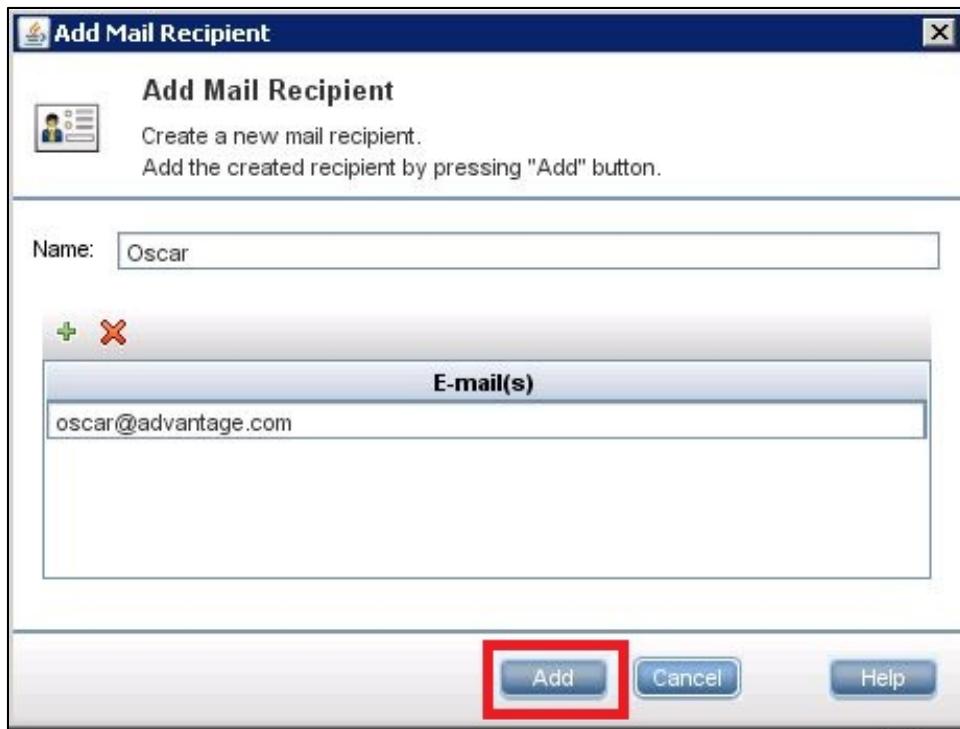
27. Click the Open Address Book button as shown in the following screenshot:



28.The Message Recipients window is displayed. Click the Add button, as shown in the following screenshot:



29.Enter **Oscar** in the name field, add the email address **oscar@advantage.com** and click the Add button, as shown in the following screenshot:



30. Use the check box to select the new Oscar recipient and then click OK. The Send to: field should be populated as shown in the following screenshot:

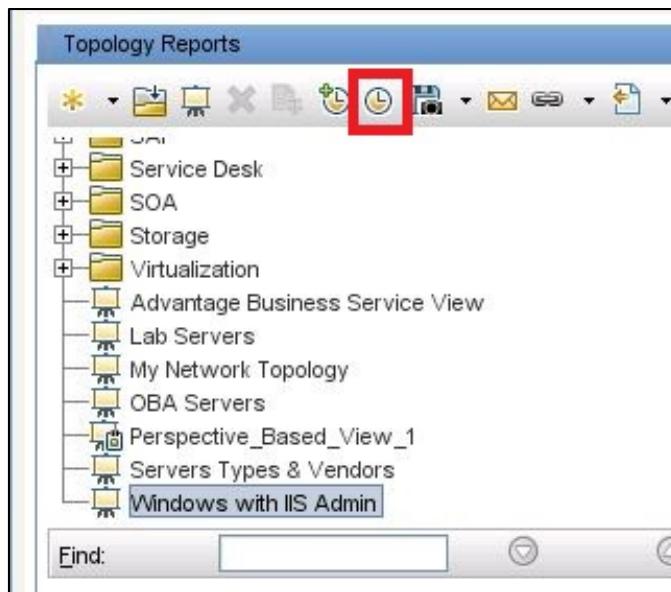
The screenshot shows the 'Action Definition' dialog box. It has several sections: 'Report:' set to 'Windows with IIS Admin', 'Actions:' with 'Mail' checked and 'Archive' unchecked, 'Formats:' with 'Adobe Document (\*.pdf)' checked and other options like 'Microsoft Office Excel Workbook (\*.xls)', 'Comma Separated Values (\*.csv)', 'XML Data(\*.xml)', and 'Direct Link (URL)' unchecked, and 'Send to:' set to '<oscar@advantage.com>'. The 'Send to:' field is highlighted with a red box.

31. In the Time Policy section, choose Weekly, check one of the weekdays (for example, Mon), select a time of your choice, and click the OK button.

The Insert Job dialog box is displayed. (There might be a few seconds delay.) Click the OK button to close it.

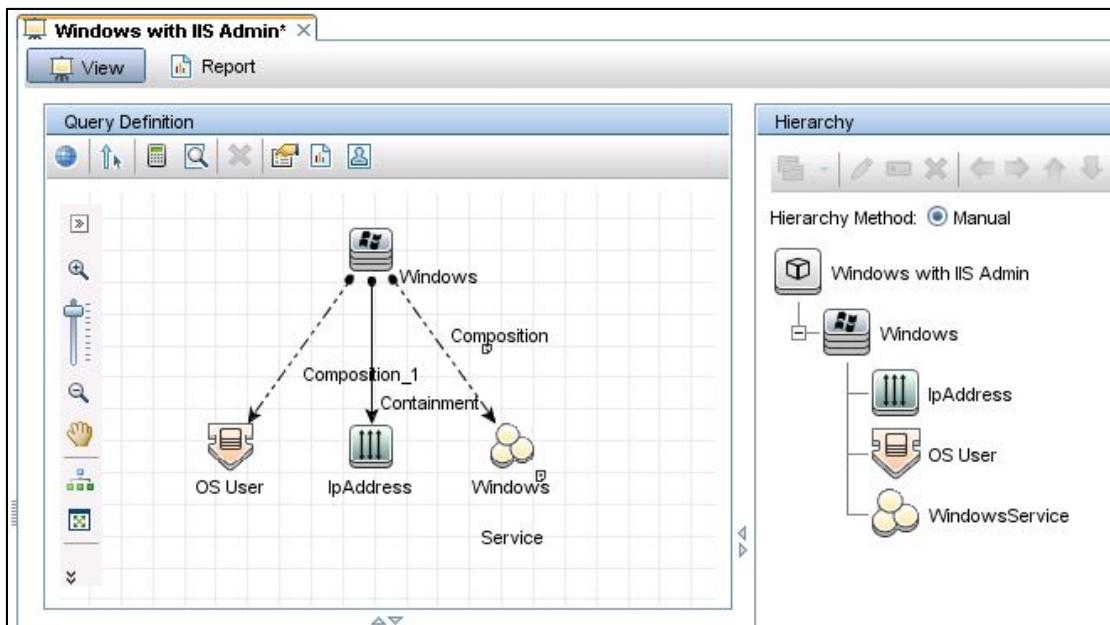


32. Use the Show Scheduled Report Jobs button to verify that the new job has been created.



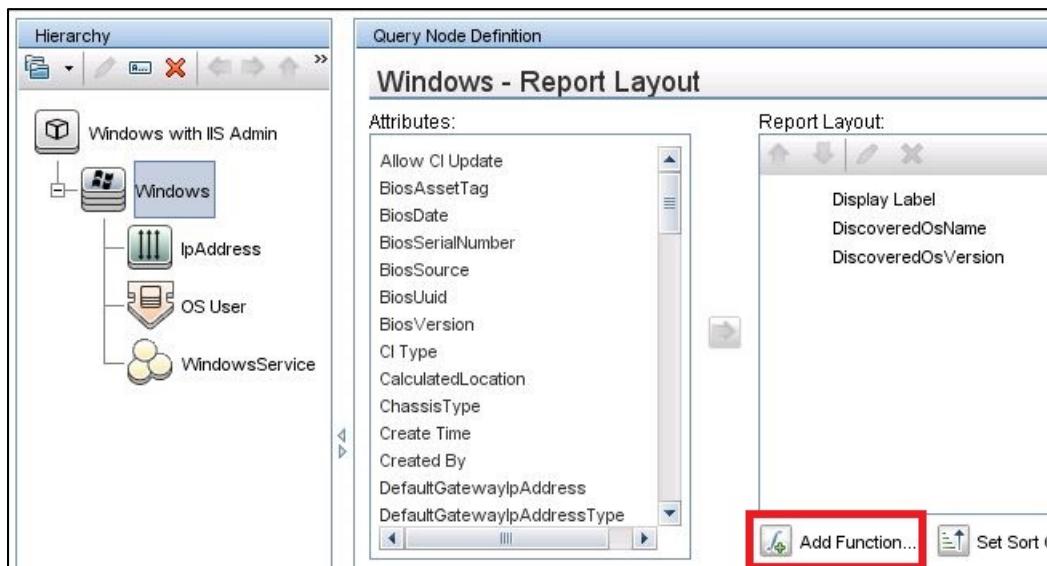
33. Now go back to the report definition to modify some of the properties. Return to Modeling Studio and open your Windows with IIS Admin view (if not already open). Ensure that you are in View mode.

34. In the Hierarchy pane, drag and drop OS User, IPAddress, and WindowsService under Windows CIT, as shown in the following screenshot:

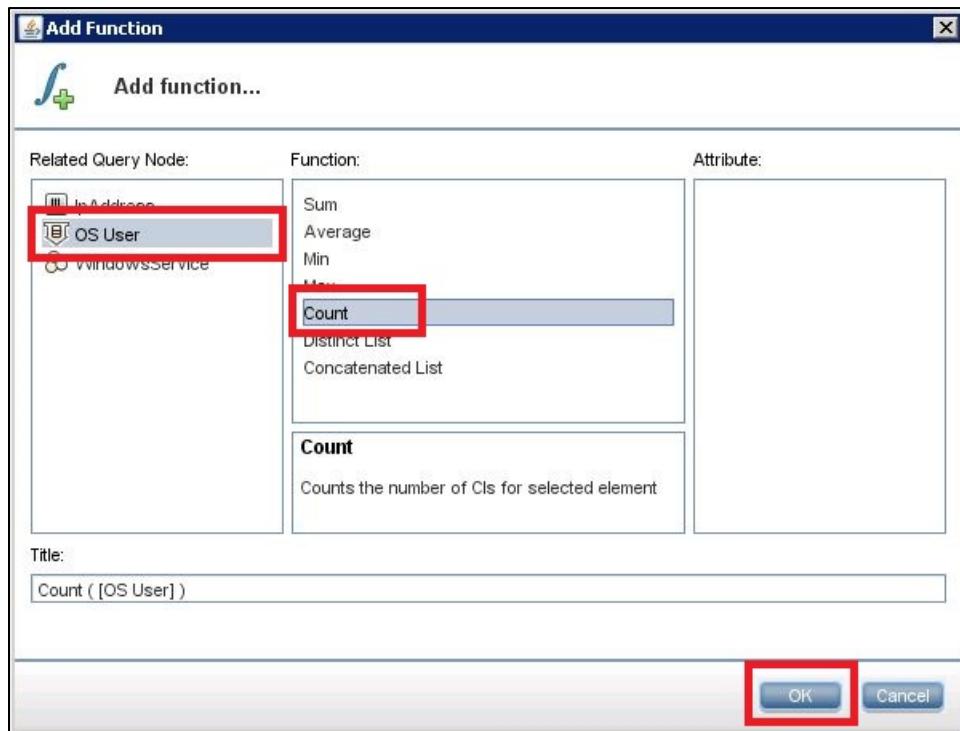


35. Save the view, then switch to Report mode.

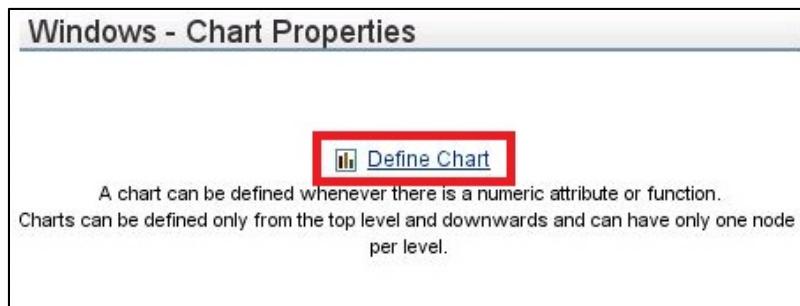
36. Select Windows and click the Add Function button, as shown in the following screenshot:



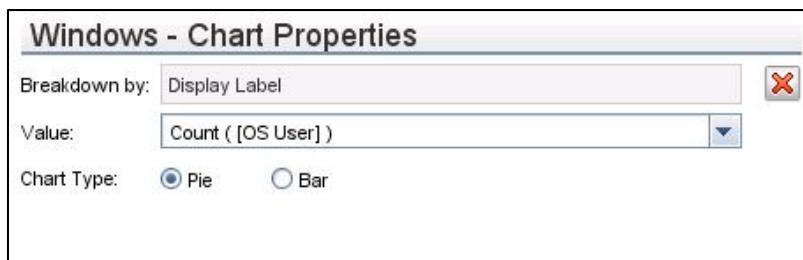
37. In the Add Function window, select the OS User CIT for the Related Query Node and select the Count function. Click OK to close, as shown in the following screenshot:



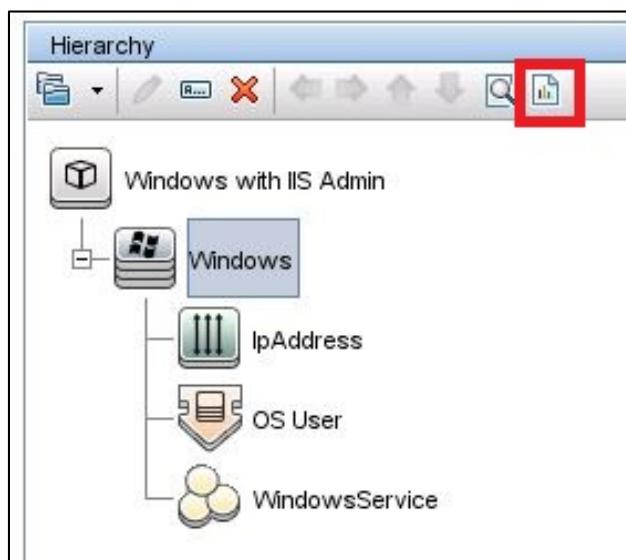
38. To define a chart in the report, click the Define Chart link, as shown in the following screenshot:



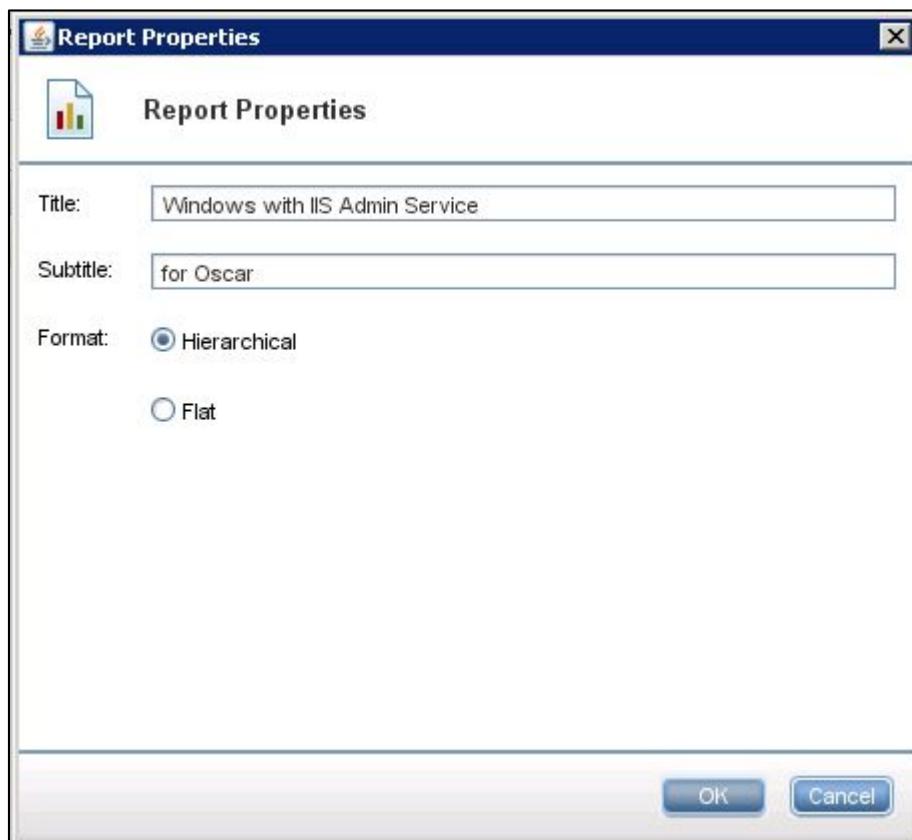
39. In the Windows – Chart Properties section, retain the default values, as shown:



40. Click the Report Properties button, as shown:



41. In the Report Properties dialog, ensure that Format is set to Hierarchical. (In a hierarchical report, all the CIs of the report are displayed in the same table, in tree format. CIs with children can be expanded to display the child CIs beneath them). Type a Title and Subtitle of your choice.

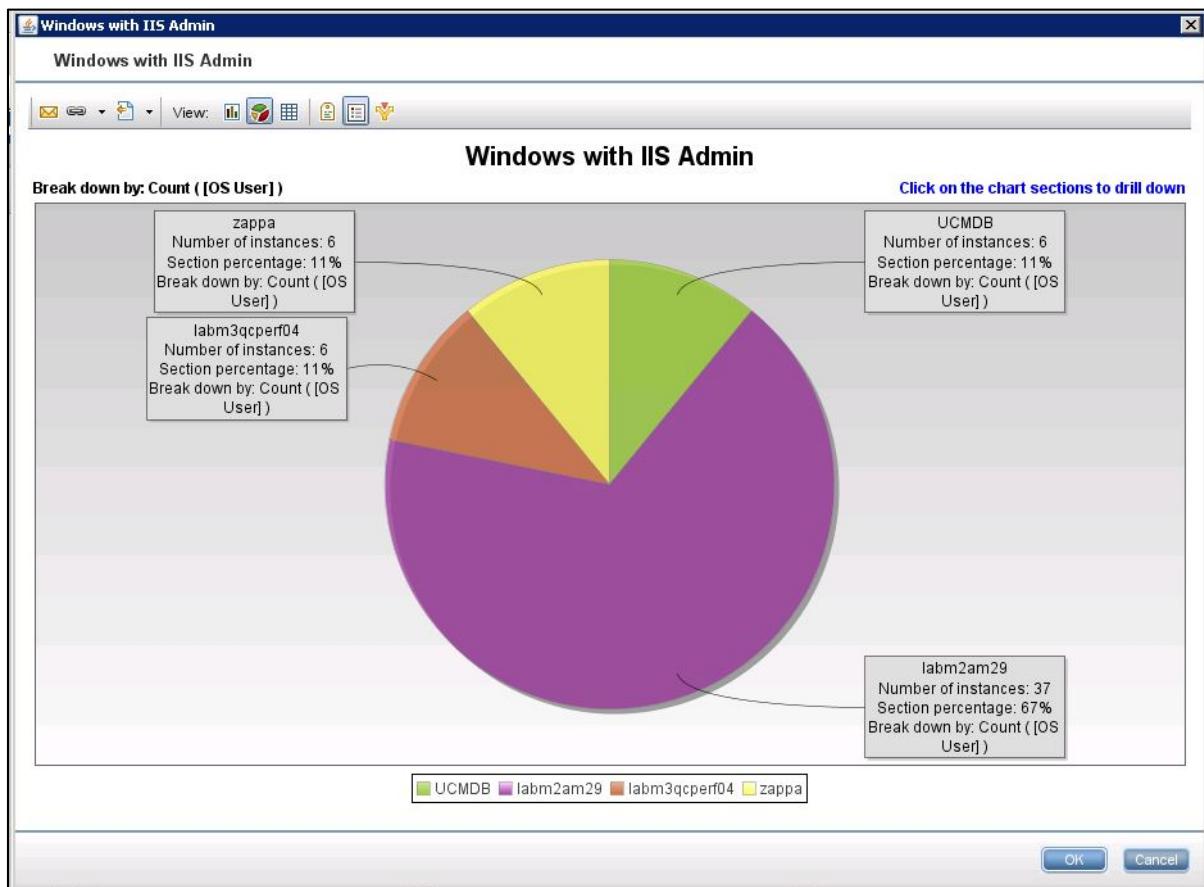


42. Click OK to accept your values and close the dialog.

43. Click the Preview button on the toolbar.



44. The preview window opens, displaying the report data as a pie chart, as follows:



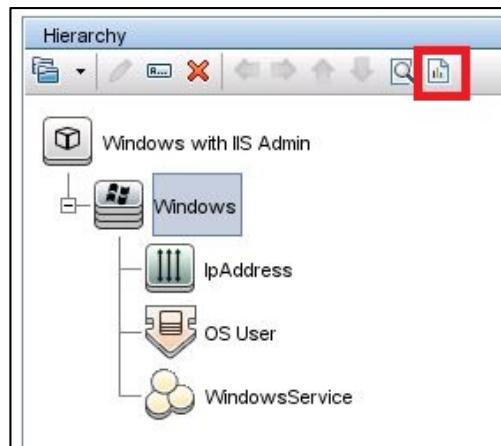
45. Switch to tabular view using the Table button in the preview window toolbar, as shown:



46. Verify that the CIs are displayed in hierarchical format. Click OK to close the preview window:

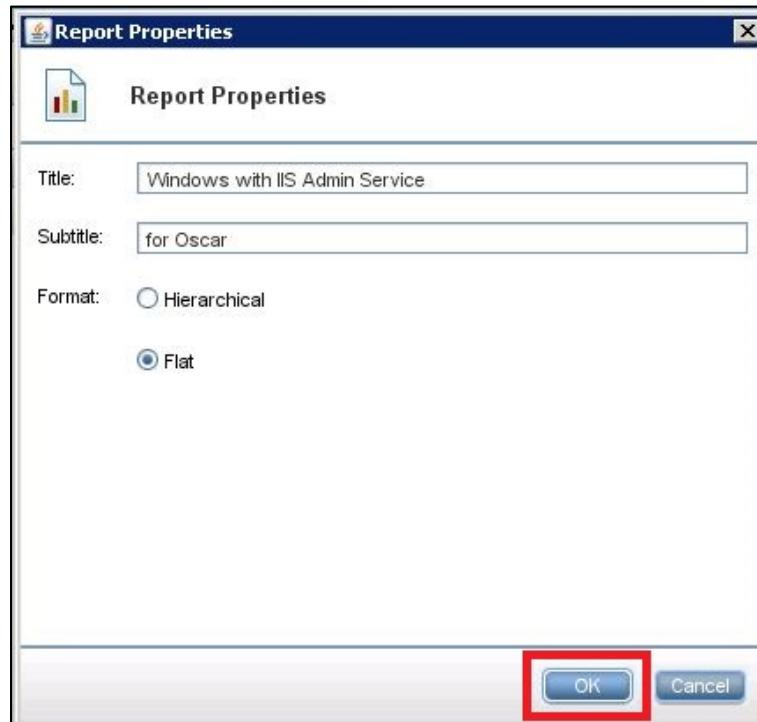
Display Label	DiscoveredOsName	DiscoveredOsVersion
+ UCMDB	Windows 2003	5.2.3790
+ labm2am29	Windows 2003	5.2.3790
+ labm3qcperf04	Windows 2003	5.2.3790
16.59.125.159		
ASPNET		
Administrator		
Guest		
IUSR_LABM3QCPERF04		
MAM_L_ABMM3QCPERF04		
SUPPORT_388945a0		
+ zappa	Windows 2003	5.2.3790
16.55.248.139		
ASPNET		
Administrator		
Guest		
IUSR_ZAPPA		
MAM_ZAPPA		
SUPPORT_388945a0		

47. Once again, click the Report Properties button:



48. This time choose the Flat option. (In a flat report, the top layer of the report is displayed with the CIs with children appearing as links. You can click a CI to drill down to see its children.)

Click OK to close the dialog box, as shown:



49. Preview the report again.

Switch to tabular view and verify that the report is no longer hierarchical; that is, only one layer is shown at a time:

The screenshot shows a software interface titled "Windows with IIS Admin". At the top, there's a toolbar with icons for file operations like Open, Save, Print, and a search bar labeled "View: [grid icon] [list icon] [map icon] Show CI instances of: Windows (4) [dropdown arrow]". Below the toolbar is a tree view pane containing four items: "UCMDB", "labm2am29", "labm3qcperf04", and "zappa", each with a small icon and a blue link-like font. To the right of the tree view is a table with four columns: "Display Label", "DiscoveredOsName", "DiscoveredOsVersion", and "Count ([OS ...])". The table data is as follows:

Display Label	DiscoveredOsName	DiscoveredOsVersion	Count ([OS ...])
UCMDB	Windows 2003	5.2.3790	6
labm2am29	Windows 2003	5.2.3790	37
labm3qcperf04	Windows 2003	5.2.3790	6
zappa	Windows 2003	5.2.3790	6

At the bottom of the window are two buttons: "OK" and "Cancel".

50. Click the UCMDB CI to expose the next layer of CIs. Verify your screen with the following screenshot. Then click OK to close the preview window.

The screenshot shows the same software interface as the previous one, but the tree view has expanded to show the "UCMDB" node. The table data now includes additional columns: "IP Network Mask" and "IP Network Class". The "Global Id" column contains long hexadecimal strings. The table data is as follows:

Display Label	IP Network Mask	IP Network Class	Global Id
10.60.65.132	255.255.0.0	B	
192.168.0.212	255.255.255.0	C	
ASPNET			d66836d1f66231e414ea55b14f1c30ef
Administrator			f02520182d4ec1117a47fe4dd0bbbc18
Guest			756acd659be53a7a8910d102483fd21b
IUSR_UCMDB			3cf03e4c6e08392266c9d0f4165fef7e
MVAM_UCMDB			19d73fd6d786015cf9340d9af2811f6
SUPPORT_388945a0			af1ece96cf7986cc7e32dc587a9c800

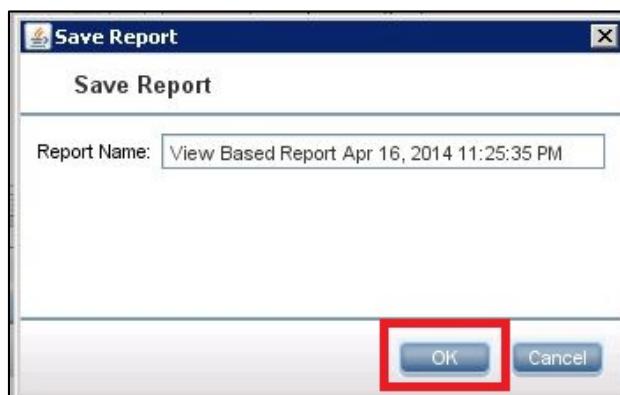
At the bottom of the window are two buttons: "OK" and "Cancel".

51. Save your report again.
52. Return to Reports in the Modeling area.
53. Double-click your Windows with IIS Admin report to open it in the report pane.

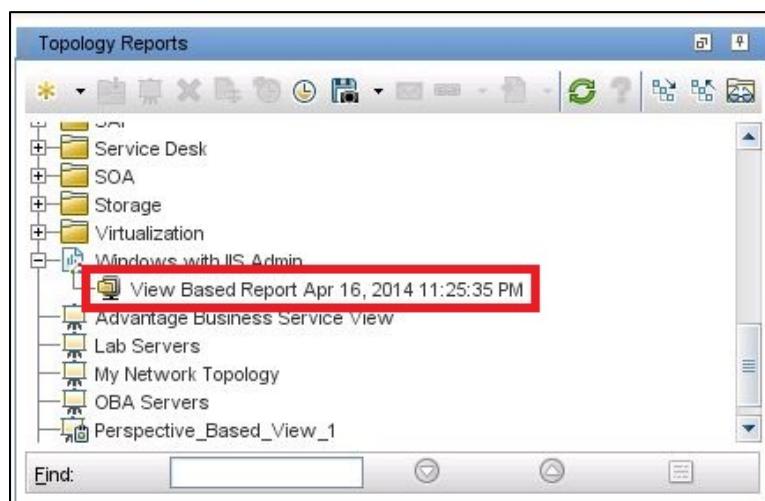
To archive the report manually, click the Archive Report button on the toolbar.



54. Click OK in the Save Report dialog to save and close the dialog.



55. The report is archived and available under the report name in the topology reports.



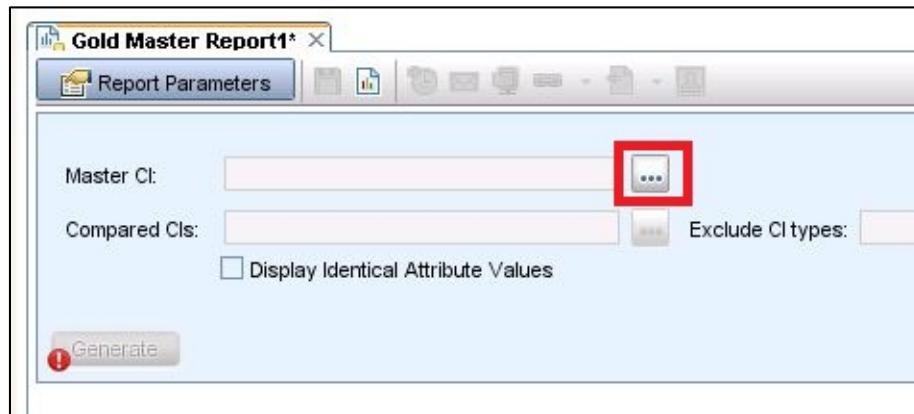
## Exercise 2 – Creating a Gold Master Report

A new version of the online mobile banking application is about to be released next week. The new version was tested on server LABM2AM148 and the relevant configurations were made on that server to be able to support this new version. The application support team needs to know how a number of other servers compare to this prior to the new version roll-out.

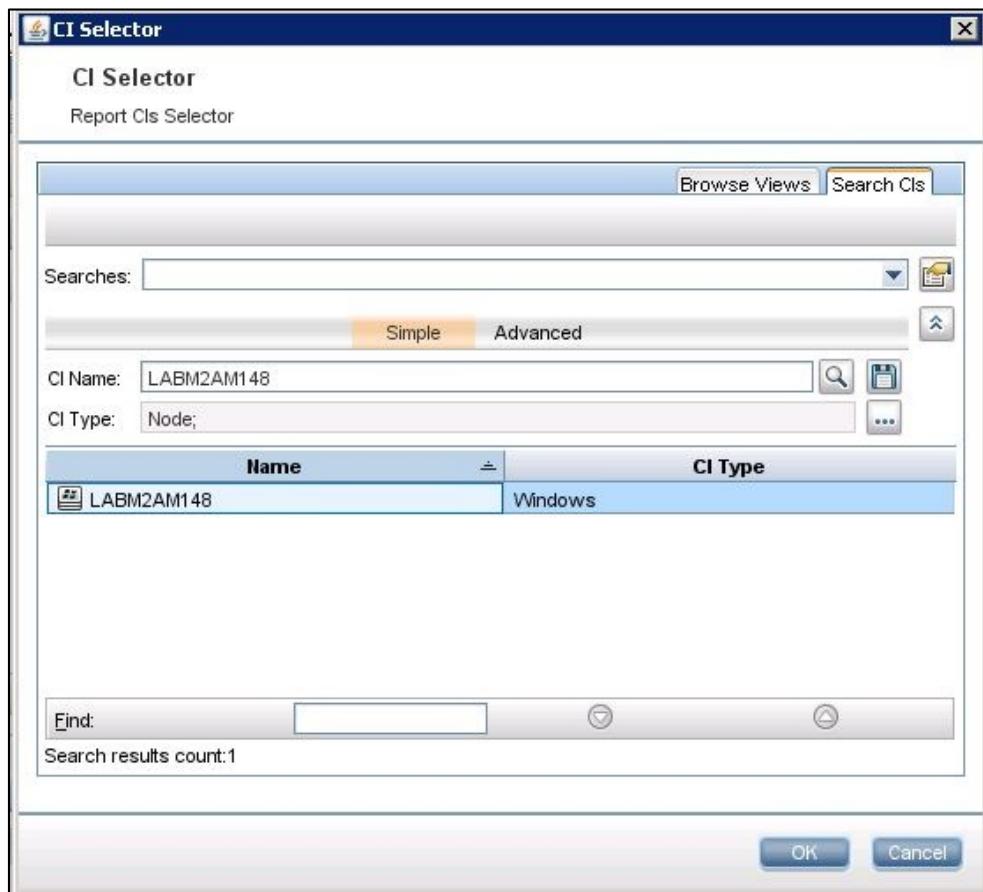
To create this Gold Master report, perform the following steps:

1. Go to Reports in the Modeling area.
2. Double-click on the Gold Master Report option located under the Custom → Compliance → Gold Master Report in the Custom Reports pane.

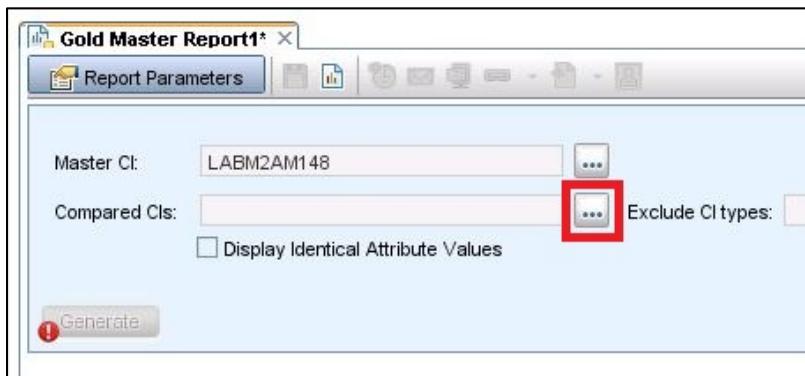
Use the button provided to select the Gold Master CI.



3. Use the Search Cls functionality to search for LABM2AM148 by name and select it:



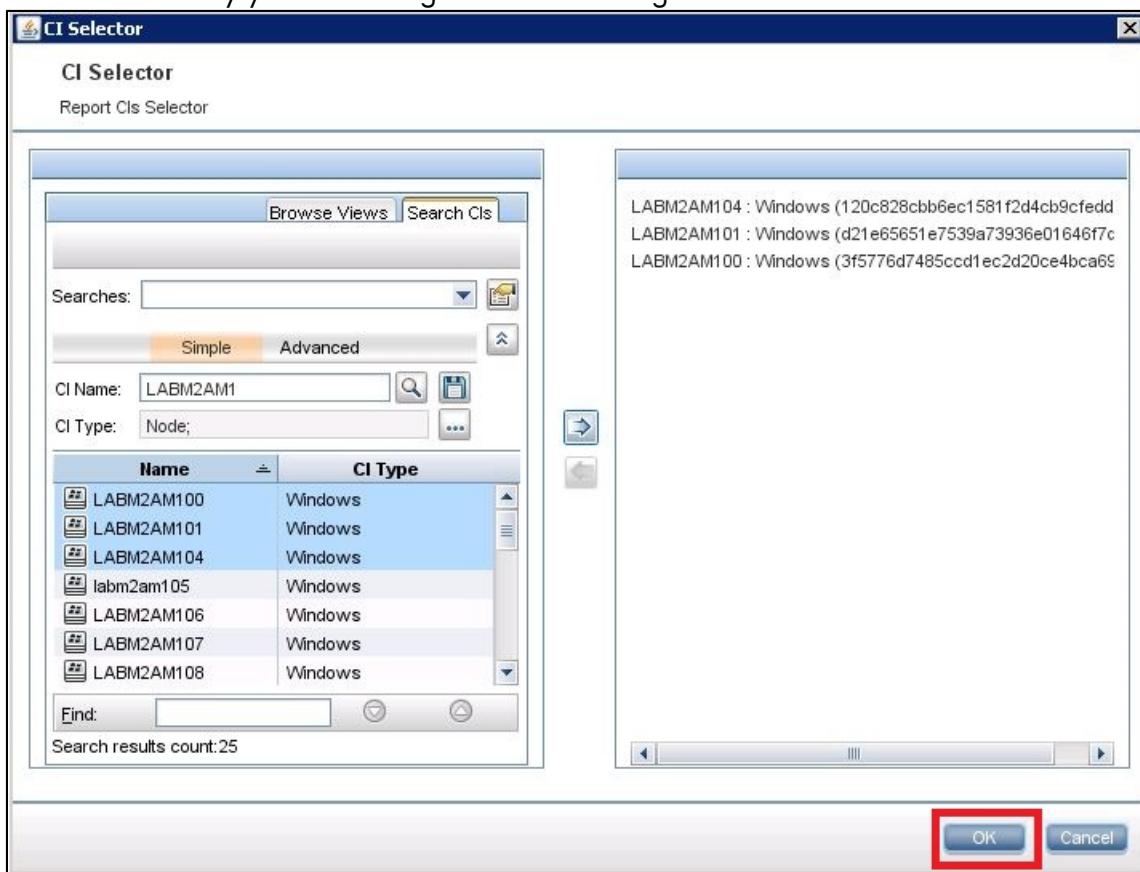
4. Click the OK button to close the CI Selector dialog.  
5. Use the button provided to select the Compared Cls:



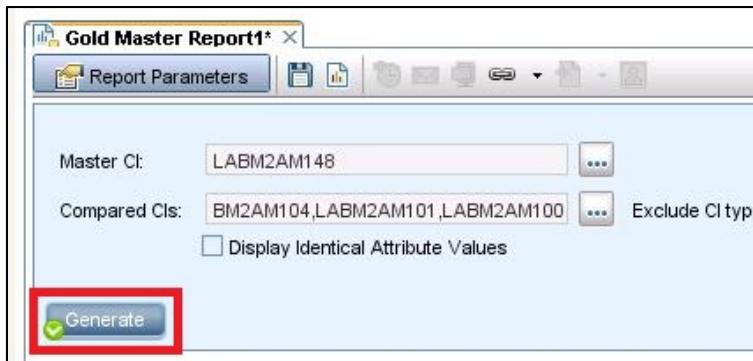
6. Search for and select the following servers:

- LABM2AM100
- LABM2AM101
- LABM2AM104

Verify your screen against the following screenshot and click OK:



7. Click the Generate button:



8. Verify the output is as expected:

Display Label	Attribute Name	Value in Goldmaster CI	Value in Cor
LABM2AM104			
Windows			
LABM2AM104	DefaultGatewayIpAddr...	16.59.67.145	16.55.248.1
LABM2AM104	DiscoveredModel	ProLiant DL360 G3	ProLiant DL140 G3
LABM2AM104	MemorySize	2048	4096
LABM2AM104	SwapMemorySize	2560	4092
LABM2AM104	Windows Service Pack	1.0	2.0
LABM2AM101			
Windows			
LABM2AM101	DefaultGatewayIpAddr...	16.59.67.145	16.55.248.1
LABM2AM101	DiscoveredModel	ProLiant DL360 G3	ProLiant DL140 G3
LABM2AM101	MemorySize	2048	4096
LABM2AM101	SwapMemorySize	2560	4092
LABM2AM101	Windows Service Pack	1.0	2.0
LABM2AM100			
Windows			
LABM2AM100	DefaultGatewayIpAddr...	16.59.67.145	16.55.248.1
LABM2AM100	DiscoveredModel	ProLiant DL360 G3	ProLiant DL140 G3
LABM2AM100	MemorySize	2048	4096

## Exercise 3 – Creating the Windows Details Topology Report

In this task, you work without the aid of step-by-step instructions, as follows:

Oscar has asked you to create a new report named Windows Details containing the following information in a flat table:

- The host name of the Windows machine
- The operating system
- How much memory the Windows machine has
- Which MS domain it belongs to
- A list of all IP addresses the machine has

**Note:**

You are working without the aid of step-by-step instructions, so ask the instructor for help or hints if you need them.

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# Lab 12 – Impact Analysis

## Objectives

After completing this lab, you should be able to:

- Create a new Server Down impact rule
- Create a new Server Admin Absent impact rule

# Exercise 1 – Creating a New Server Down Impact Rule

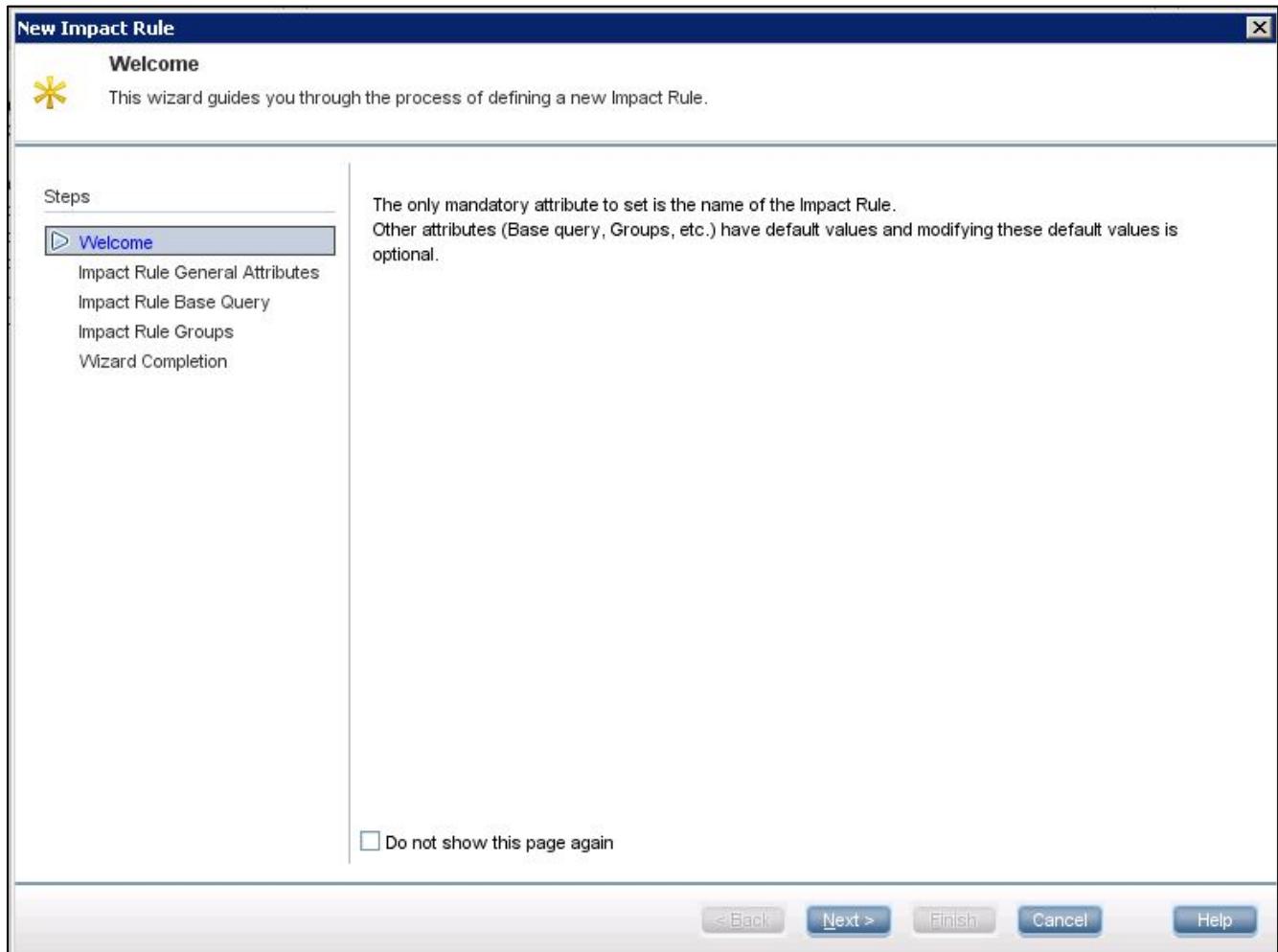
The Online Banking Application (OBA) depends on the servers in the 10.0.0.0 and 192.168.0.0 subnets.

As a member of Oscar's team, you have been asked to create the following Impact rule:

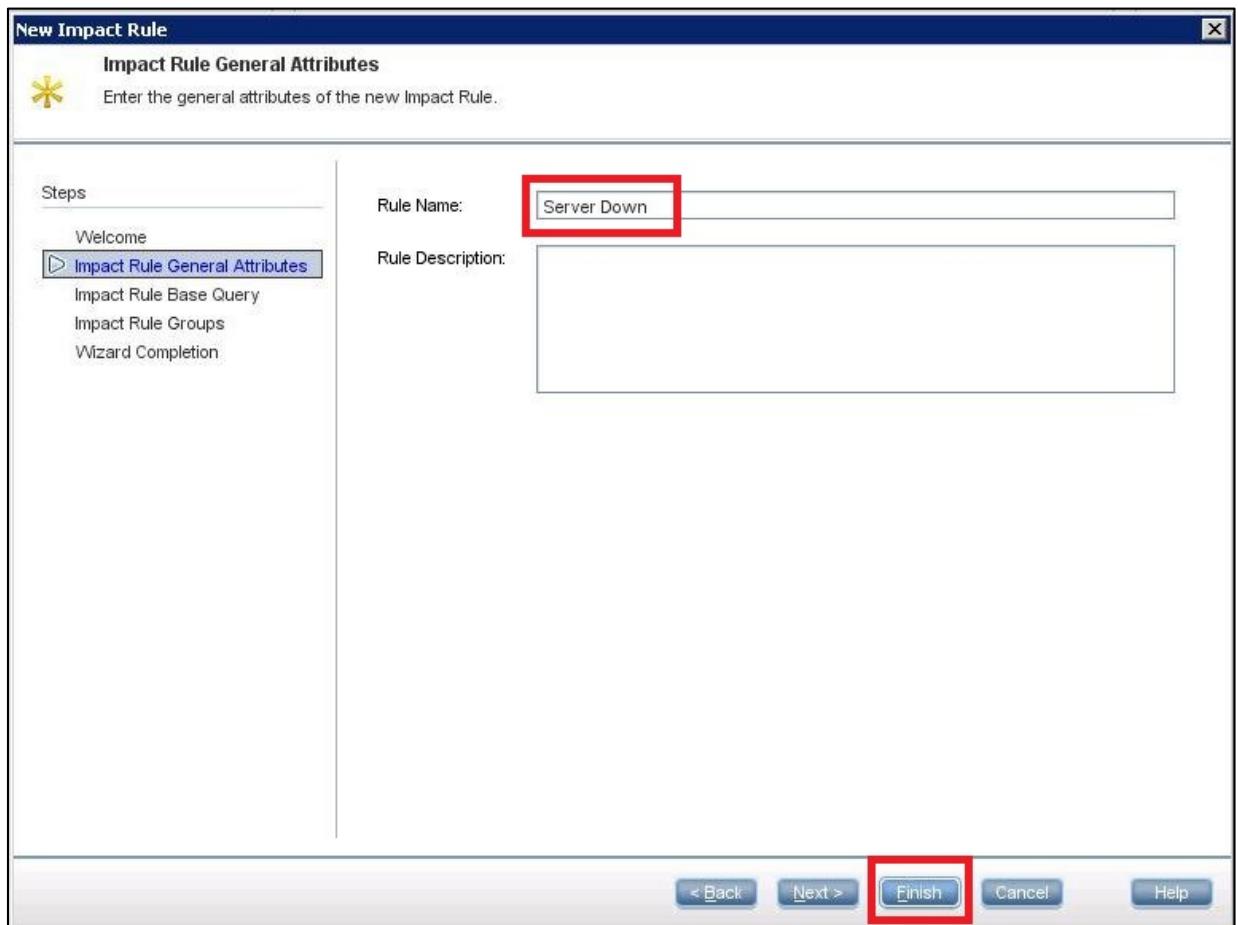
If one or more servers in one of the OBA subnets is down (that is, the operational state = critical), then the subnet indicates a status of the average of its servers.

To create the new Impact Rule, perform the following steps:

1. Go to Impact Analysis Manager under the Modeling area.
2. Click the New  button. The New Impact Rule wizard is displayed, as shown in the following screenshot:

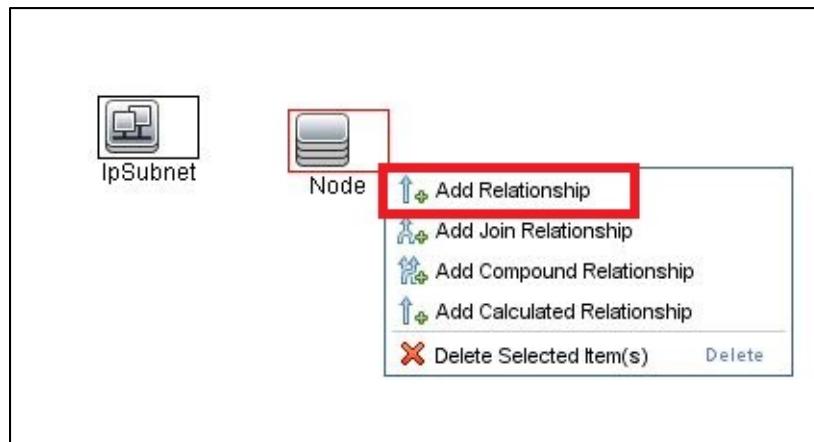


3. Click the Next button to move to the General Attributes screen.
4. Type **Server Down** in the Rule Name field and click the Finish button, as shown in the following screenshot:

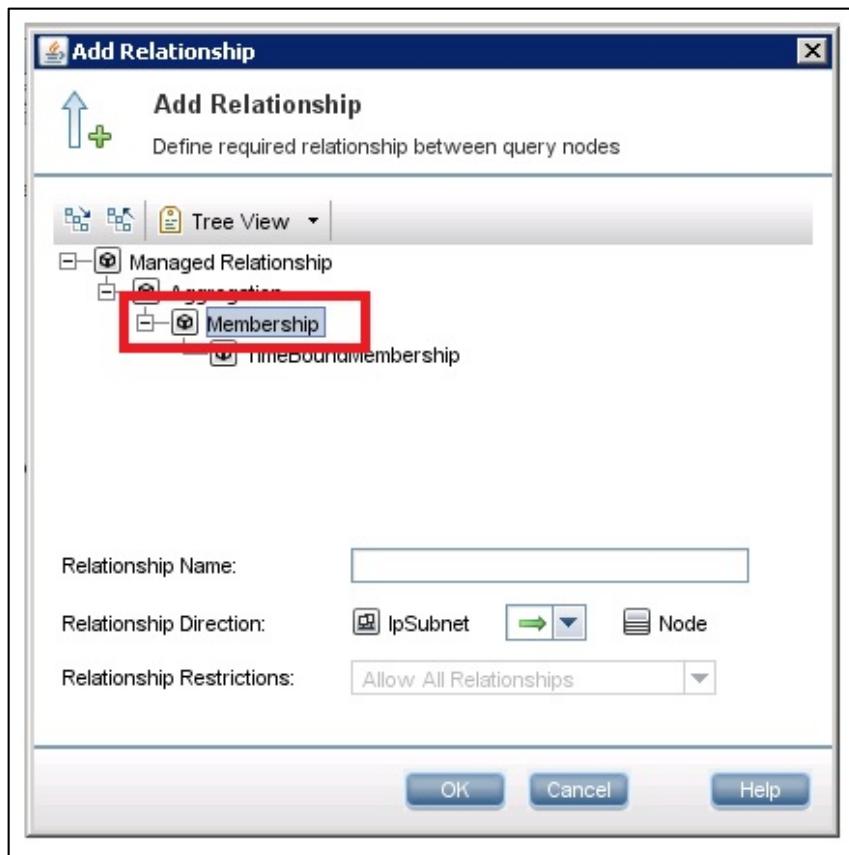


5. In the CI Type Selector, locate the Node CIT and drag it to the Editing pane.
6. In the CI Type Selector, locate the IpSubnet CIT and drag it to the Editing pane.
7. Select IpSubnet in the Editing pane and then hold the CTRL key down and select Node.

8. Right-click Node and select Add Relationship from the context menu, as shown in the following screenshot:

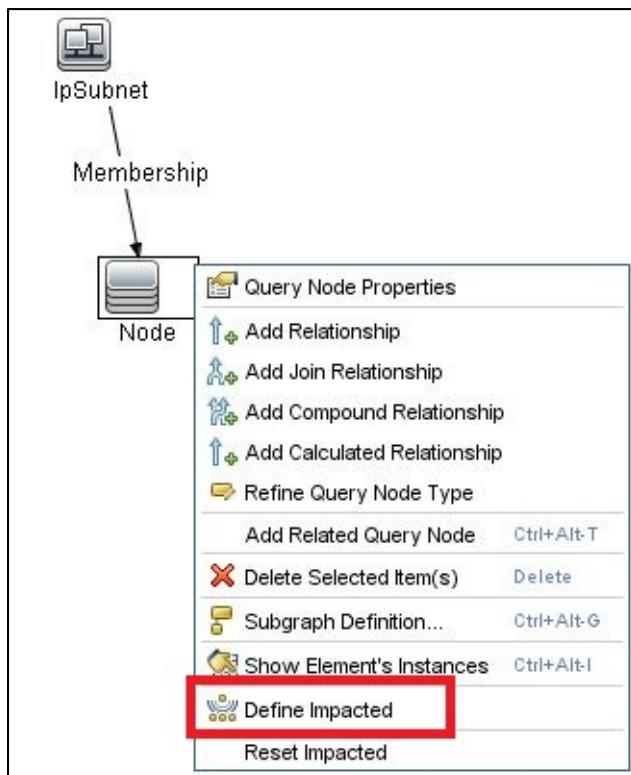


9. The Add Relationship dialog box is displayed.
10. Ensure that the Relationship Direction is set to IpSubnet → Node.
11. Select the Membership relationship, as shown in the following screenshot:

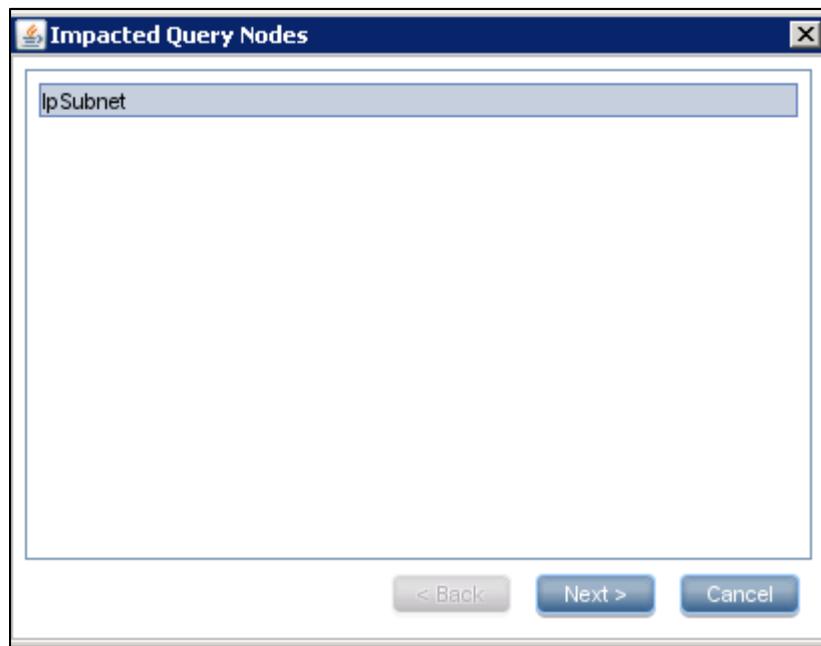


12. Click the OK button to close the dialog box.

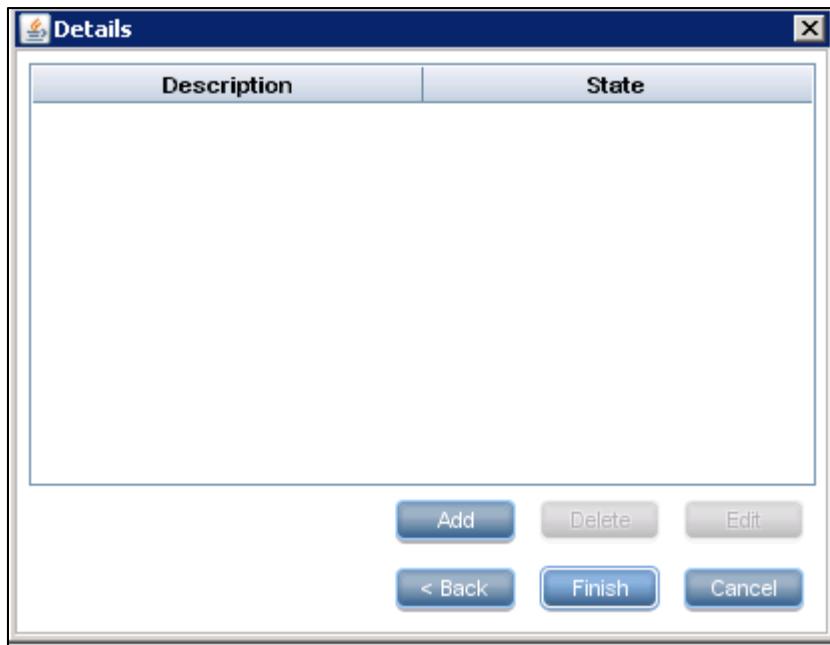
13. Right-click Node and select Define Impacted, as shown in the following screenshot:



14. The Impacted Query Nodes dialog box is displayed, as shown in the following screenshot:

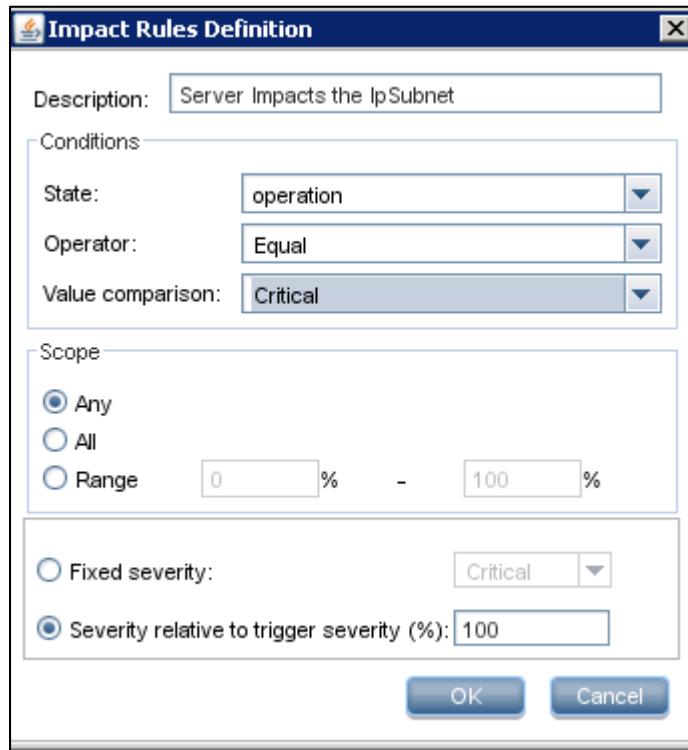


15. Select IpSubnet in the list and click the Next button. This takes you to the Details screen, as shown in the following screenshot:



16. Click the Add button.

17. The Impact Rules Definition dialog box is displayed, as shown in the following screenshot:

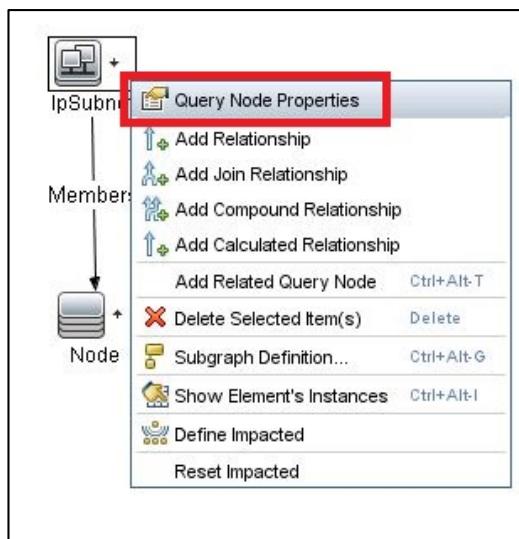


18. In the Description field, enter, **Server Impacts the IpSubnet**.
19. In the State field, select **operation**.
20. In the Operator field, select **Equal**.
21. In the Value comparison field, select **Critical**.
22. In the Scope area, select **Range**. Leave the default range setting of 0% - 100%.
23. Select Function and choose **Average** from the drop-down list. Your dialog box should look similar to the following screenshot:

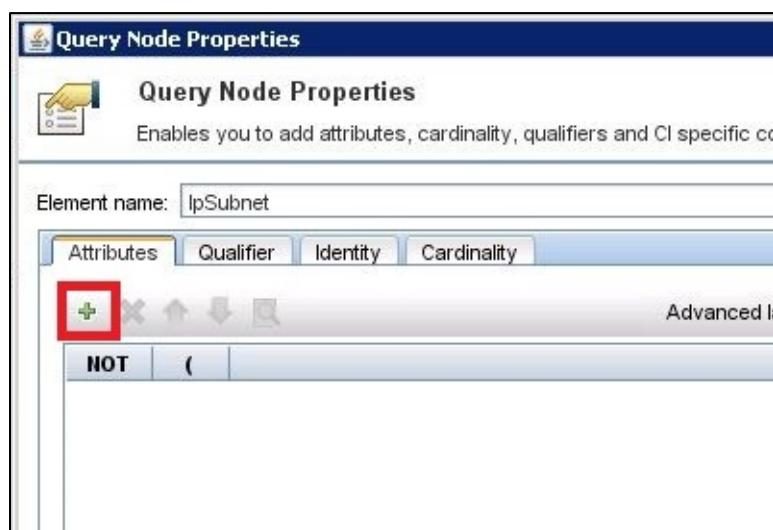


24. Click the OK button to close the dialog box. Then click the Finish button.

25. In the Editing pane, right-click IpSubnet and select Query Node Properties, as shown in the following screenshot:



26. The Query Node Properties dialog is displayed. Click the Add button to add an attribute condition, as shown in the following screenshot:



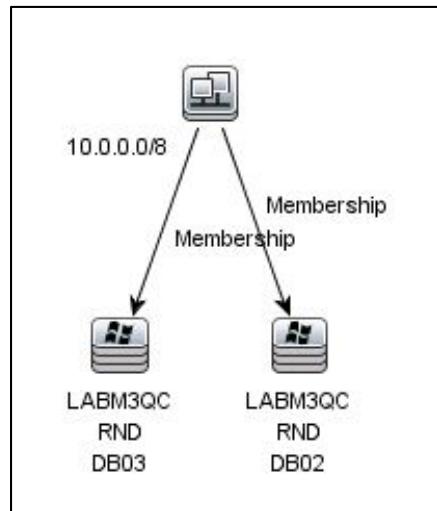
27. For Attribute name, select Name.

28. For Operator, select In (Use ',').

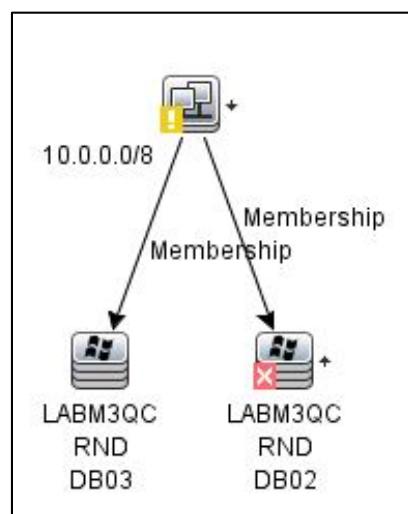
29. For Value, enter 10.0.0.0, 192.168.0.0, as shown in the following screenshot:

The screenshot shows the 'Attribute' configuration dialog. It has three fields: 'Attribute name:' with 'Name - (string)', 'Operator:' with 'In(Use ','), and 'Value:' with '10.0.0.0,192.168.0.0'.

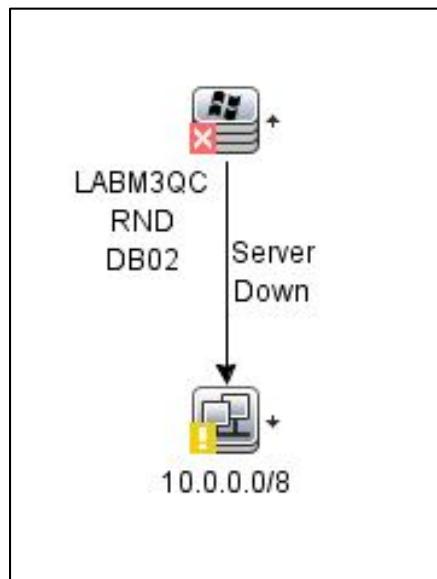
30. Click the OK button to close the Query Node Properties dialog box.
31. Click the Save button to save the impact rule.
32. Use the preview button to display the Cls meeting your conditions (that is, nodes in either the 10.0.0.0 or 192.168.0.0 networks).
33. Zoom in on the 10.0.0.0 network, as shown in the following screenshot:



34. Select one of the Windows Cls, right-click, and choose Run Impact Analysis
35. Set its state to critical and choose Show in Views. The IpSubnet CI should go to a Minor(4) state based on the average of the two Node Cls (rounded down), as shown in the following screenshot:



36. Select the IpSubnet CI, right-click, and choose Show Root Cause. You should see the root cause, including the name of your rule where the relationship name typically is displayed, as shown in the following screenshot:



37.(Optional) Spend a few minutes experimenting with running Impact Analysis on some the nodes in the 192.168.0.0 network.

## Exercise 2 – Creating the New Server Admin Absent Impact Rule

In the scenario where a Server Admin is absent, Ashley is worried that potential server issues might go unresolved. She decides that there should be an impact rule such that if you run Impact Analysis and set a Server Admin's state to Critical (to represent them being absent) the states of all machines administered by that person should be set to Warning(2).

In this exercise you create the rule. You're on your own with this one, working without step-by-step instructions, so ask the instructor if you need any help or hints.

To test your new rule, you'll need to create at least one Server Admin CI with an Administrator relationship between it and a Node CI. You can use IT Universe Manager to do that.

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# Lab 13 – Enrichments

## Objectives

After completing this lab, you should be able to define enrichment rules.

## Exercise – Defining Enrichment Rules

Despite the broad capabilities of the discovery engine, not every piece of data or attribute can be discovered. At times, undiscoverable information might still hold great organizational significance to providing a complete picture to decision makers or operational staff. Through enrichment rules, you can perform automatic updates, deletions, and creations, as well as manipulate the data automatically using different data segments in focus.

This exercise involves two tasks:

- Task 1 – Create two simple enrichment rules
- Task 2 – Create a complex enrichment rule

### Task 1 – Creating Two Simple Enrichment Rules

Ashley, the head of the application support team, wants to add the Advantage administrator's contact information to the UCMDB to allow her team to contact a CI's administrator in a more efficient manner. Additionally, you must add an asset valuation attribute so it can be integrated with the financial systems.

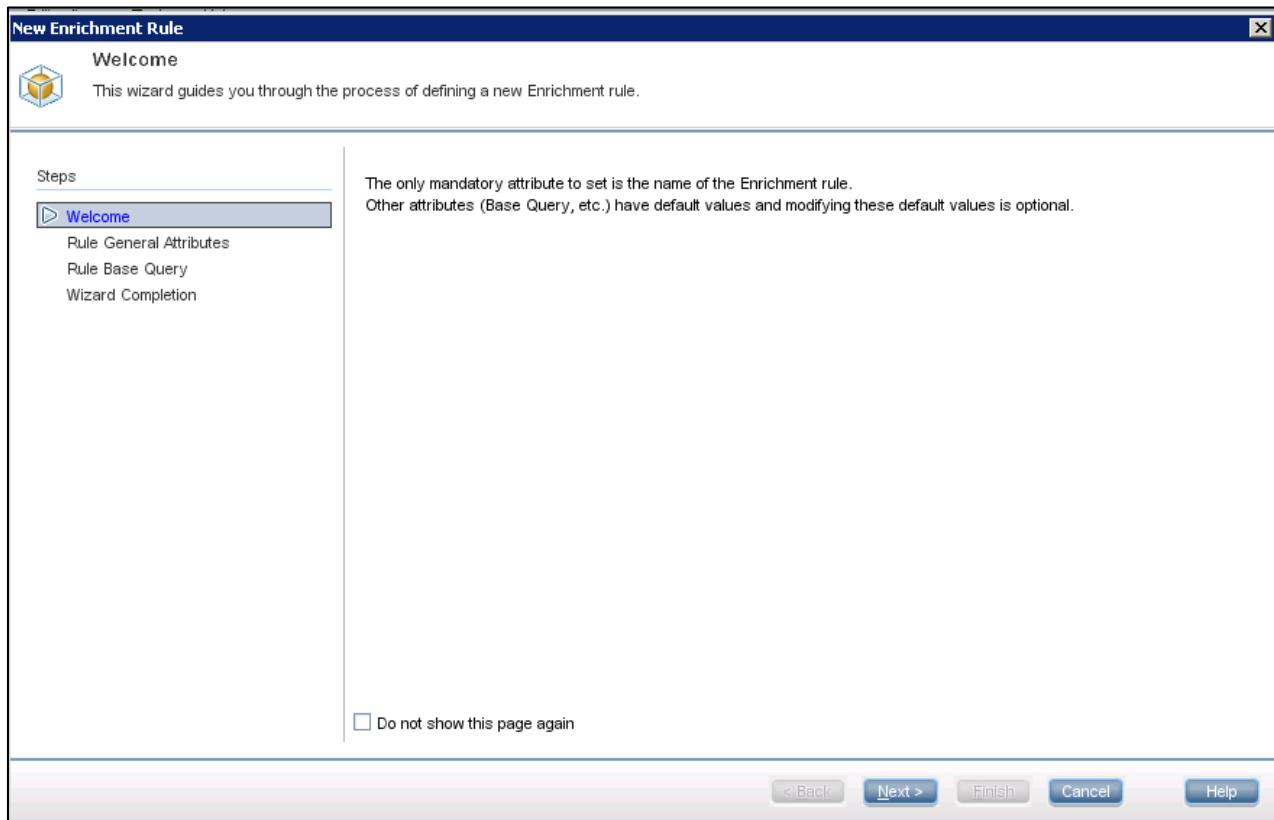
To complete Ashley's requirements and add the Advantage administrator's contact information to the UCMDB, the Server admin CIT that was created in an earlier exercise must be populated with the following rules:

- Bob Jacksonville is the Server admin of any server in the following subnets:  
192.168.X.X & 16.55.X.X
- Jeff Hamilton is the Server admin of any server in the following subnets:  
10.X.X.X & 16.35.X.X

As a member of Ashley's team, you have been asked to create the enrichment rules that create the Server admin CIs on all of the relevant computers and create a pattern view to display the result.

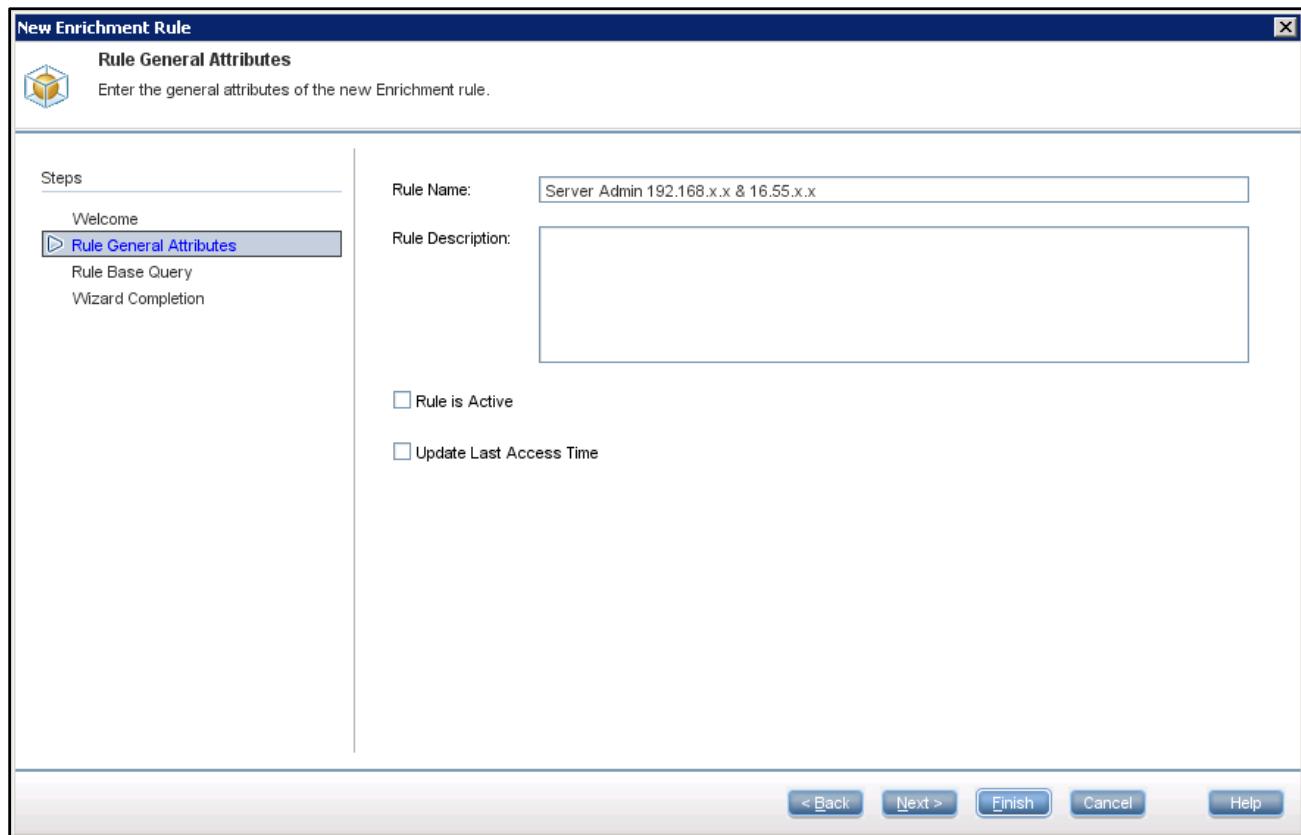
To create a simple enrichment rule, perform the following steps:

1. Go to Enrichment Manager in the Modeling area.
2. Click the New  button. The New Enrichment Rule dialog box is displayed, as shown in the following screenshot:

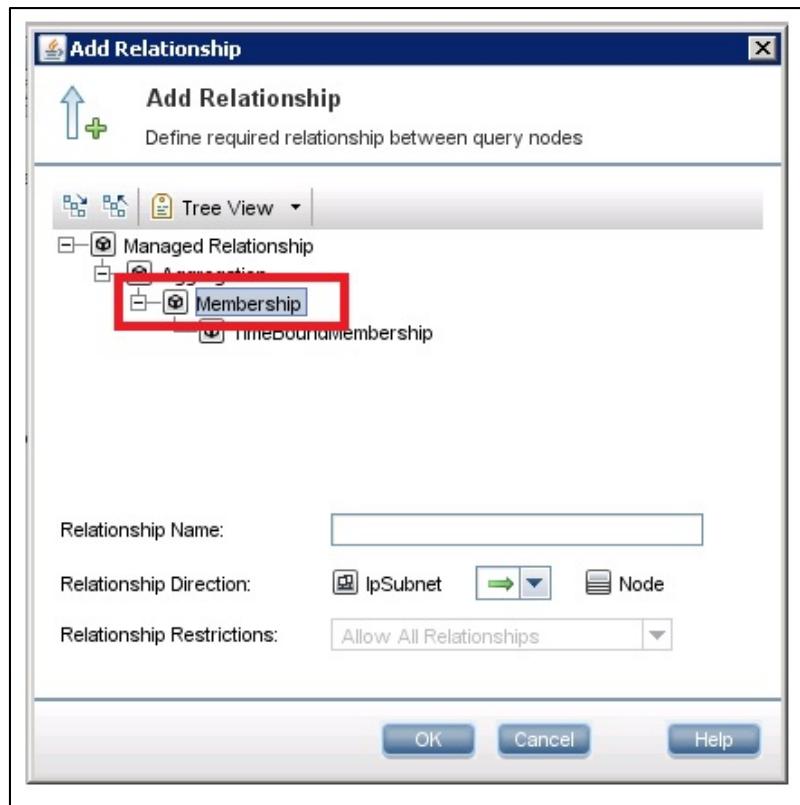


3. Click the Next button.

4. Set the Rule Name field to **Server Admin 192.168.x.x & 16.55.x.x**, as shown in the following screenshot, and click the Finish button.



5. Drag the Node and an IpSubnet CI Type to the empty panel and add a Membership link between them, as shown in the following screenshot:



6. Right-click IpSubnet and select Query Node Properties.

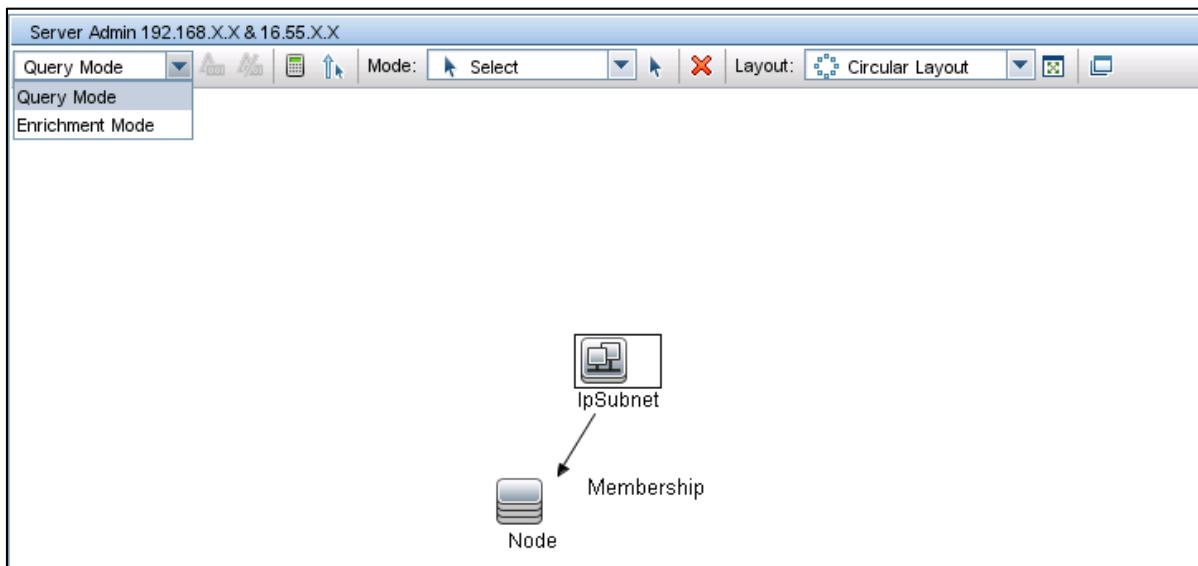
7. Add two conditions to the IpSubnet node, as shown in the following screenshot:

- Display label - **Like 192.168.%**, or
- Display label - **Like 16.55.%**

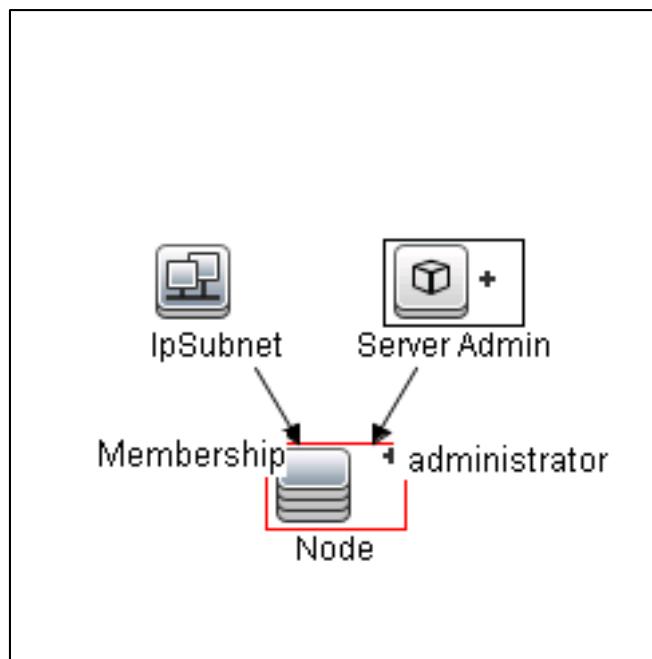
The screenshot shows the 'Element name: IpSubnet' dialog box. The 'Qualifiers' tab is selected. Under 'Criteria', there are two entries: 'Display Label Like "192.168.%"' and 'Display Label Like "16.55.%"'. The 'Advanced layout settings' section is also visible.

8. Click the OK button.

9. Switch to the Enrichment mode, as shown in the following screenshot:

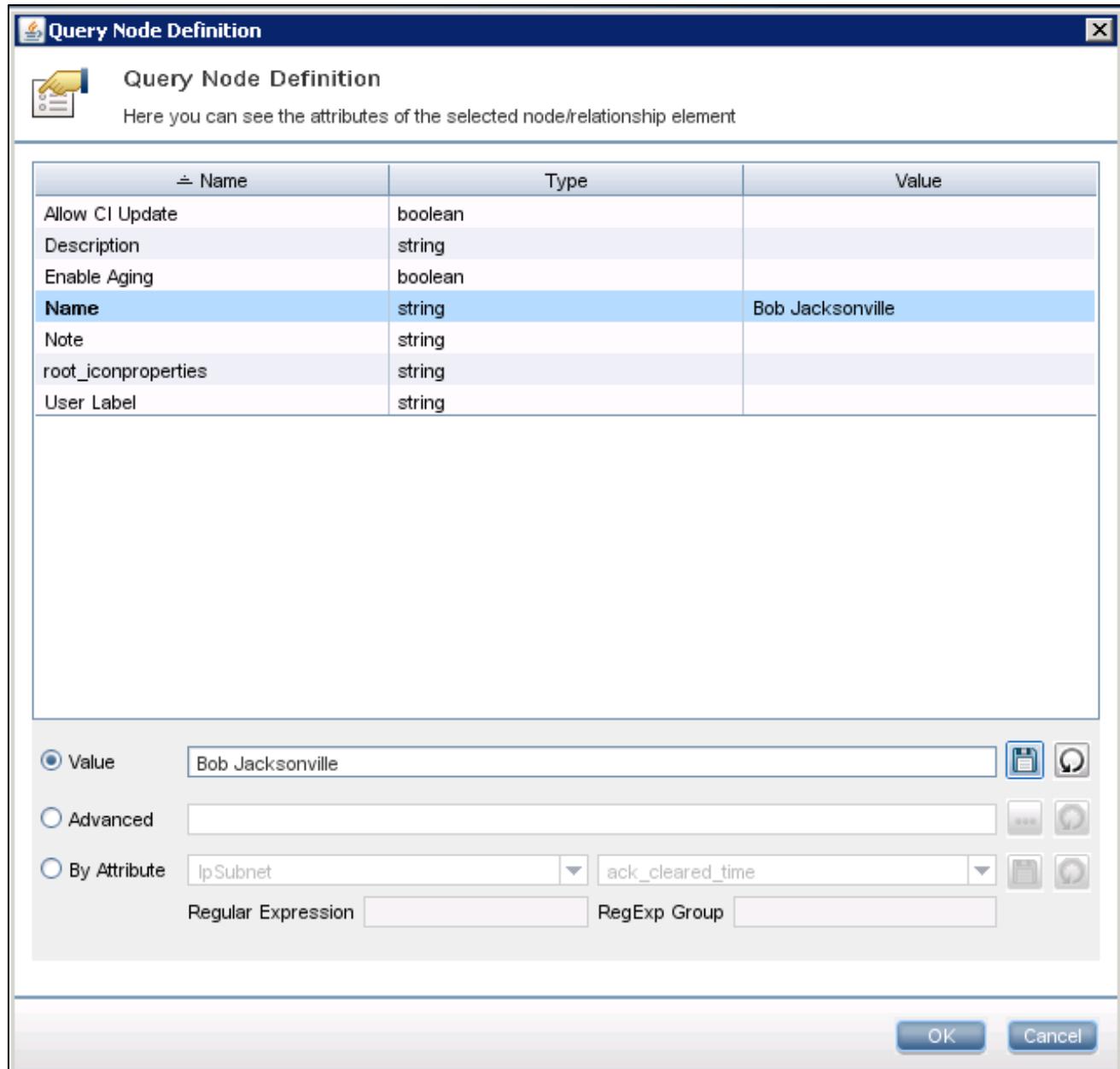


10. Add a Server Admin CIT to the enrichment and link it with an administrator link to Node, as shown in the following screenshot:



11. Right-click Server Admin and select Update Query Node.

12. Set the Name attribute to the value **Bob Jacksonville**, as shown in the following screenshot.

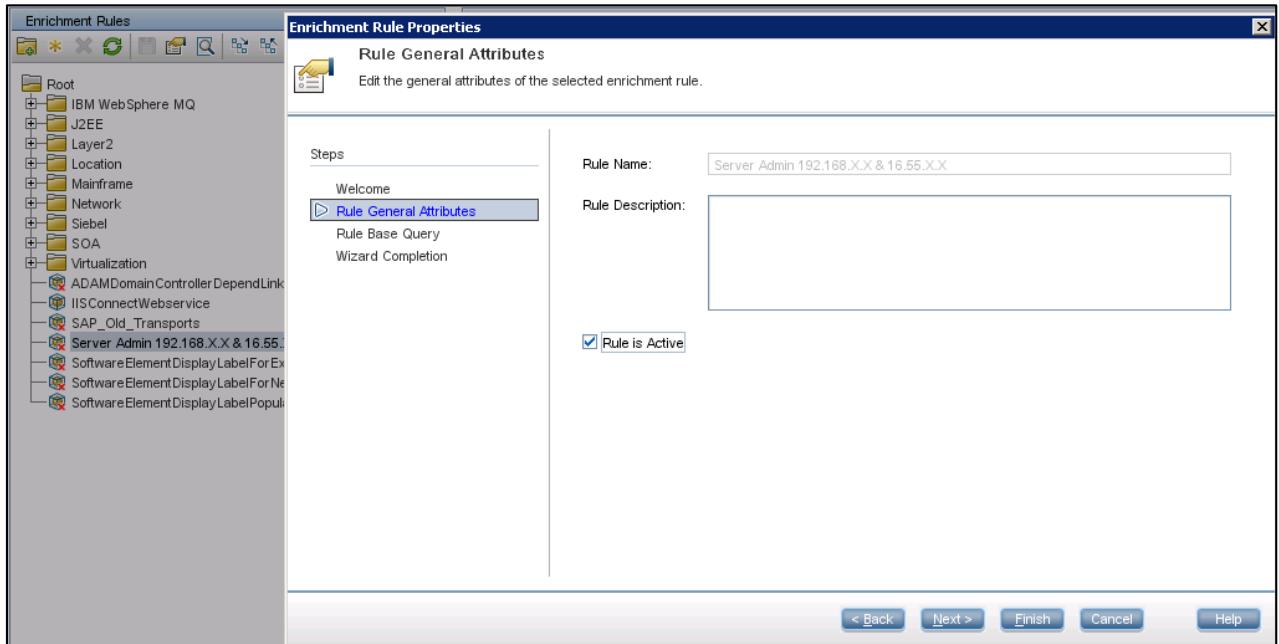


13. Save the enrichment by clicking the Save button.

14. Click the OK button.

15. Before activating the new enrichment, click the Preview button and make sure that the enrichment is filtering the required CIs.

16. Right-click the Enrichment in the Enrichment Rules list and select Properties.
17. Click the Next button.
18. Select the Rule is Active check box and click the Finish button, as shown in the following screenshot:



19. Save the enrichment by clicking the Save  button.
20. Repeat Steps 1 to 19 for the IpSubnet filter to use the **10.x.x.x & 16.35.x.x** subnets and set the Server Admin attribute's Name field to **Jeff Hamilton**.
21. Open IT Universe Manager from the Modeling area.
22. Use the Search Cls and Get Related Cls functionality to verify that the new Server Admins exist and have Administrator relationships to a number of Nodes in the appropriate subnets.

## Task 2 – Creating a Complex Enrichment Rule

To complete Ashley's requirements and add the Advantage administrator's contact information to the UCMDB, the Server Admin Cls that were created in the previous exercise must be populated with the phone extension data based on the following rule:

- The phone extension is a substring of the server's IP address.

For example:

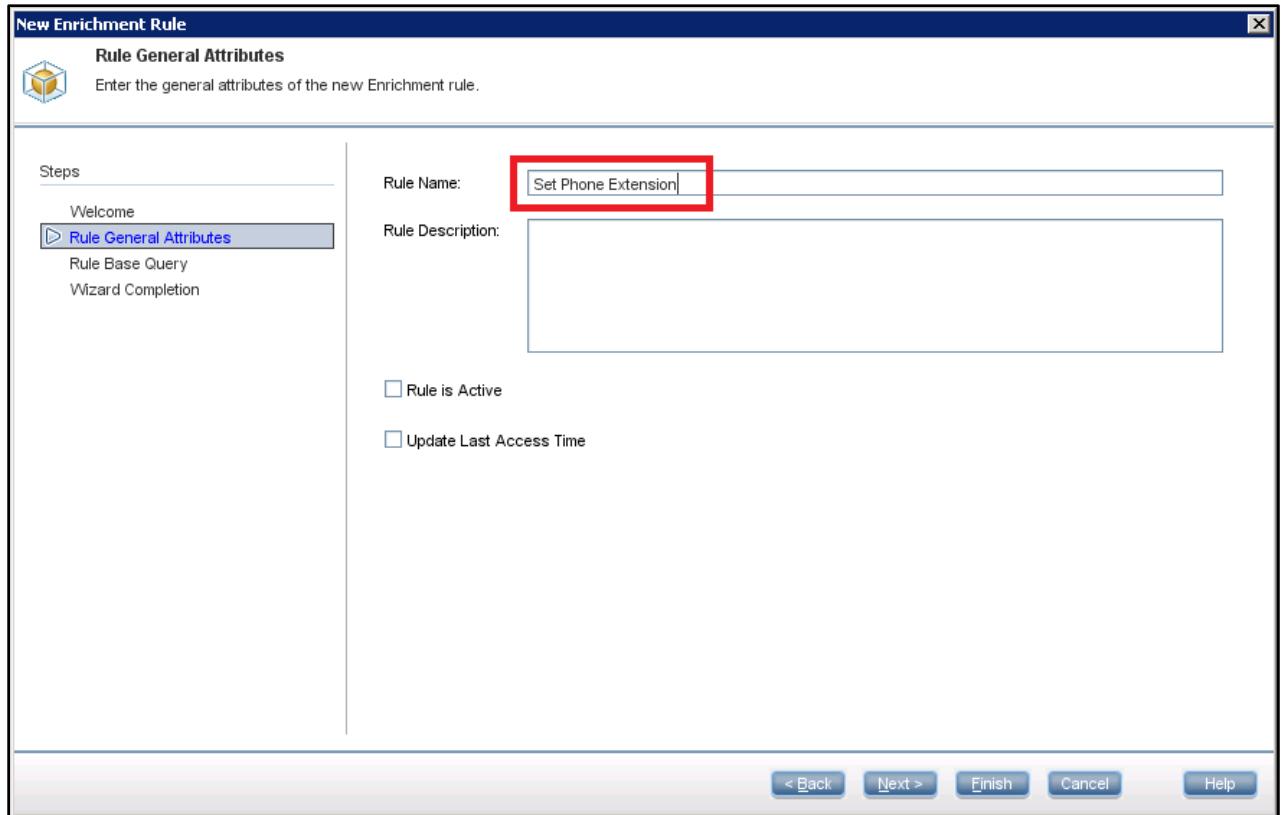
- IP Address = 1.2.3.4 → Extension is 3
- IP Address = 1.2.13.14 → Extension is 13
- IP Address = 10.20.30.50 → Extension is 30

As a member of Ashley's team, you have been asked to create the enrichment rule that updates the Phone Extension attribute on all Server Admin Cls.

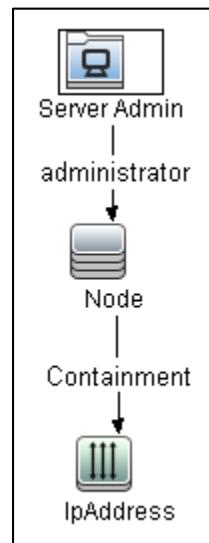
To create a complex enrichment rule, perform the following steps:

1. Go to the Enrichment Manager in the Modeling area.
2. Click the New  button.
3. Click the Next button.

4. Set the Rule Name field to **Set Phone Extension** and click the Finish button, as shown in the following screenshot:



5. In the Query mode, drag Node, IPAddress, and Server Admin CI Types, and link them with the links Node → Containment → IPAddress and Server Admin → administrator → Node, as shown in the following screenshot:

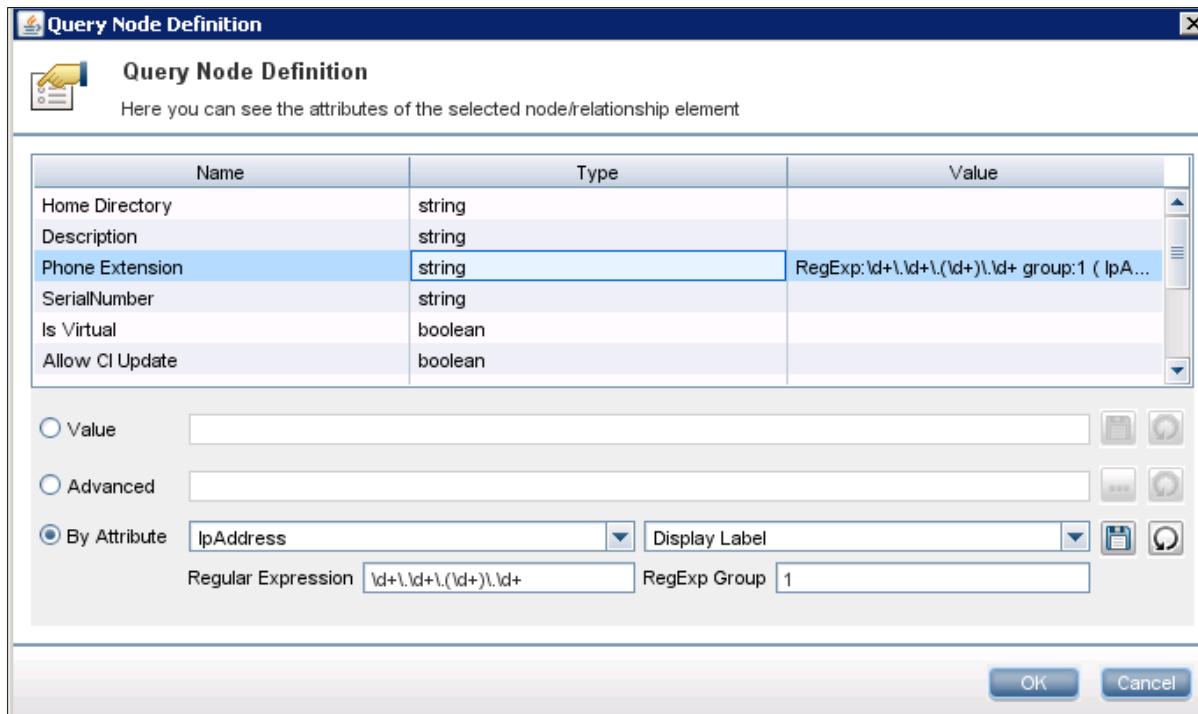


6. Switch to the Enrichment mode, as shown in the following screenshot:



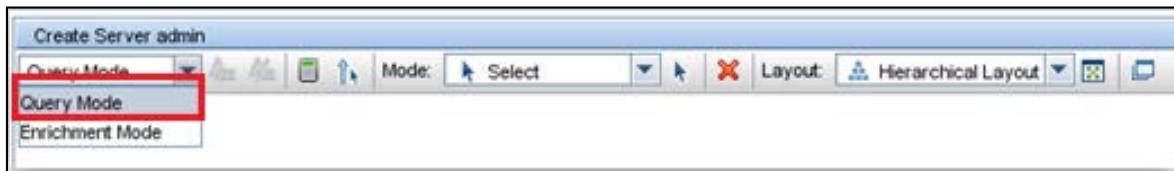
7. Right-click Server Admin and select Update Query Node.

8. Set the Phone Extension attribute to By Attribute with values **Display Label** of CI type **IpAddress**. The data should be parsed by the `\d+\.\d+\.(\\d+)\.\d+` Regular Expression and the RegExp Group should be set to 1, as shown in the following screenshot:



9. Save the attribute.
10. Click the OK button to close the dialog box.
11. Click the Properties button to open the Properties dialog box.
12. Click the Next button.
13. Select the Rule is Active check box.
14. Click the Finish button to close the dialog box.
15. Click the Save button to save the enrichment.

16. Switch to Query mode, as shown in the following screenshot:



17. Right-click Server Admin and choose Show Element's Instances. The Element Instances dialog box is displayed.

18. Right-click one of the CIs in the list and choose Properties.

19. Make sure the Phone Extension value is displayed according to the rule just created.

---

# Lab 14 – Security

## Objectives

After completing this lab, you should be able to:

- Introduce the new security interface
- Create custom roles for specific purposes
- Create users and user groups and assign roles to them
- Test a new user's ability
- Update the roles and witness the effects

## Introducing the New Security Interface

The UCMDB 10.0x Security user interface tries to simplify the process of defining roles, users, and user groups and their abilities.

The purpose of this lab is to familiarize you with the new process. This is done in stages through a series of exercises.

# Exercise 1 – Creating Custom Roles for Specific Purposes

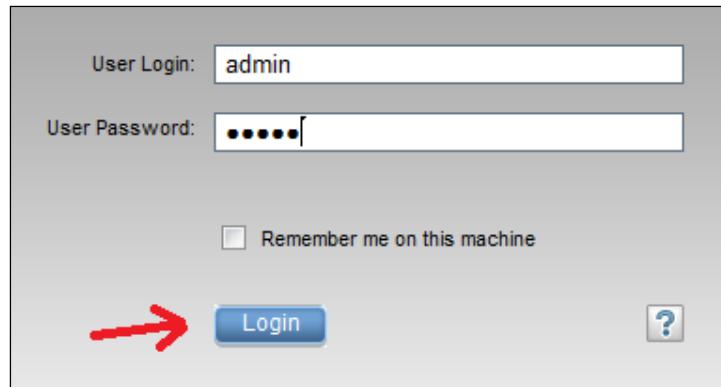
In this exercise, you create two custom roles – one that allows you to search and view Cls, and one that allows you to see the views. This exercise is divided into three tasks:

1. Create a role that can find and view Cls
2. Create a role that can see the views
3. Create a CI (for testing the first new role)

## Task 1 – Creating a Role that Can Find and View Cls

To create a role that can find and view Cls, perform the following steps:

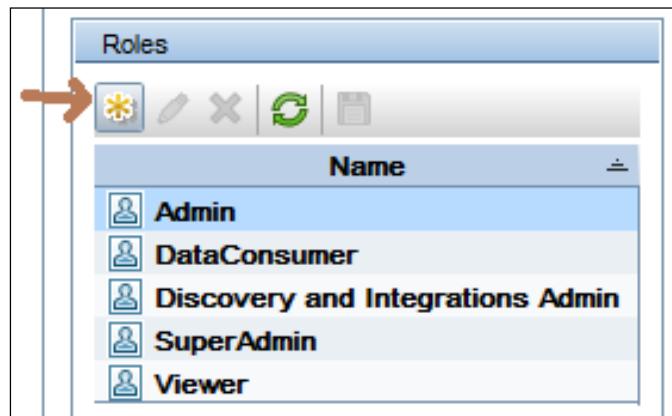
1. Log-on to UCMDB using the out-of-the-box **admin** as the user and password, as shown in the following screenshot:



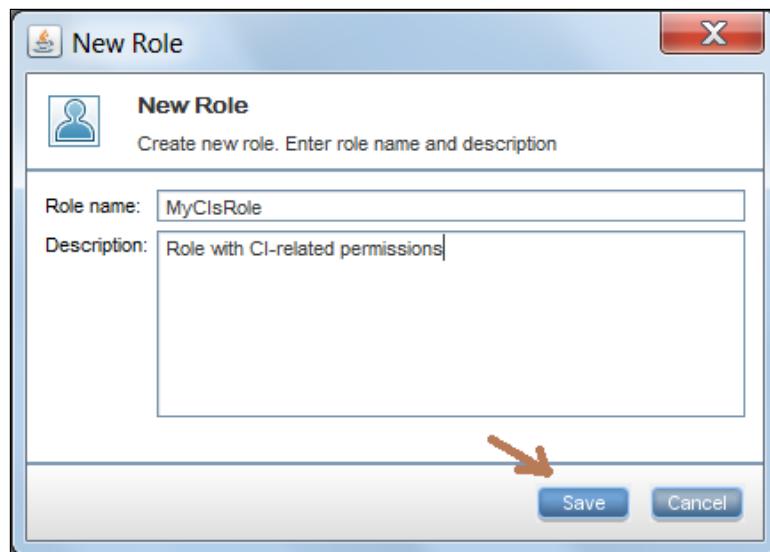
2. Under the Security module (1), go to the Roles Manager (2), as shown in the following screenshot:



3. Click the New Role button, as shown in the following screenshot:



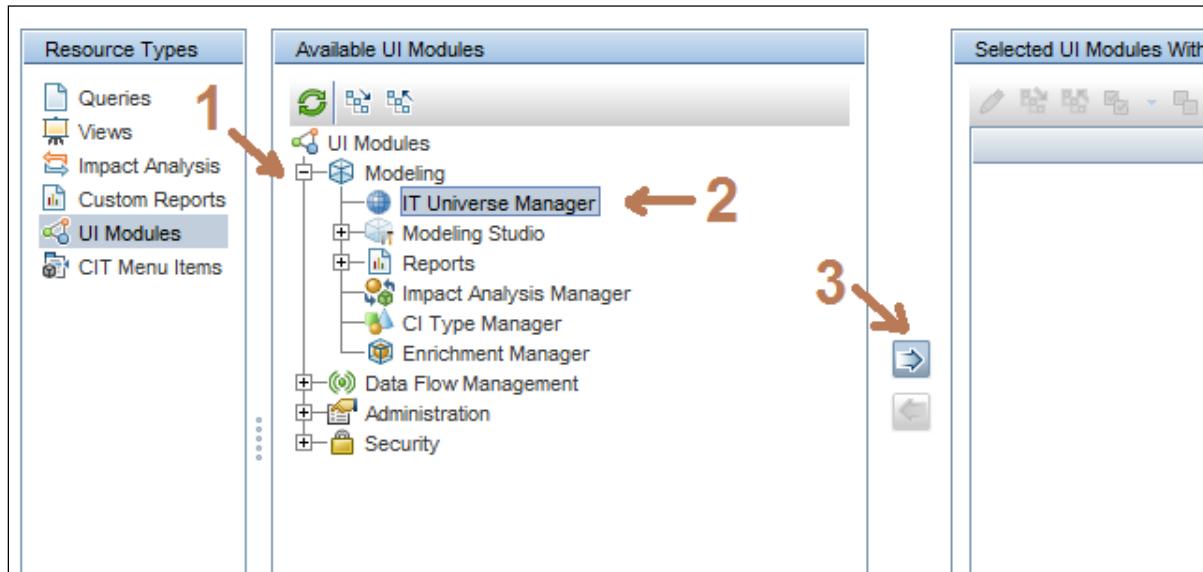
4. In the pop-up window that opens, name the role as **MyCISRole**, give it a description, and click the Save button, as shown in the following screenshot:



5. In the Resources tab, choose the type UI Modules. A tree containing all the UI modules appears, as shown in the following screenshot:

The screenshot shows the 'Resources' tab for the 'MyCISRole' role. The title bar says 'MyCISRole' and 'Resources'. A message in the center says 'In the Resources tab, you can select permissions for specific actions for specific resources.' On the left is a sidebar titled 'Resource Types' with icons for Queries, Views, Impact Analysis, Custom Reports, UI Modules (which is selected and highlighted in grey), and CIT Menu Items. A red arrow points to the 'UI Modules' icon in this sidebar. The main area is titled 'Available UI Modules' and contains a tree view with the following structure: UI Modules (selected), Modeling, Data Flow Management, Administration, and Security. To the right is a sidebar titled 'Selected UI Mod' which is currently empty.

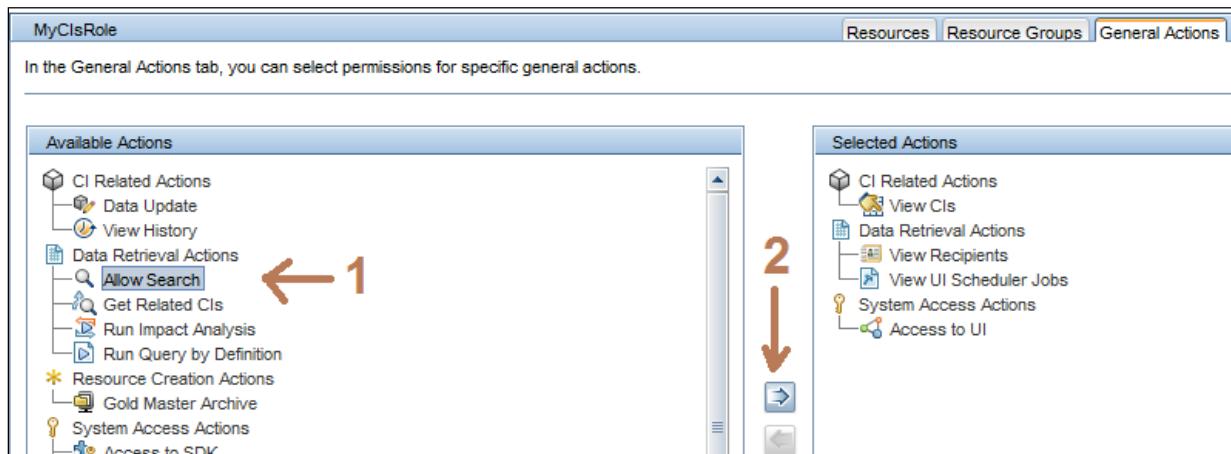
6. Expand the Modeling sub-tree by clicking on the + symbol next to Modeling, select IT Universe Manager, and move it to the Selected UI Modules pane, as shown in the following screenshot:



7. Notice that this results in Access permission to the IT Universe Manager in the UCMDB UI.

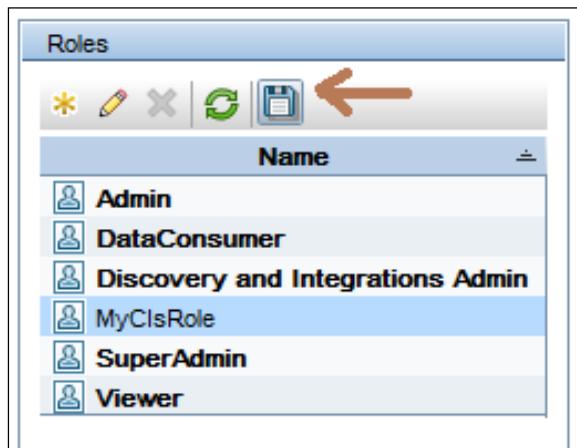
**Note:** Without access permissions on the IT Universe Manager, this manager is not accessible from the UI, even if the user has permission to view Cls. (Similarly for other managers, the role should include both a permission to access the manager and a permission that allows it to perform actions once inside the manager).

8. Go to the General Actions tab, and move Allow Search to the Selected Actions pane, as shown in the following screenshot:



(Observe that the View Cls action is already selected, as it is one of the default actions for a new role.)

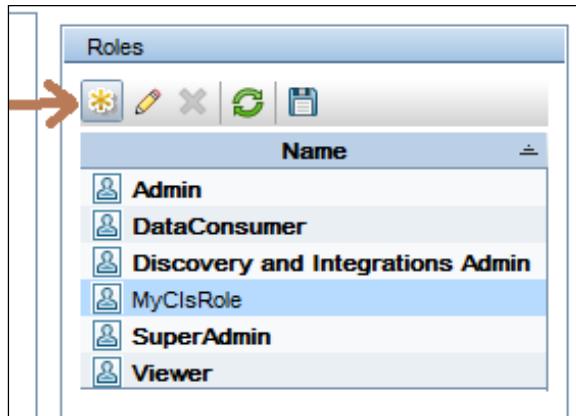
9. Save the role, as shown in the following screenshot:



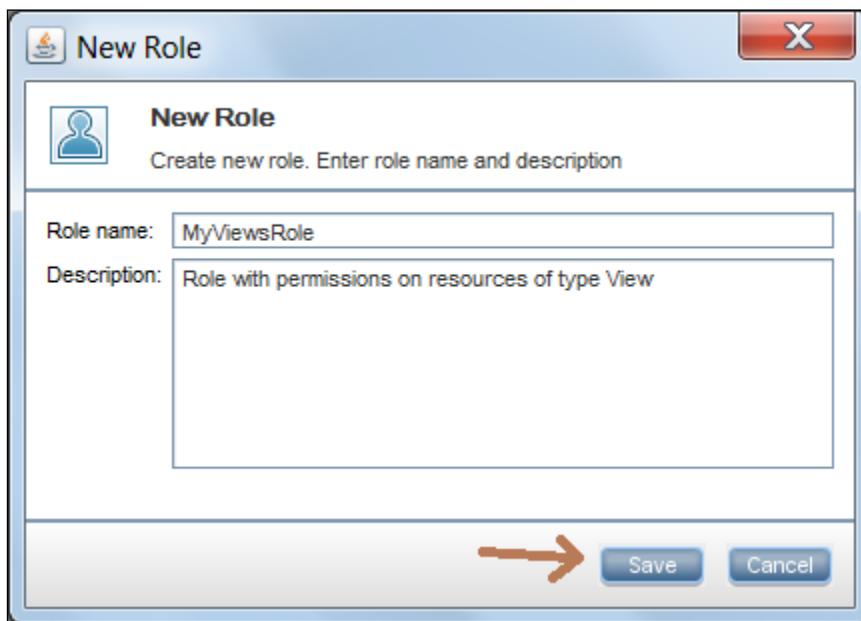
## Task 2 – Creating a Role that Can See the Views

To create a role that can see the views, perform the following steps:

1. Click the New Role button, as shown in the following screenshot:



2. In the pop-up window that opens, name the role as **MyViewsRole**, give it a description, and click the Save button, as shown in the following screenshot:



3. In the Resources tab, choose the type UI Modules. A tree containing all UI modules appears, as shown in the following screenshot:

The screenshot shows the 'Available UI Modules' section of the Resources tab. On the left, under 'Resource Types', 'UI Modules' is selected and highlighted with a red arrow. The main area displays a tree structure of available UI modules, including 'Modeling', 'Data Flow Management', 'Administration', and 'Security'. The 'UI Modules' icon is a green circle with a white gear.

4. Expand the Modeling sub-tree and expand the Modeling Studio. Click View and move it to the selected modules pane, as shown in the following screenshot.

(This gives the role permission to view the views tree in the Modeling Studio manager, but not to open these views. To open the views, you require another permission.)

The screenshot shows the 'Available UI Modules' section of the Resources tab. The 'UI Modules' tree is expanded, with the 'Modeling' node expanded further. The 'View' node under 'Modeling Studio' is highlighted with a blue box and a red arrow labeled '3'. A large red arrow labeled '2' points from the 'UI Modules' node in the 'Resource Types' list to the 'Modeling' node in the tree. A red arrow labeled '4' points from the 'View' node in the tree to the right-hand 'Selected UI Modules' pane, which contains a blue arrow icon. A red arrow labeled '1' points from the 'Views' node in the 'Resource Types' list to the 'UI Modules' node in the tree.

5. Go to the Resource Groups tab and select the group All Resources Group. Select the View action (under Views) and move it to the Selected Actions pane, as shown in the following screenshot:

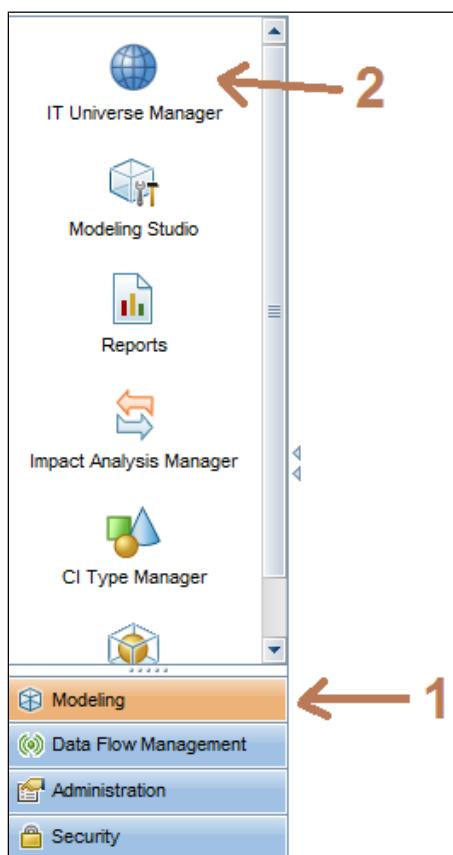
(This grants the role permission to view all the views inside the group All Resources Group, which means permission to view all existing views, since this group contains all views.)

6. Save the role, as shown in the following screenshot:

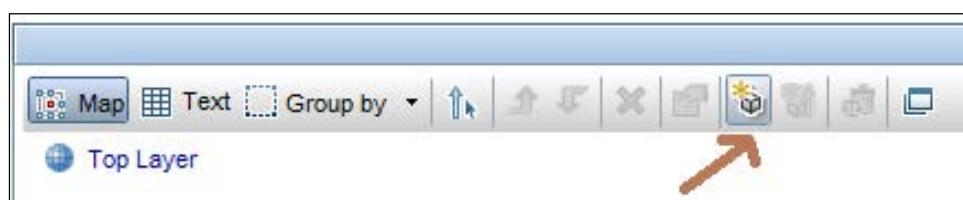
## Task 3 – Creating a CI (for Testing the First New Role)

To create a CI for testing the first new role, perform the following screenshot:

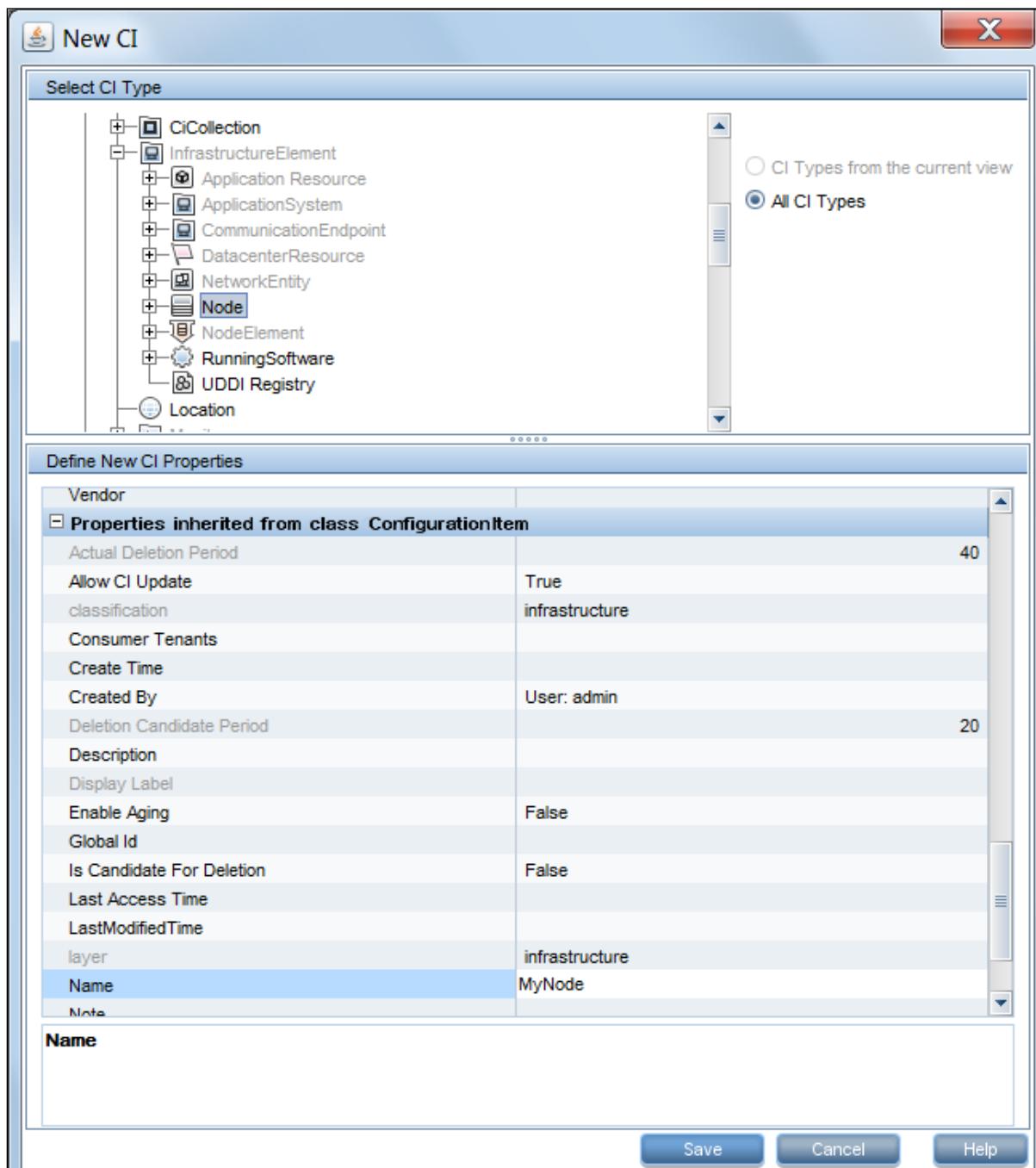
- Under the Modeling module, go to the IT Universe Manager, as shown in the following screenshot:



- Click the New CI button, as shown in the following screenshot:



3. Create and save a new Node CI by selecting Node in the types tree (under Managed Object → ConfigurationItem → InfrastructureElement). Enter the name as **MyNode** and click the Save button, as shown in the following screenshot:



## Exercise 2 – Creating Users and User Groups and Assigning Roles to Them

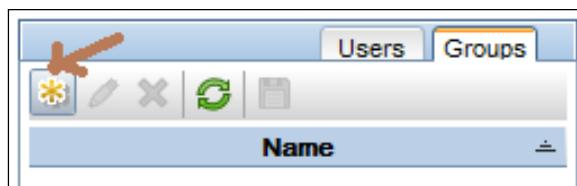
In this exercise, you create a user's group, and assign it one of the two custom roles. Then, you create a user contained in this group, and assign it the other custom role.

To create users and user groups, and assign roles to them, perform the following steps:

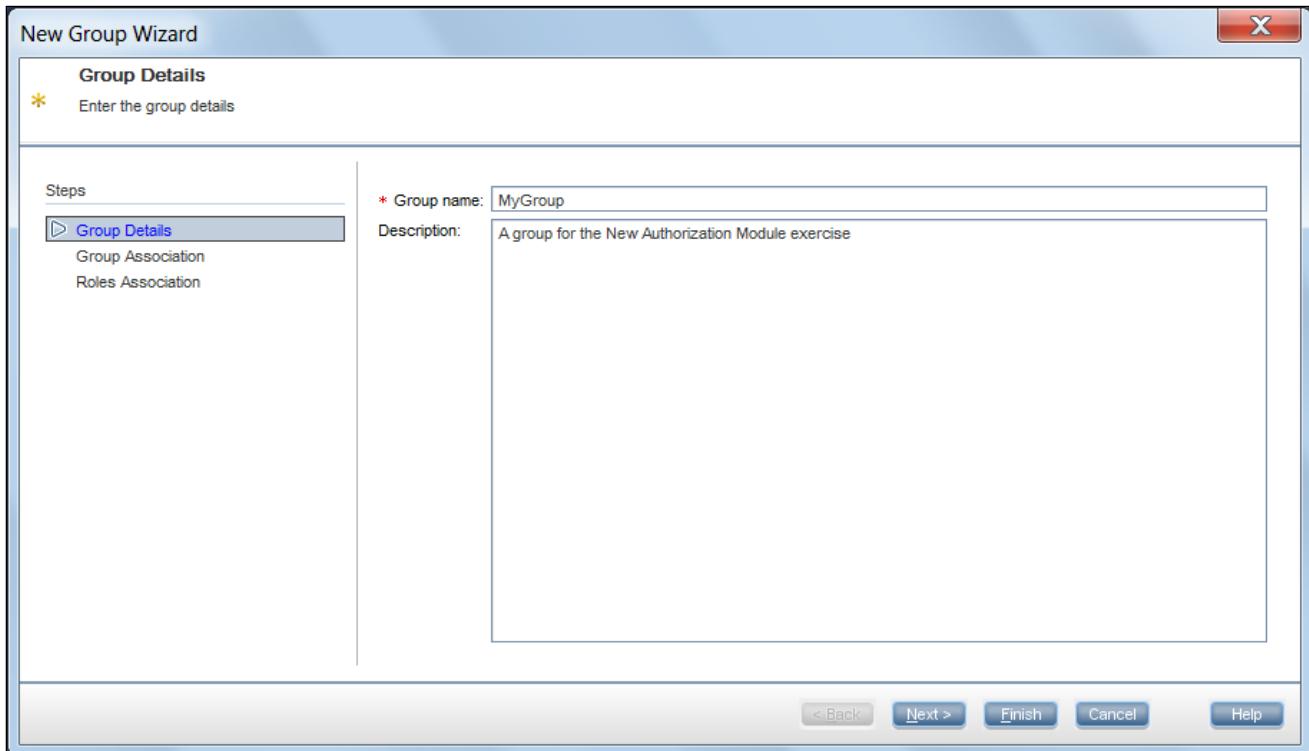
1. Under the Security module, go to Users and Groups, as shown in the following screenshot:



2. In the Groups tab, click the New Group button, as shown in the following screenshot:



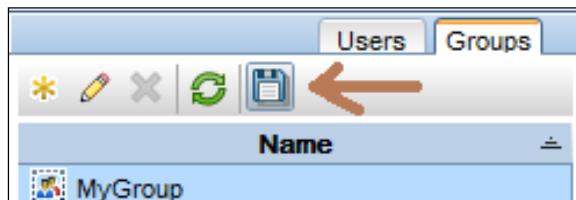
3. Name the group as **MyGroup**, give it a description, and click Next, as shown in the following screenshot:



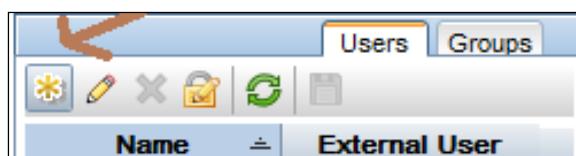
4. In the Group Association tab, click Next.

(This tab is useful if you want your group to be contained in an existing group).

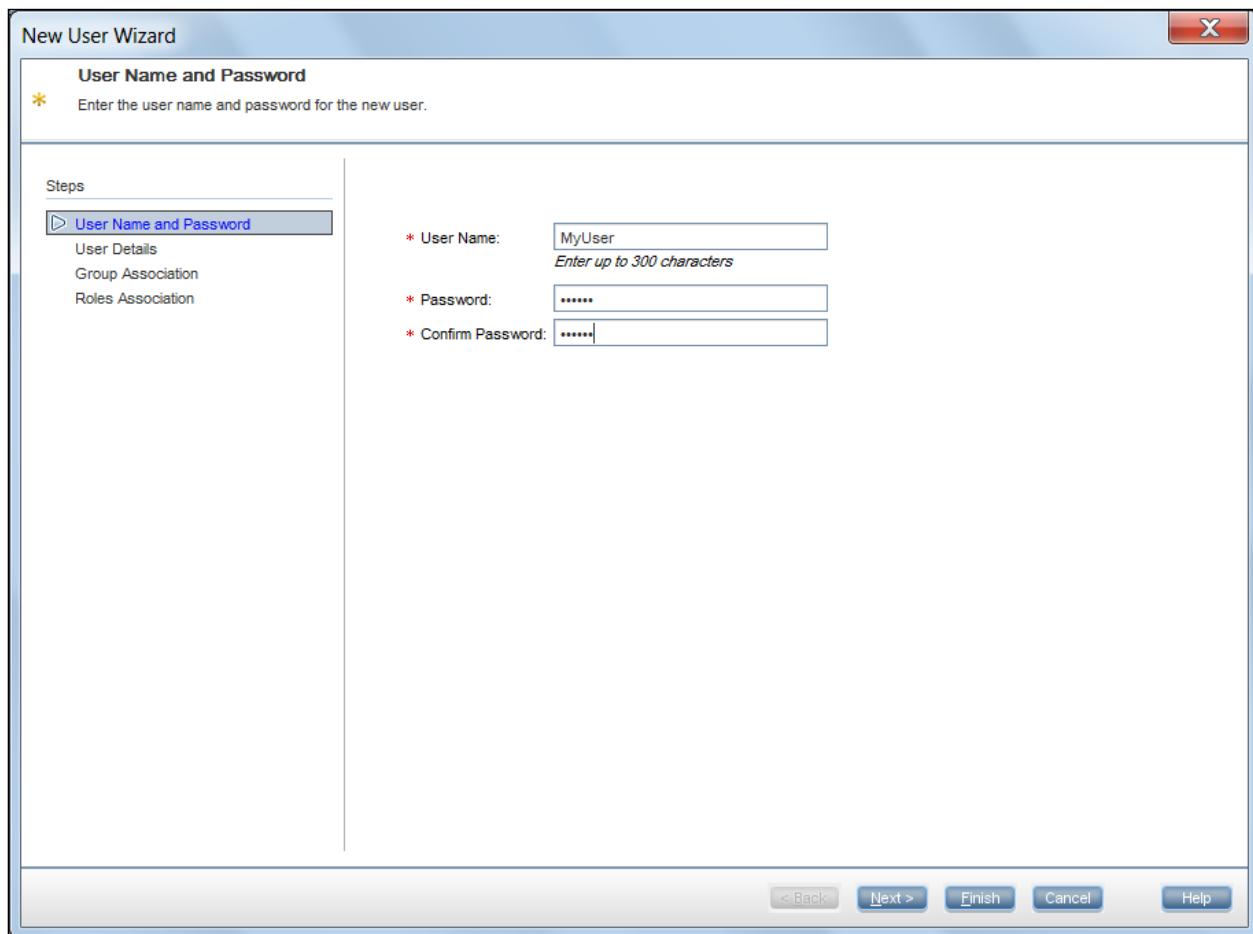
5. In the Roles Association tab, select MyClisRole from the list on the left (Available Roles) and move it to the list on the right (Selected Roles).  
6. Click the Finish button.  
7. Save the group, as shown in the following screenshot:



8. In the Users tab, click the New User button, as shown in the following screenshot:

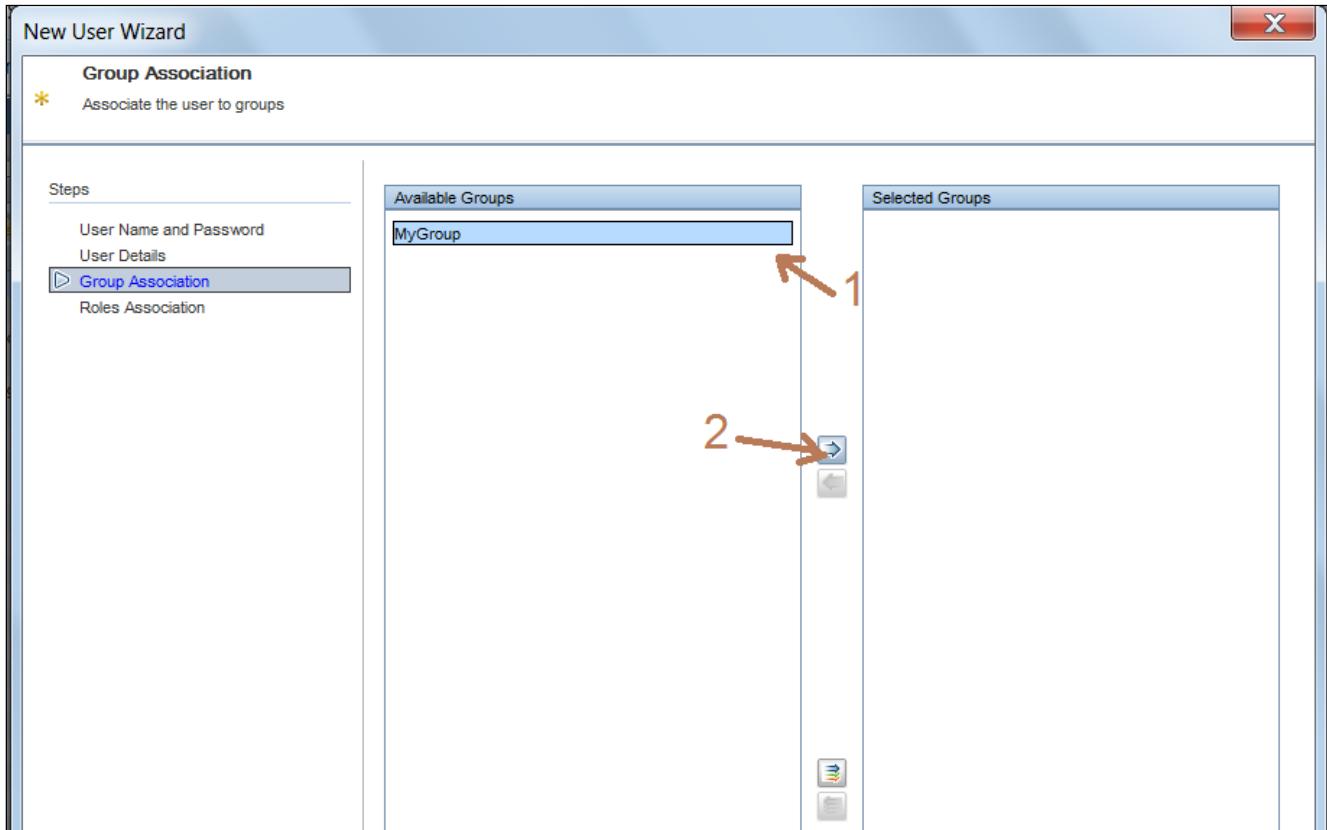


9. Use **MyUser** as both the user name and password, and click Next, as shown in the following screenshot:



10. In the User Details tab, click the Next button.

11. In the Group Association tab, click MyGroup and move it to the list of selected groups, as shown in the following screenshot:



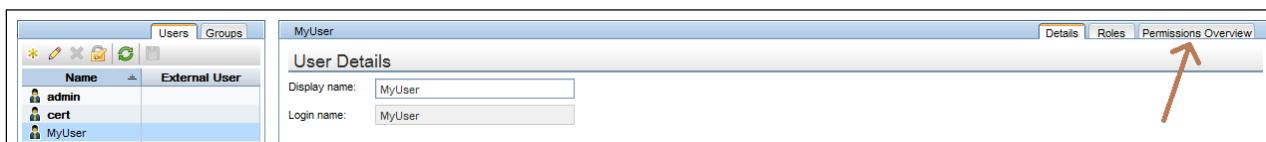
12. Click the Next button.

13. In the Roles Association tab, move the role MyViewsRole from the Available Roles list to the Selected Roles list, and then click the Finish button.

14. Save the new user, as shown in the following screenshot:



15. To get a summary of the new user's ability, go to the Permissions Overview tab, as shown in the following screenshot:



16. Click Views. Choose any view from the tree and observe that its origin is MyViewsRole, using the All Resources Group (in accordance with what you created earlier), as shown in the following screenshot:

The screenshot shows the 'Permissions Summary for user "MyUser"' interface. On the left, a sidebar lists 'Resource Types' including 'Views'. An arrow labeled '1' points to the 'Views' icon. The main pane displays a tree structure under 'Root' with 'Active Directory' expanded, showing 'Active Directory topology' selected. An arrow labeled '2' points to this selection. Below the tree is a legend with icons for Create, View, Update, Delete, Snapshot, Archive, Manage, and Authorize. At the bottom, a table titled 'Permission Origin for resource "Active Directory topology"' shows a single row for 'MyViewsRole' with 'All Resources Group' as the dependency resource.

Role Name	Permissions	Resource Group Name	Users Groups	Dependency Resource
MyViewsRole	@@	All Resources Group		

17. Click General Actions, choose Allow Search and observe that its origin is MyClsRole through MyGroup (in accordance with what you created earlier), as shown in the following screenshot:

The screenshot shows the 'Permissions Summary for user "MyUser"' interface. On the left, a sidebar lists 'General Actions'. An arrow labeled '1' points to the 'General Actions' icon. The main pane displays a tree structure under 'General Actions' with 'Data Retrieval Actions' expanded, showing 'Allow Search' selected. An arrow labeled '2' points to this selection. Below the tree is a legend with icons for Create, View, Update, Delete, Snapshot, Archive, Manage, and Authorize. At the bottom, a table titled 'Permission Origin for general action "Allow Search"' shows a single row for 'MyClsRole' with 'MyGroup' as the users group.

Role Name	Permissions	Resource Group Name	Users Groups	Dependency Resource
MyClsRole	Allow Search		MyGroup	

## Exercise 3 –Testing the New User’s Abilities

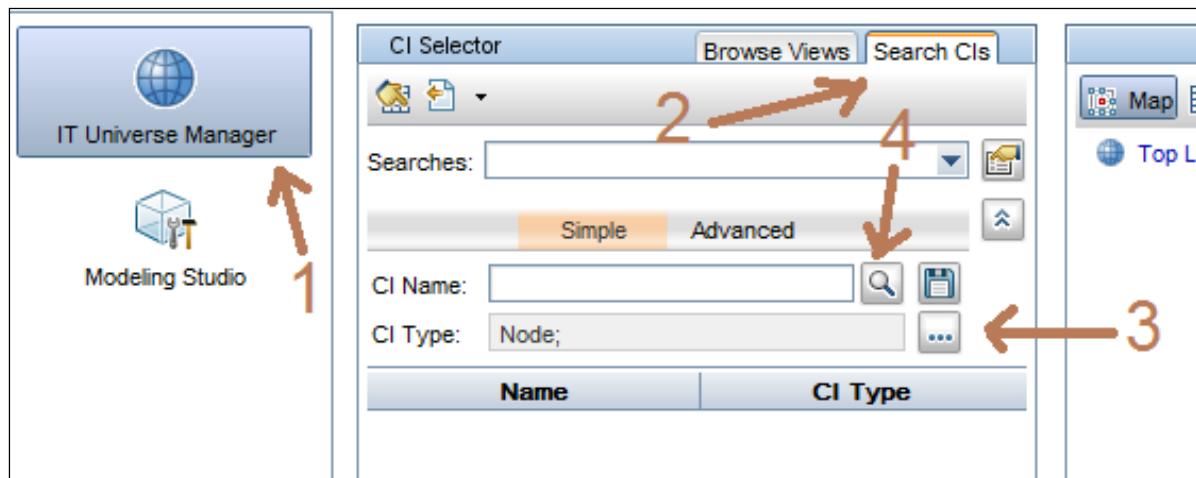
To test the new user’s abilities, perform the following steps:

1. Log out of UCMDB.
2. Log in as MyUser.

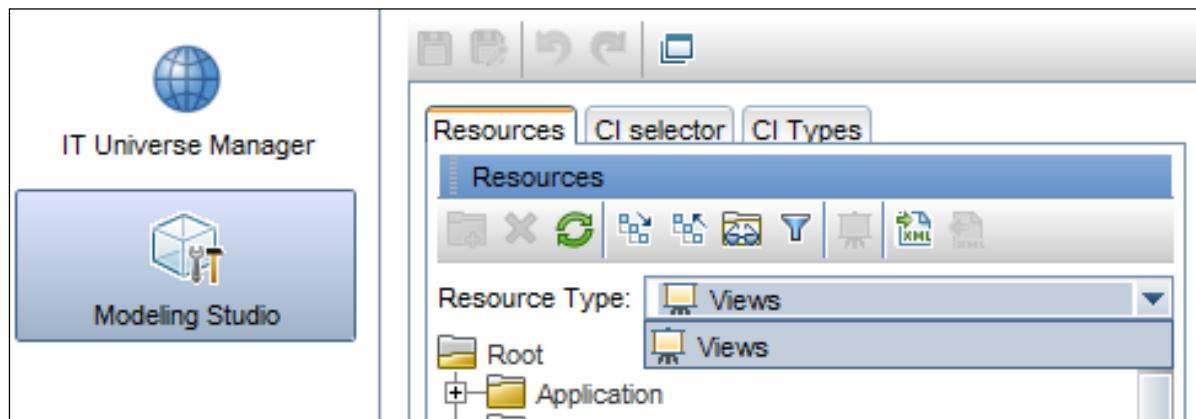
You see that only the Modeling module is present in the bottom-left menu, and in it only the IT Universe Manager and Modeling Studio appear, as shown in the following screenshot:



3. Go to the IT Universe Manager, click the Search Cls tab, and search for Cls of type Node, as shown in the following screenshot:



4. You see MyNode in the list of results. Right-click it and choose Properties. You can view all the CI properties, but you cannot make changes or save them, since MyUser does not have the Data Update permission.
5. Go to Modeling Studio and select the Resources tab. Observe that you only have permission to view the Views tree (since MyUser does not have Access permission to the Queries or Models trees), as shown in the following screenshot:



6. Select any view from the tree and double-click it. The view opens (since MyUser has permission to see the views), but you cannot make any changes to it (such as modifying the hierarchy), since MyUser does not have permission to edit views.

## Exercise 4 – Updating the Roles and Viewing the Effects

In this exercise, you add update abilities to the roles you created, and see how this affects the abilities of MyUser. This exercise is divided into three tasks.

1. Add the ability to update Cls to the first new role
2. Add the ability to update views to the second new role
3. View the new abilities of the roles

### Task 1 – Adding the Ability to Update Cls to the First New Role

To add the ability to update Cls to the first new role, perform the following steps:

1. Log out of UCMDB.
2. Log in as the out-of-the-box **admin** user (password is also **admin**).
3. Under the Security module, go to Roles Manager, as shown in the following screenshot:



4. Click MyClsRole and go to the General Actions tab.

5. Move the Data Update action from the list of Available Actions to the list of Selected Actions, as shown in the following screenshot:

The screenshot shows the 'General Actions' tab for a role named 'MyClRole'. The 'Available Actions' pane lists various actions under categories like CI Related Actions, Data Retrieval Actions, Resource Creation Actions, System Access Actions, and Configuration Management Actions. The 'Data Update' action is highlighted with a red arrow labeled '1'. The 'Selected Actions' pane lists actions like View Cls, Allow Search, View Recipients, View UI Scheduler Jobs, System Access Actions, and Access to UI. The 'Data Retrieval Actions' category is highlighted with a red arrow labeled '2'.

6. Save the role, as shown in the following screenshot:



## Task 2 – Adding the Ability to Update Views to the Second New Role

To add the ability to update the views to the second new role, perform the following steps:

1. In the list of roles (still in the Roles Manager), click the role MyViewsRole.
2. Go to the Resource Groups tab and select the group All Resources Group.
3. In the tree of Available Actions, select Update under Views and move it to the list of Selected Actions, as shown in the following screenshot:

The screenshot shows the 'MyViewsRole' configuration screen. The top navigation bar has tabs for 'Resources' and 'Resource Groups'. The 'Resource Groups' tab is active, displaying the message: 'In the Resource Groups tab, you can select permissions for specific actions for the resources in specific resource groups.' On the left, the 'Resource Groups' section shows 'All Resources Group' selected. The central 'Available Actions' section lists various actions under categories like Queries, Views, and Impact Analysis. The 'Views' category is expanded, and the 'Update' action is highlighted with a blue selection box and a red arrow labeled '1'. The right 'Selected Actions' section contains 'Views' and 'View', with a blue selection box and a red arrow labeled '2' pointing towards the 'Selected Actions' list.

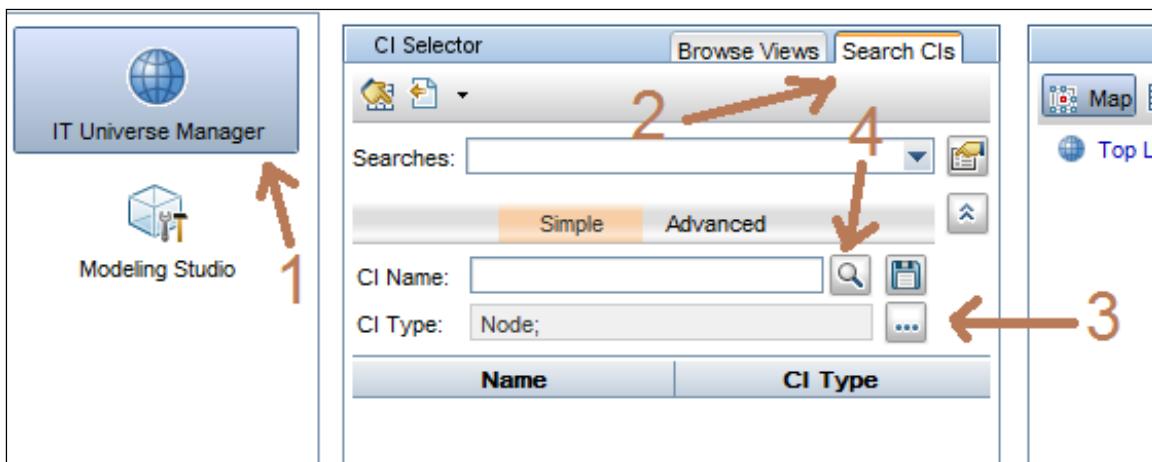
4. Save the role, as shown in the following screenshot:



## Task 3 – Viewing the New Abilities of the Roles

To view the new abilities of the roles, perform the following steps:

1. Log out of UCMDB.
2. Log in as MyUser.
3. Go to the IT Universe Manager and choose the Search Cls tab. Search for Cls of type Node, as shown in the following screenshot:



4. Locate MyNode in the list of result Cls, right-click it, and choose Properties. This time, you can modify properties in this window as well as save the changes (the Apply button appears).
5. Go to the Modeling Studio manager, click the Resources tab, double-click a view in the views' tree, and try to edit its model hierarchy. This time, you succeed.
6. Try to modify the query definition of the view. You might not succeed.

If you want to modify the query definition of the view, add the Update Queries permission over All Resources Group to the MyViewsRole.

Viewing permissions over queries comes automatically from having viewing permissions over all views, due to the dependencies mechanism. However, the dependencies mechanism does not apply to the Update permissions.

Alternatively, you can add the Update Query permission only to the query behind the view. To do this, switch to the queries tree, right-click the relevant query, and choose Manage Security.

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# Lab 15 – Administration

## Objectives

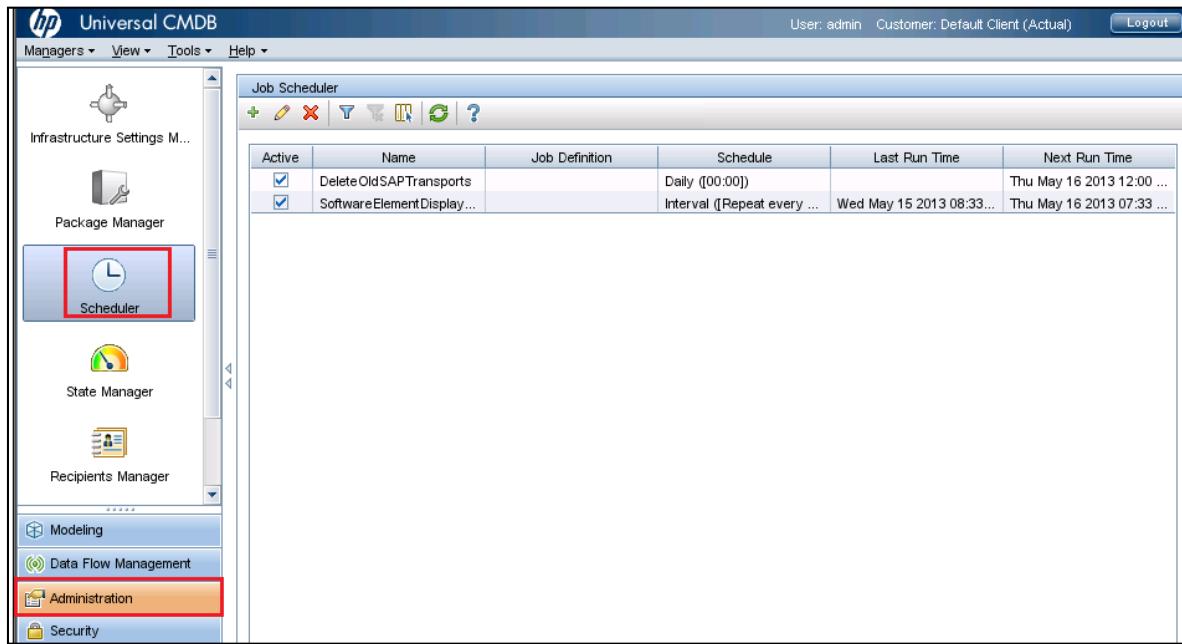
After completing this lab, you should be able to:

- Create a schedule to run an enrichment rule
- Define a new mail recipient
- Create a custom package

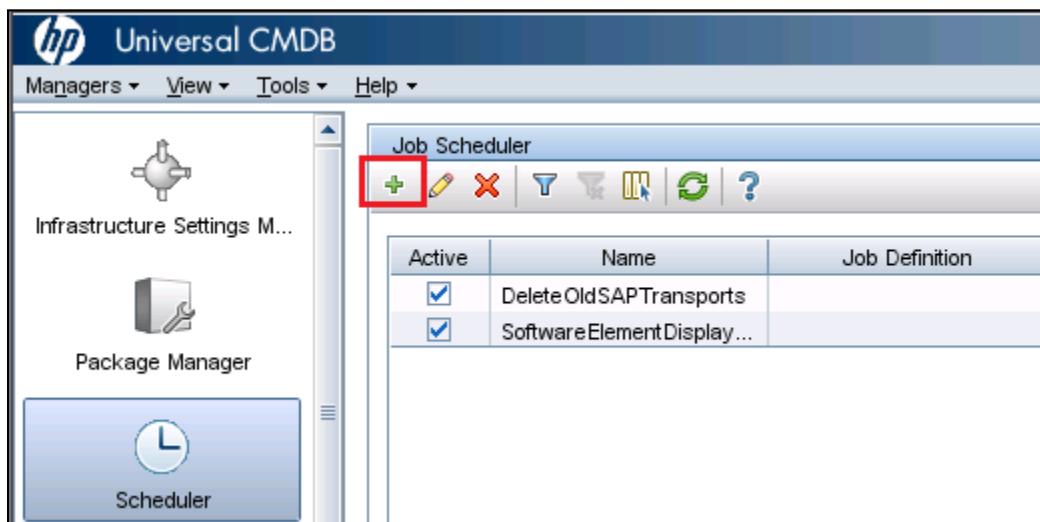
# Exercise 1 – Creating a Schedule to Run an Enrichment Rule

In this exercise, you create a schedule for running an enrichment rule periodically. To create the schedule, perform the following steps:

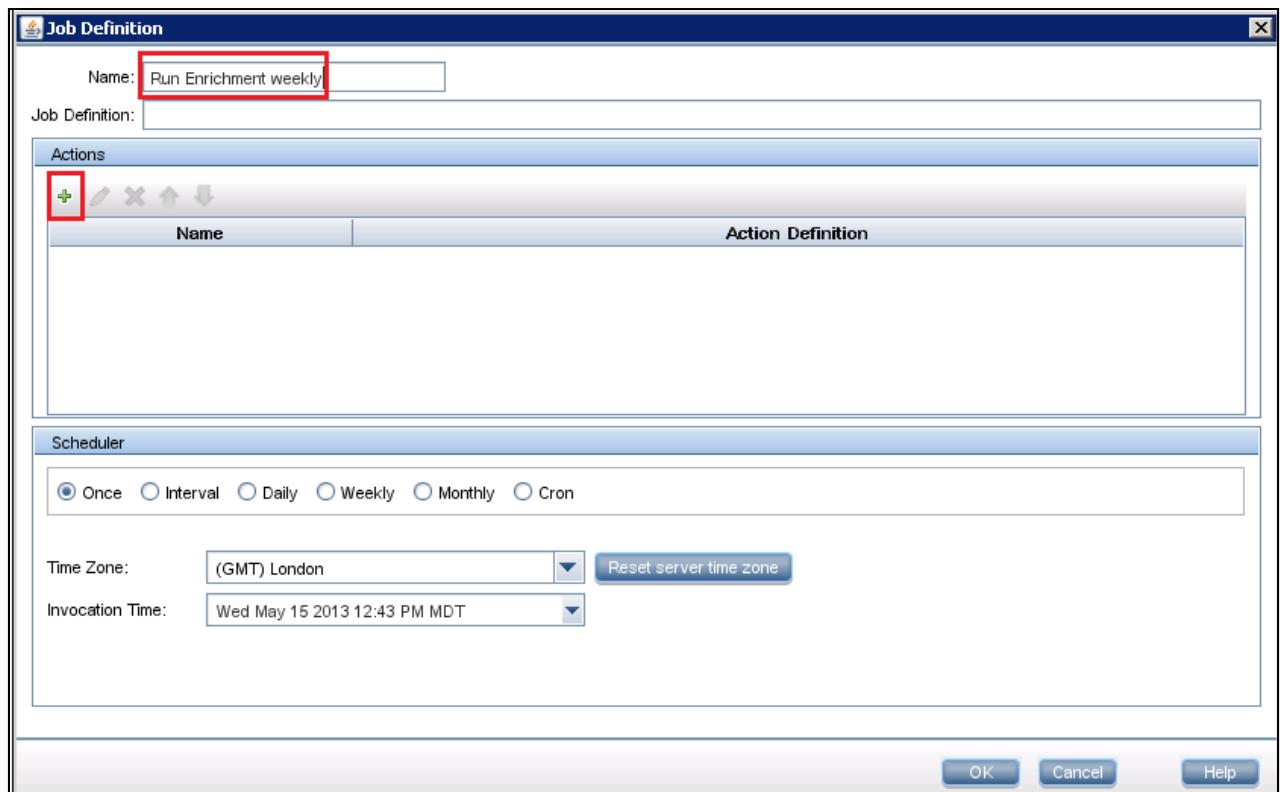
1. From the Administration Area, click the Scheduler, as shown in the following screenshot:



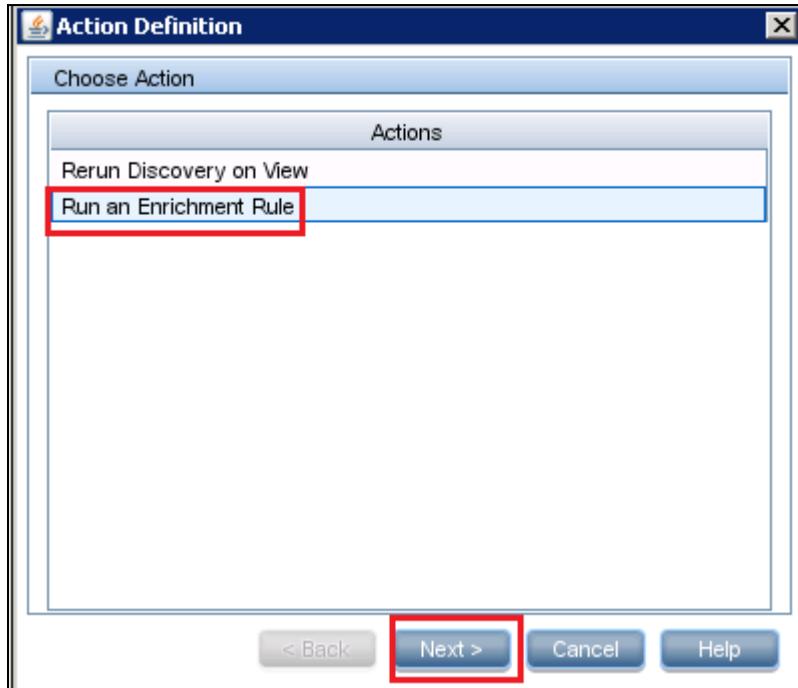
2. In the Scheduler, click the Add (+) button to add a new schedule, as shown in the following screenshot:



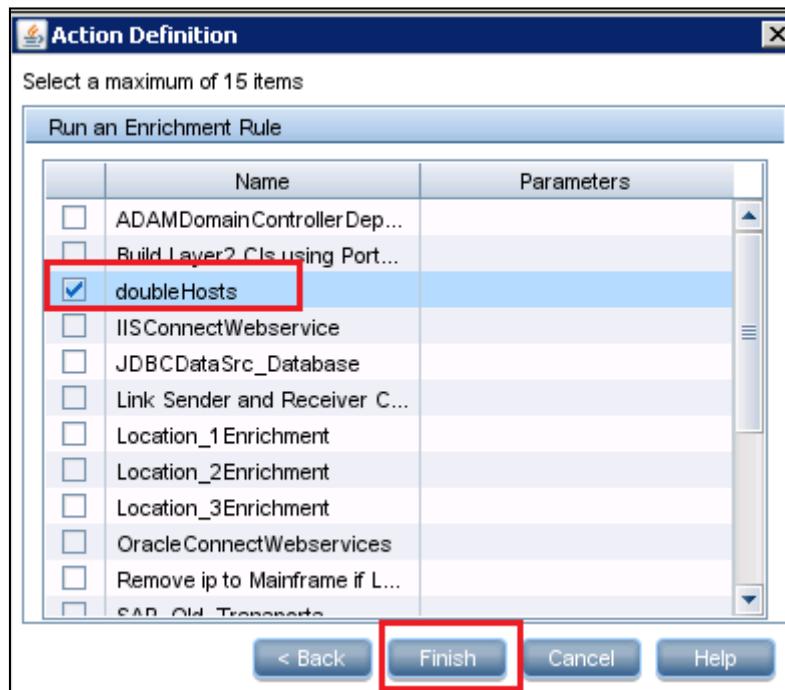
3. In the Job Definition window, type Name as **Run Enrichment weekly** and then click the Add (+) button under the Actions panel, as shown in the following screenshot:



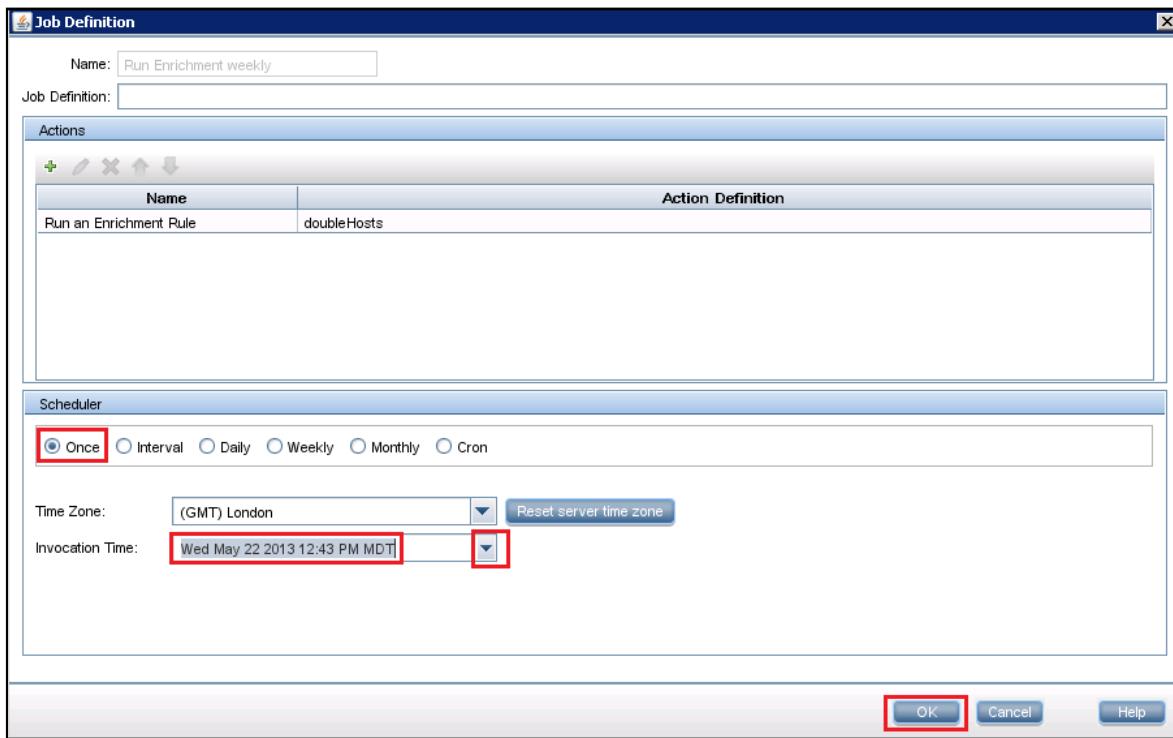
4. In the Action Definition window, select Run an Enrichment Rule and click the Next button, as shown in the following screenshot:



5. In the Run an Enrichment Rule page displayed in the Action Definition window, check the doubleHosts enrichment rule and click the Finish button, as shown in the following screenshot:



6. This returns you to the Job Definition window. Select Once in the Scheduler pane, click the Invocation time as one week from the current date, and then click the OK button to close the window, as shown in the following screenshot:



7. Verify that the new schedule you created is visible in the list, as shown in the following screenshot:

Active	Name	Job Definition	Schedule	Last Run Time	Next Run Time
<input checked="" type="checkbox"/>	Run Enrichment weekly		Once (Wed May 22 2013 12:43 PM MDT)	Wed May 22 2013 12:43 PM MDT	Wed May 22 2013 12:43 PM MDT
<input checked="" type="checkbox"/>	Delete OldSAPTransports		Daily ([00:00])	Thu May 16 2013 12:00 AM MDT	Thu May 16 2013 12:00 AM MDT
<input checked="" type="checkbox"/>	SoftwareElementDisplayLabel		Interval ([Repeat every 1 day])	Wed May 15 2013 12:00 AM MDT	Thu May 16 2013 07:33 AM MDT

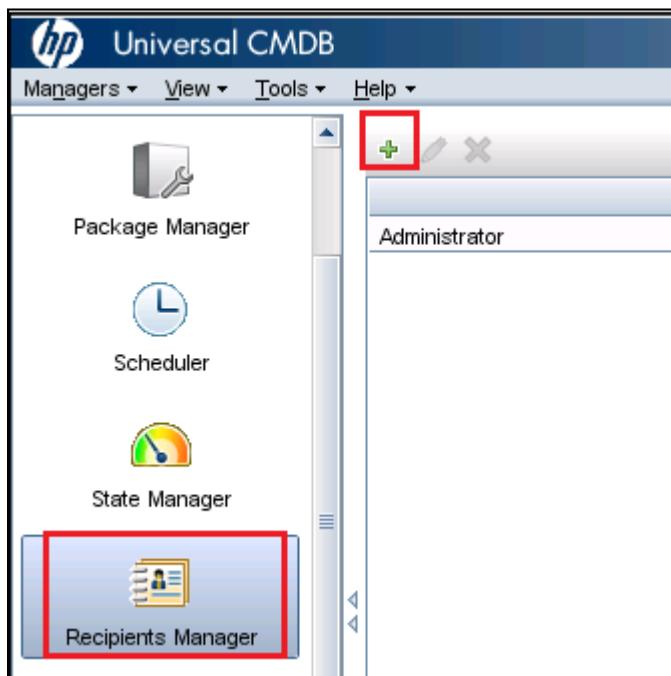
## Exercise 2 – Defining a New Mail Recipient

In this exercise, you create a new mail recipient which could be used globally in UCMDB. To define a new mail recipient, perform the following steps:

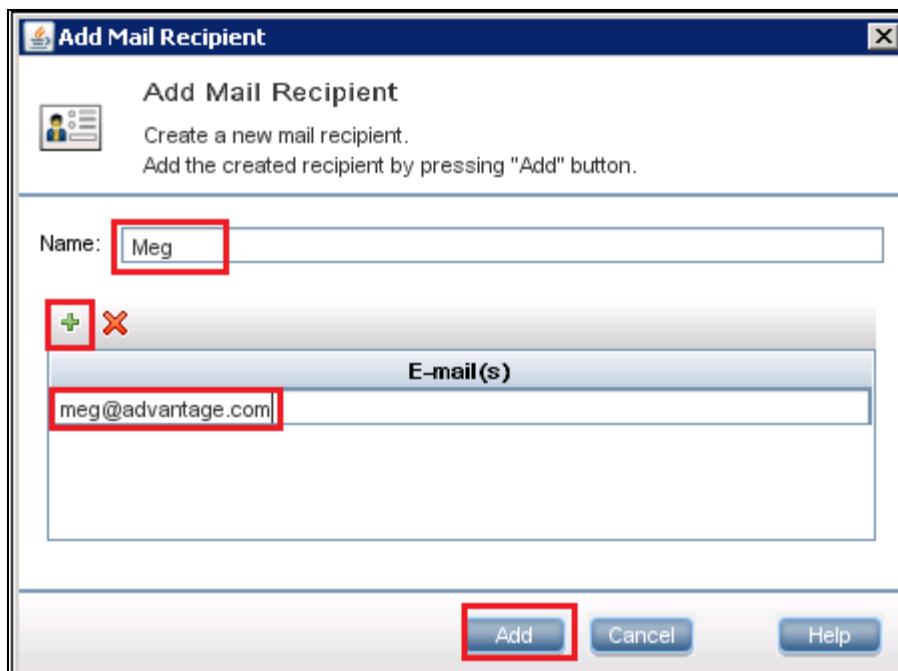
1. From the Administration area, click the Recipients Manager, as shown in the following screenshot:

The screenshot shows the Universal CMDB application window. The title bar reads "Universal CMDB". The top menu bar includes "Managers", "View", "Tools", and "Help". On the right side of the top bar, it says "User: admin Customer: Default Client (Actual)" and has a "Logout" button. The left sidebar contains several icons and labels: "Package Manager", "Scheduler", "State Manager", "Recipients Manager" (which is highlighted with a red box), "CI Lifecycle", "Modeling", "Data Flow Management", "Administration" (which is highlighted with an orange box), and "Security". The main content area has a toolbar with a plus sign, a pencil, and a delete icon. Below the toolbar is a table with two columns: "Name" and "E-mail(s)". A single row is present with the name "Administrator" and the email "admin@advantage.com".

2. Click the Add (+) button to add a new recipient, as shown in the following screenshot:



3. In the Add Mail Recipient window, type Name as Meg and then click the + button to add the recipient's email ids. Type the email id and click the Add button, as shown in the following screenshot:



4. Ensure that the new recipient is added to the list, as shown in the following screenshot.  
The new recipient can now be accessed globally in UCMDB.

The screenshot shows a software interface titled "Recipients Manager". On the left, there is a vertical sidebar with icons and labels for "Package Manager", "Scheduler", "State Manager", and "Recipients Manager". The "Recipients Manager" icon is highlighted with a blue selection bar. The main window has a header with three buttons: a green plus sign, a pencil, and a red X. Below the header is a table with two columns: "Name" and "E-mail(s)". The table contains two rows: one for "Administrator" with the email "admin@advantage.com" and another for "Meg" with the email "meg@advantage.com". The row for "Meg" is currently selected, indicated by a blue highlight.

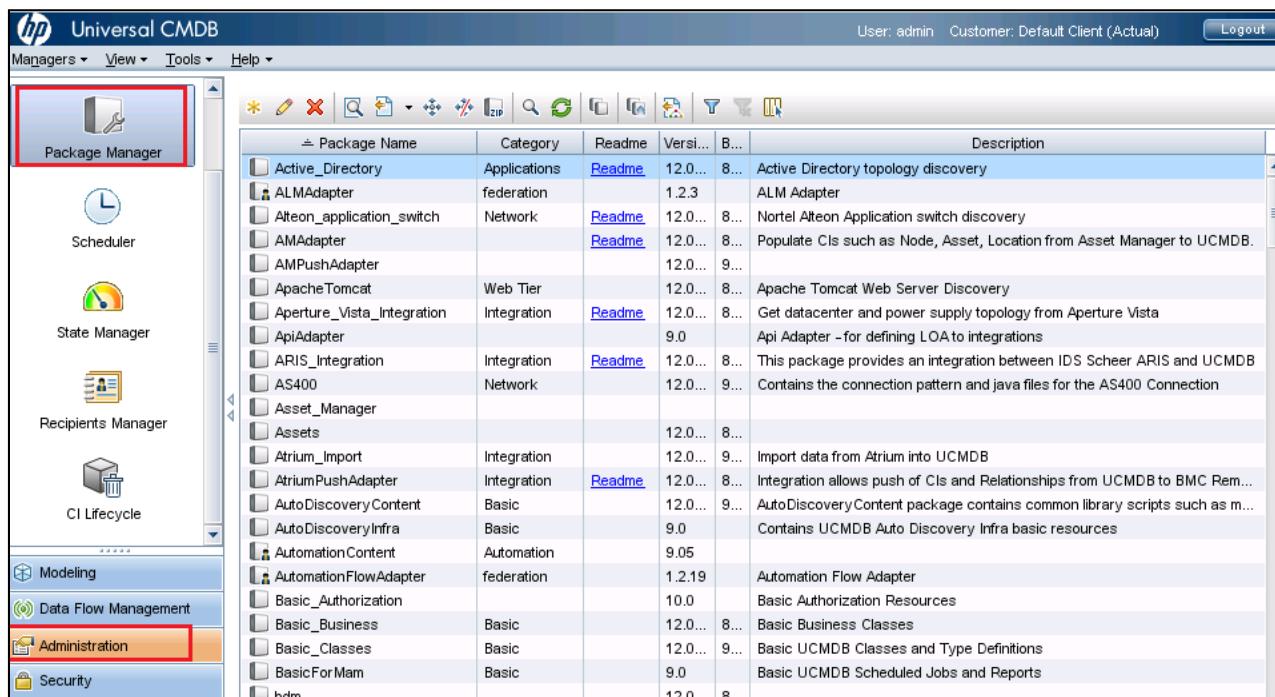
Name	E-mail(s)
Administrator	admin@advantage.com
Meg	meg@advantage.com

## Exercise 3 – Creating a Custom Package

A package contains resources that are grouped together by defined criteria. A custom package is a package that is user created. You might want to create a custom package if the factory packages do not contain the resources needed for the tool you are developing, or if you want to export resources from system to system.

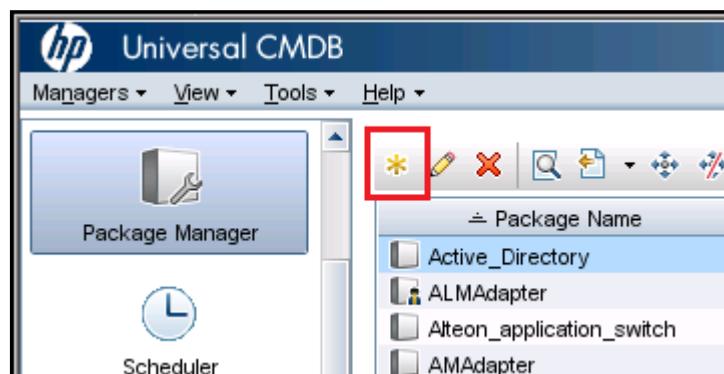
To create a custom package, perform the following steps:

1. From the Administration area, click the Package Manager, as shown in the following screenshot:



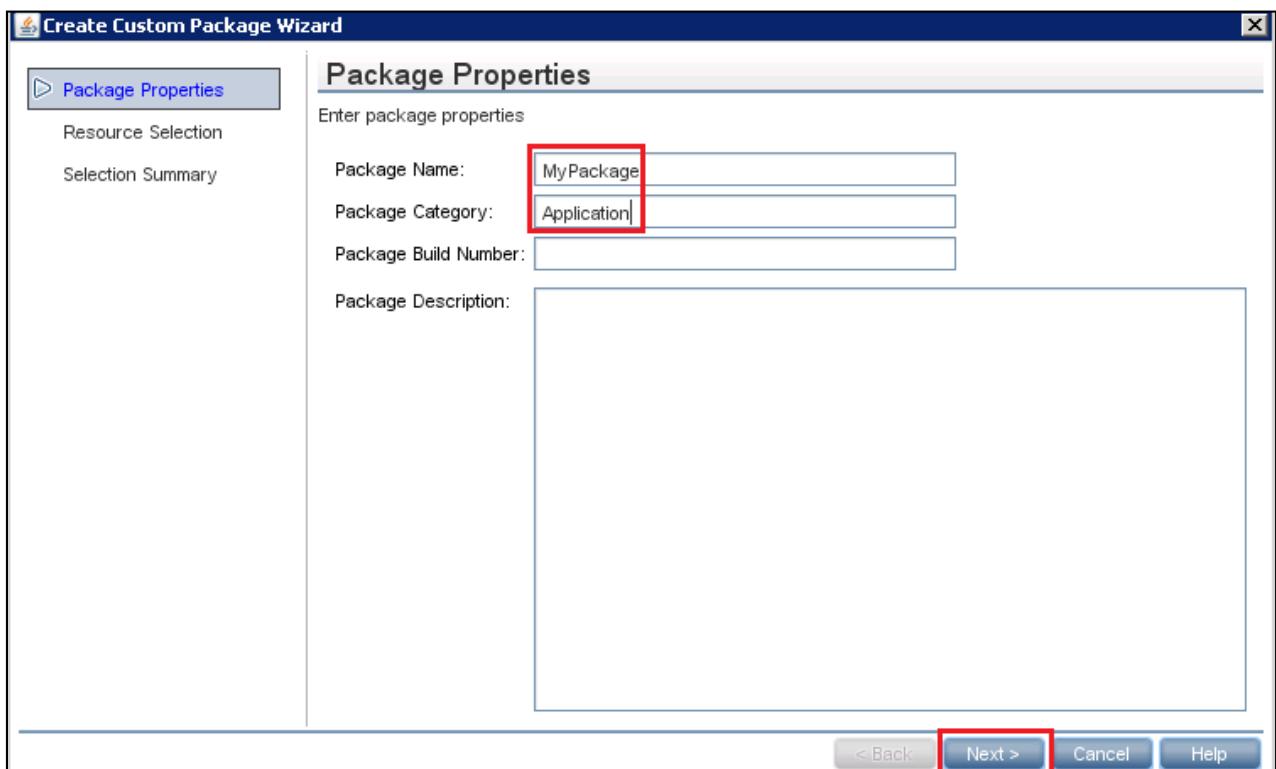
The screenshot shows the Universal CMDB Administration interface. The left sidebar has several categories: Managers, View, Tools, Help, Scheduler, State Manager, Recipients Manager, CI Lifecycle, Modeling, Data Flow Management, Administration (which is highlighted with a red box), and Security. The main area is titled "Package Manager". It contains a toolbar with icons for New, Edit, Delete, Find, Zip, and other functions. Below the toolbar is a table with columns: Package Name, Category, Readme, Version, and Description. The table lists various packages like Active\_Directory, ALMAdapter, Alteon\_application\_switch, etc., with their respective details. The "Administration" category in the sidebar is highlighted with a red box.

2. Click the Create Custom Package button to create a new custom package, as shown in the following screenshot:

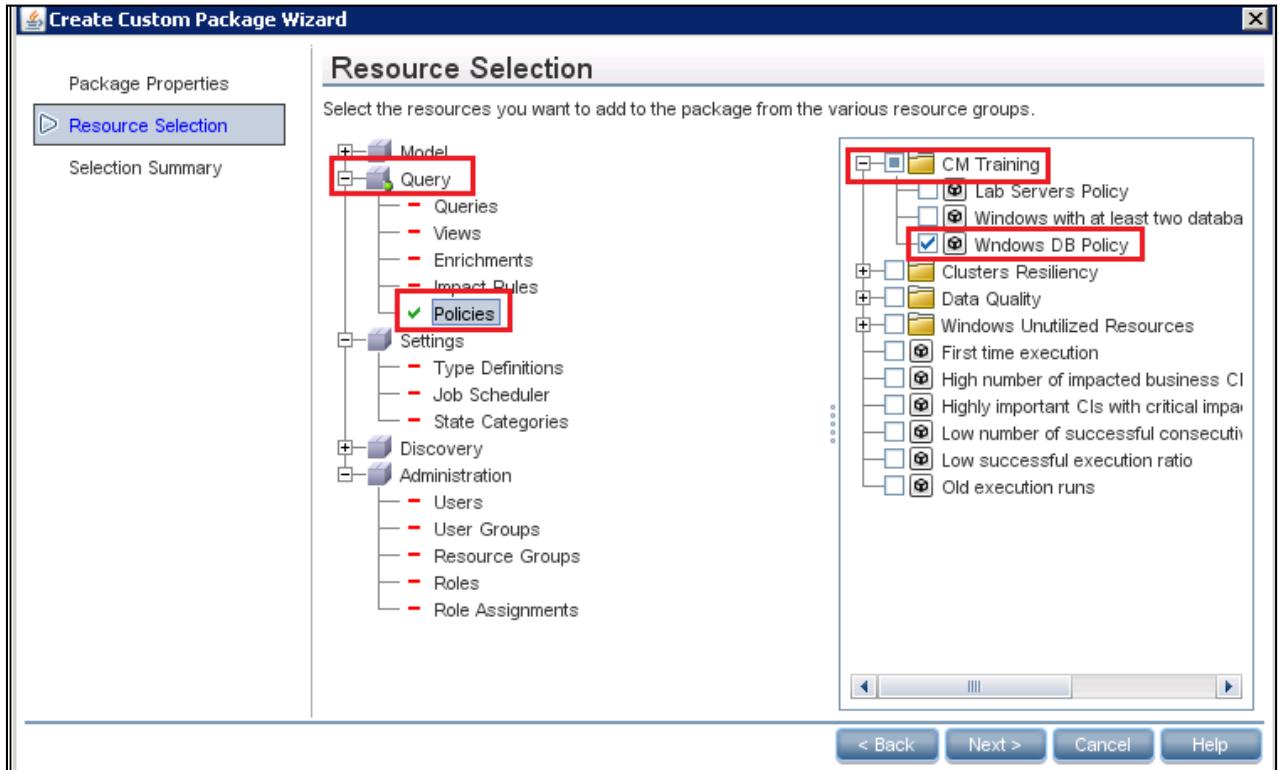


The screenshot shows the Universal CMDB interface. The left sidebar has the same categories as the previous screenshot, but the "Administration" category is not highlighted. The main area shows the "Package Manager" icon and the "Scheduler" icon. The toolbar above the table has a "New" button highlighted with a red box. The table below shows the same list of packages as the previous screenshot.

3. In the Create Custom Package Wizard window, in the Package Properties screen, type the Package Name as **MyPackage** and Package Category as **Application**. Click the Next button, as shown in the following screenshot:

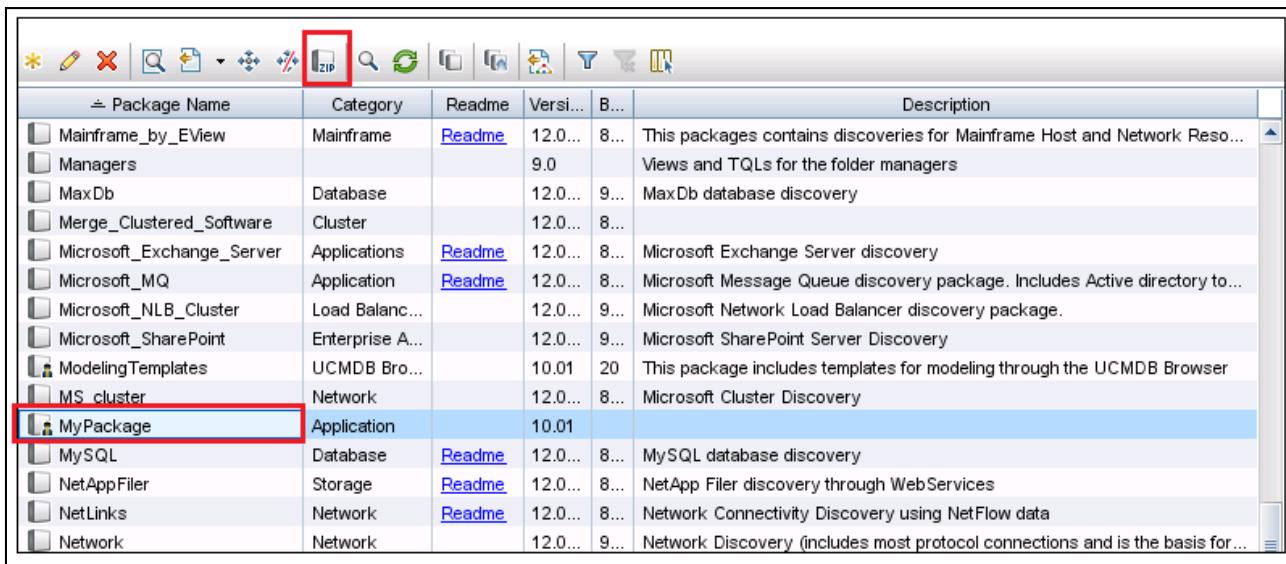


4. From the Resource Selection page, click Policies under the Query section and then check the Windows DB Policy from the CM Training folder on the right side, as shown in the following screenshot:



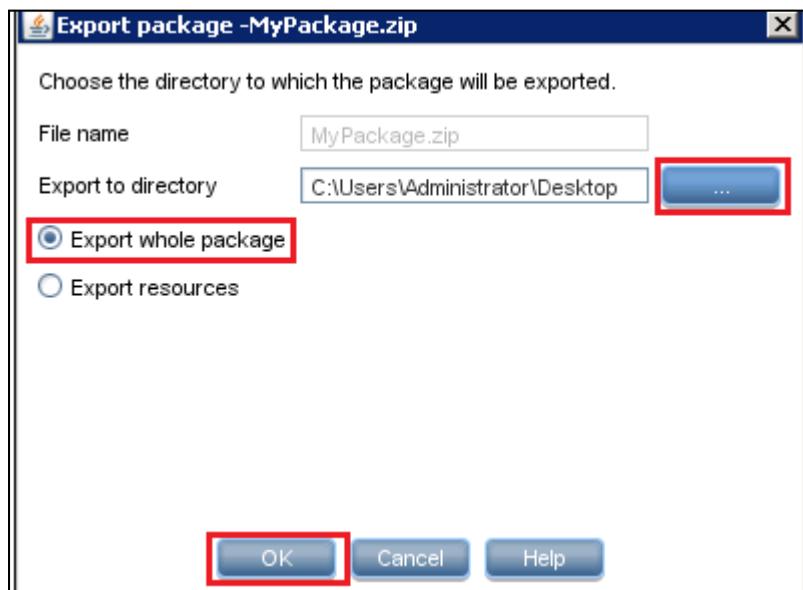
5. Add in a few of the entities you've created in this class, for example Views, TQLs, CIT definitions, Enrichments, and so on.  
 6. Click the Finish button in the Selection Summary screen to close the wizard.

7. Scroll down and verify that the newly created package is visible. Click MyPackage and click the Zip shortcut icon from the toolbar, as shown in the following screenshot:

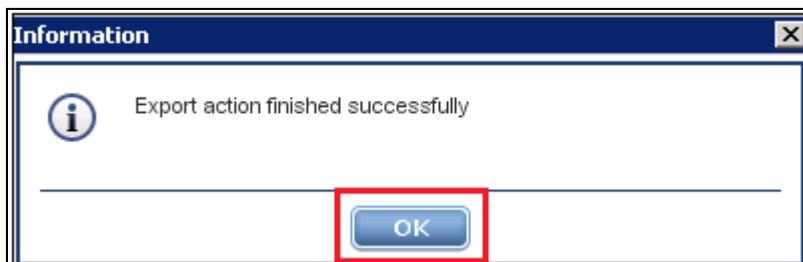


Package Name	Category	Readme	Versi...	B...	Description
Mainframe_by_EView	Mainframe	<a href="#">Readme</a>	12.0...	8...	This packages contains discoveries for Mainframe Host and Network Reso...
Managers			9.0		Views and TQLs for the folder managers
MaxDb	Database		12.0...	9...	MaxDb database discovery
Merge_Clustered_Software	Cluster		12.0...	8...	
Microsoft_Exchange_Server	Applications	<a href="#">Readme</a>	12.0...	8...	Microsoft Exchange Server discovery
Microsoft_MQ	Application	<a href="#">Readme</a>	12.0...	8...	Microsoft Message Queue discovery package. Includes Active directory to...
Microsoft_NLB_Cluster	Load Balanc...		12.0...	9...	Microsoft Network Load Balancer discovery package.
Microsoft_SharePoint	Enterprise A...		12.0...	9...	Microsoft SharePoint Server Discovery
ModelingTemplates	UCMDB Bro...		10.01	20	This package includes templates for modeling through the UCMDB Browser
MS_cluster	Network		12.0...	8...	Microsoft Cluster Discovery
<b>MyPackage</b>	Application		10.01		
MySQL	Database	<a href="#">Readme</a>	12.0...	8...	MySQL database discovery
NetAppFiler	Storage	<a href="#">Readme</a>	12.0...	8...	NetApp Filer discovery through WebServices
NetLinks	Network	<a href="#">Readme</a>	12.0...	8...	Network Connectivity Discovery using NetFlow data
Network	Network		12.0...	9...	Network Discovery (includes most protocol connections and is the basis for ...

8. In the Export Package – Mypackagr.zip window, select the “Export to” directory as Desktop and click the OK button to export the whole package, as shown in the following screenshot:



9. Click the OK button in the Information message box, as shown in the following screenshot:



This page is intentionally left blank.

---

# Lab 16 – Integrations

## Objectives

After completing this lab, you should be able to:

- Create an integration TQL
- Map the new TQL
- Create the integration point to Service Manager (SM)
- Create a data push job
- Run the population job (Default Customer)
- View Cls in SM

## Introducing Data Push Integration

CMS allows you to export data from the CMDB to external resources/applications using Data Push integration. For example, you can populate SM with nodes that exist in the UCMDB.

In the following exercises, you populate the SM database with data from UCMDB. You create a Data Push integration in CMS and verify the result of its run in SM.

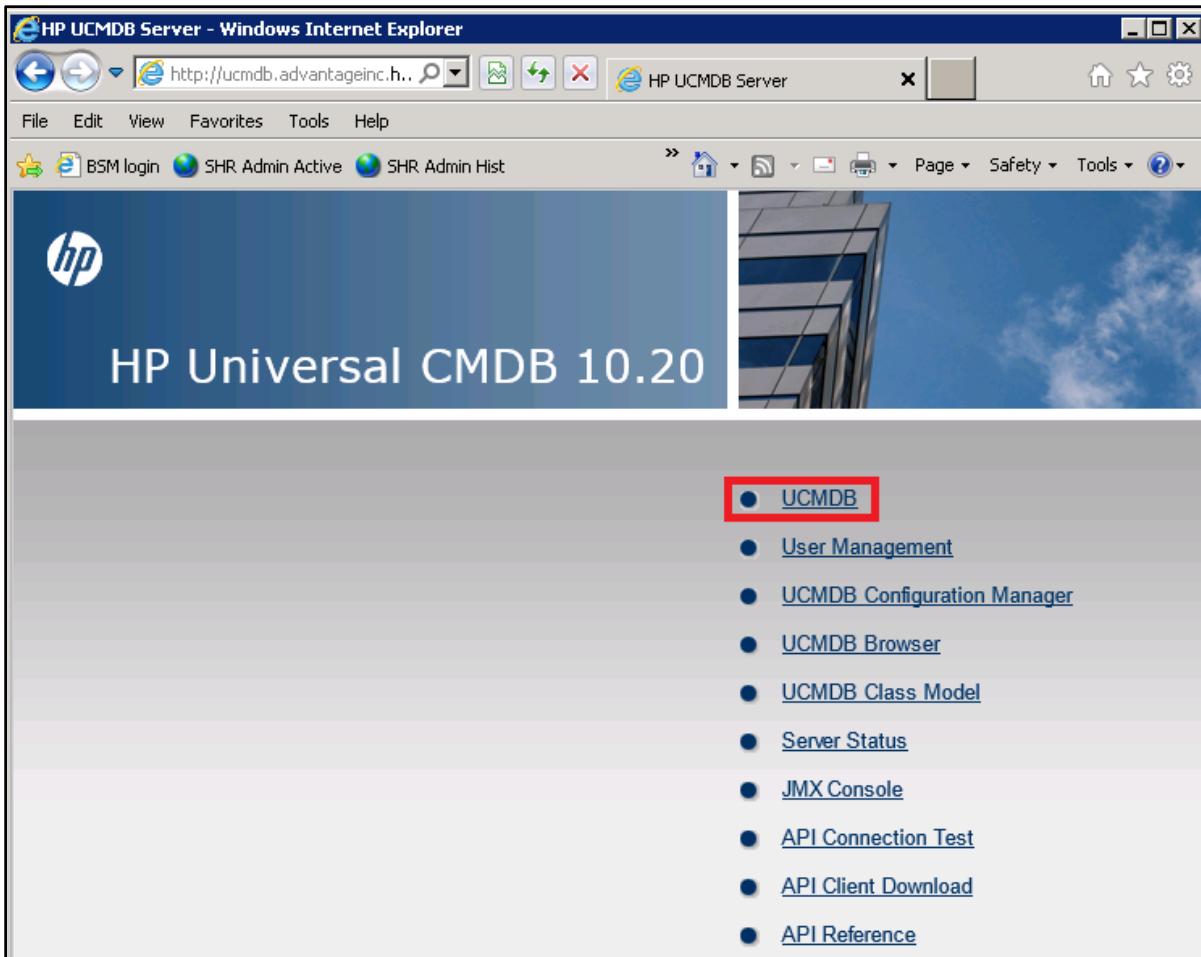
UCMDB 10.x already comes with built-in the UCMDB Integration Service that can be used for integration with SM. This service must be manually started on the UCMDB Server machine (ask the instructor for guidance on how to do this).

## Exercise 1 – Creating an Integration TQL

In this exercise, you use the OOTB adapter and replicate node Cls from CMS (UCMDB) to SM.

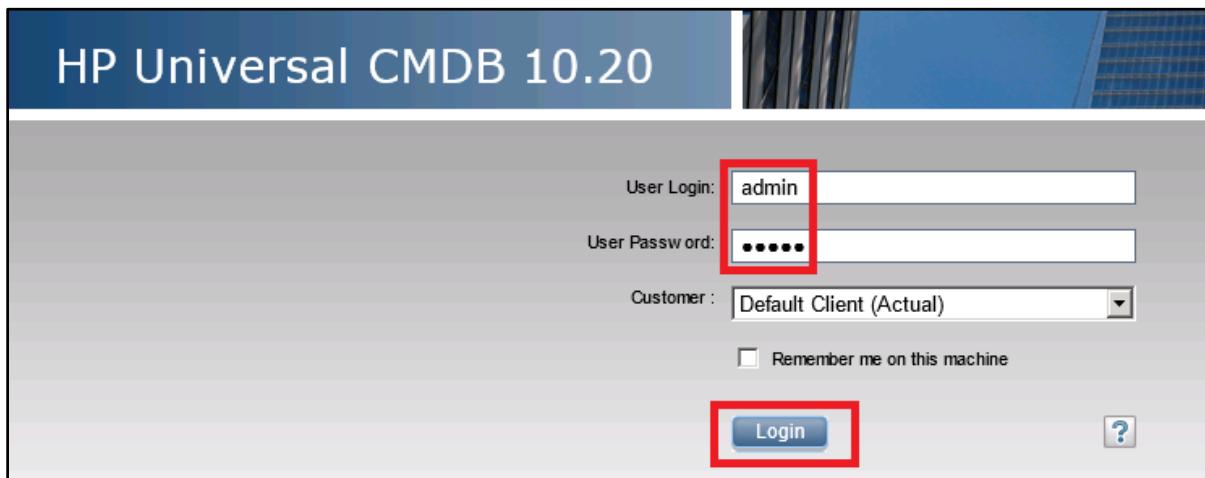
To create integration TQL, complete the following steps:

1. From the desktop UCMDB shortcut icon, open the home page and navigate to the UCMDB login page by clicking the UCMDB link, as shown in the following screenshot:

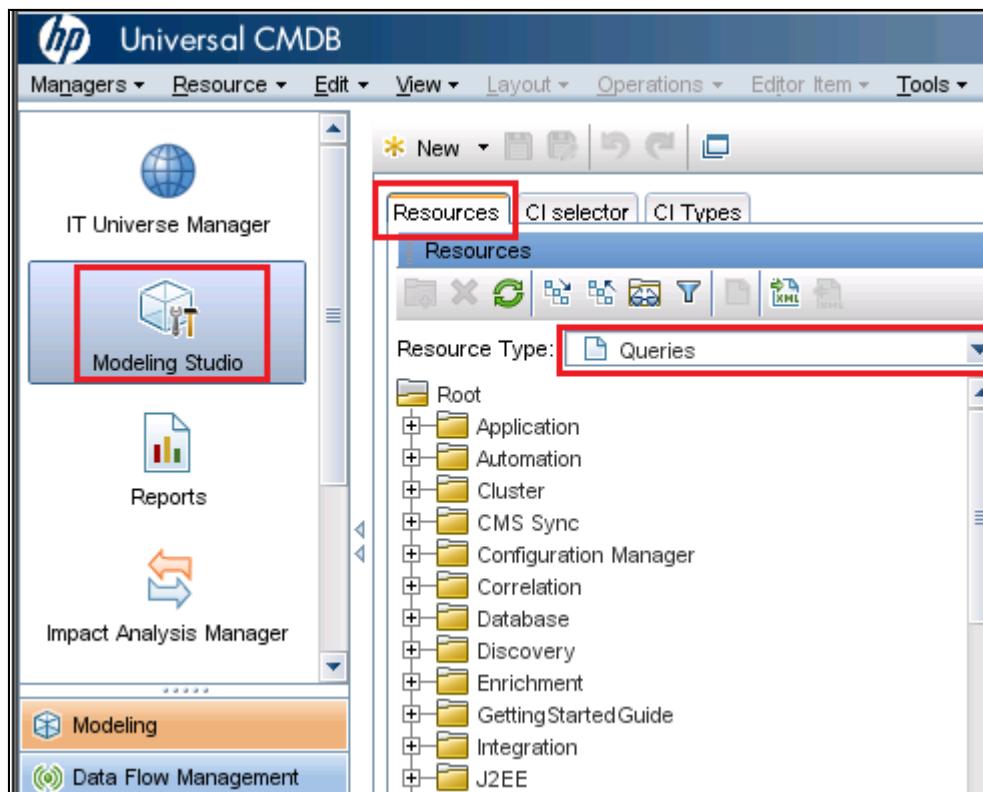


2. In the User Login field, enter **admin**.
3. In the User Password field, enter **admin**.
4. In the Customer field keep the default value **Client (Actual)** from the drop-down list.

5. Click the Login button, as shown in the following screenshot:

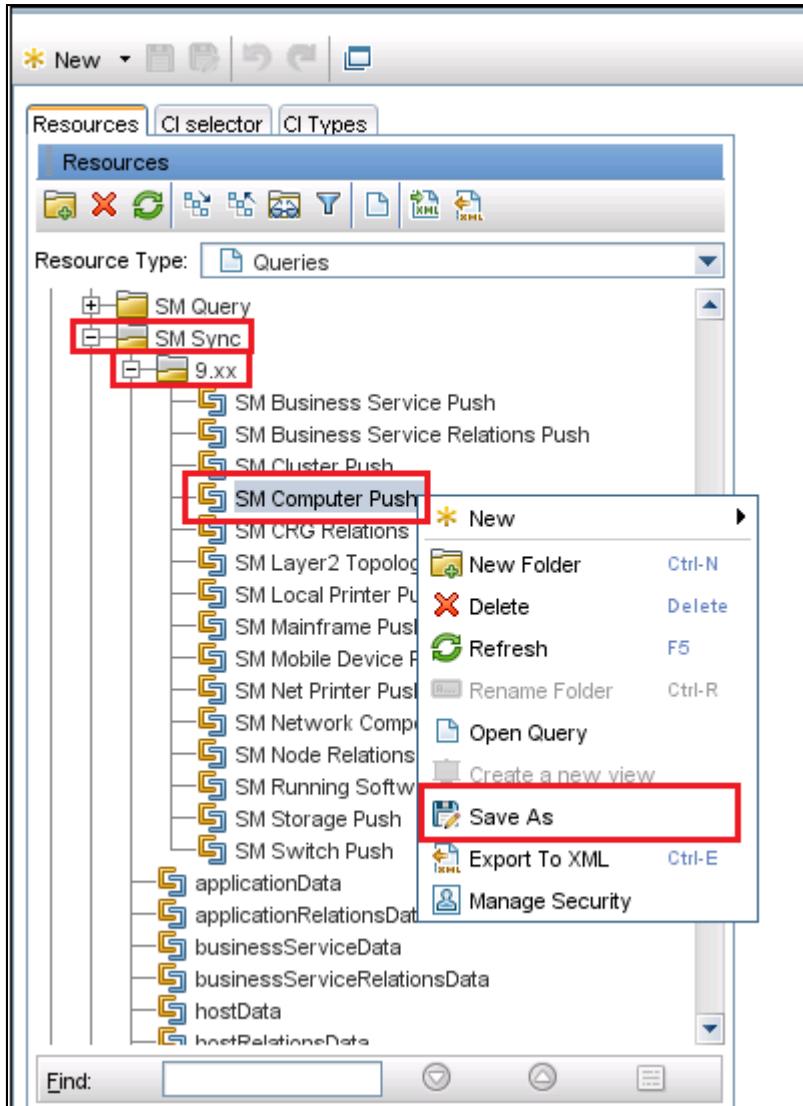


6. Click Modeling in the bottom part of the left navigation bar.
7. Click Modeling Studio.
8. Select the Resources tab.
9. Click Resource Type – Queries, as shown in the following screenshot:



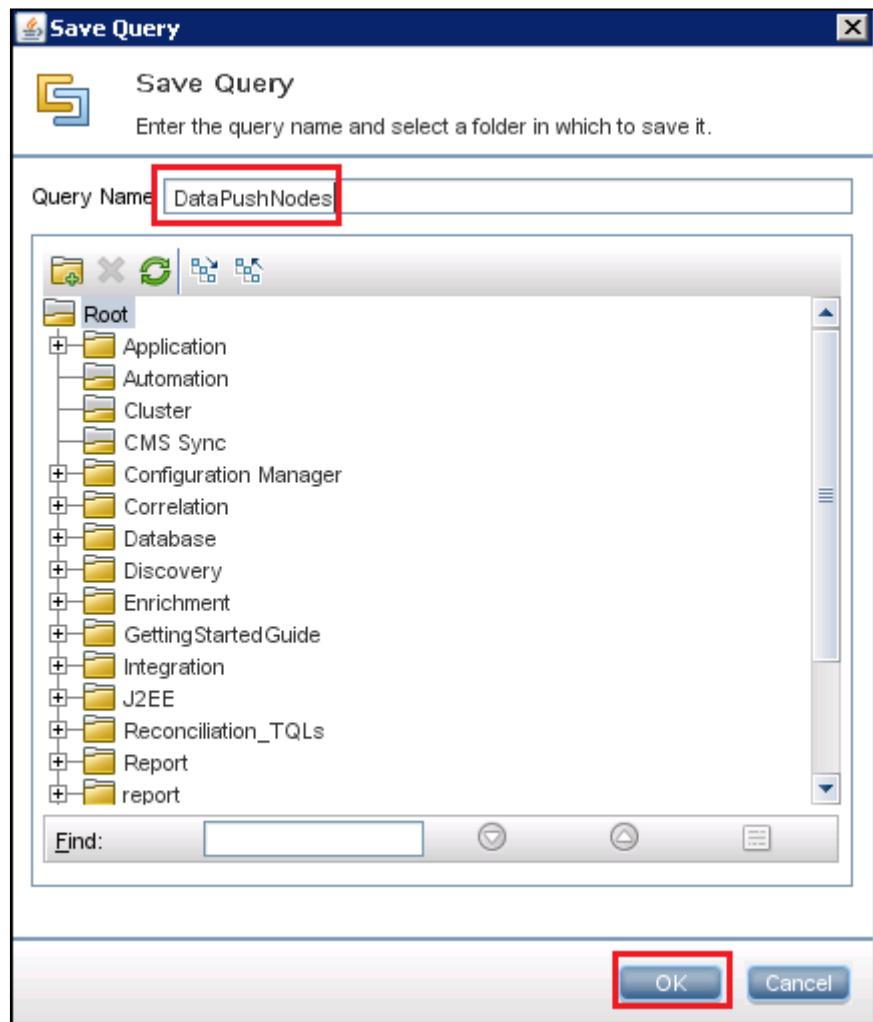
10. In the Query tree, navigate to Integration → SM Sync → 9.xx.

11. Locate and right-click the SM Computer Push TSQL and select Save As, as shown in the following screenshot:

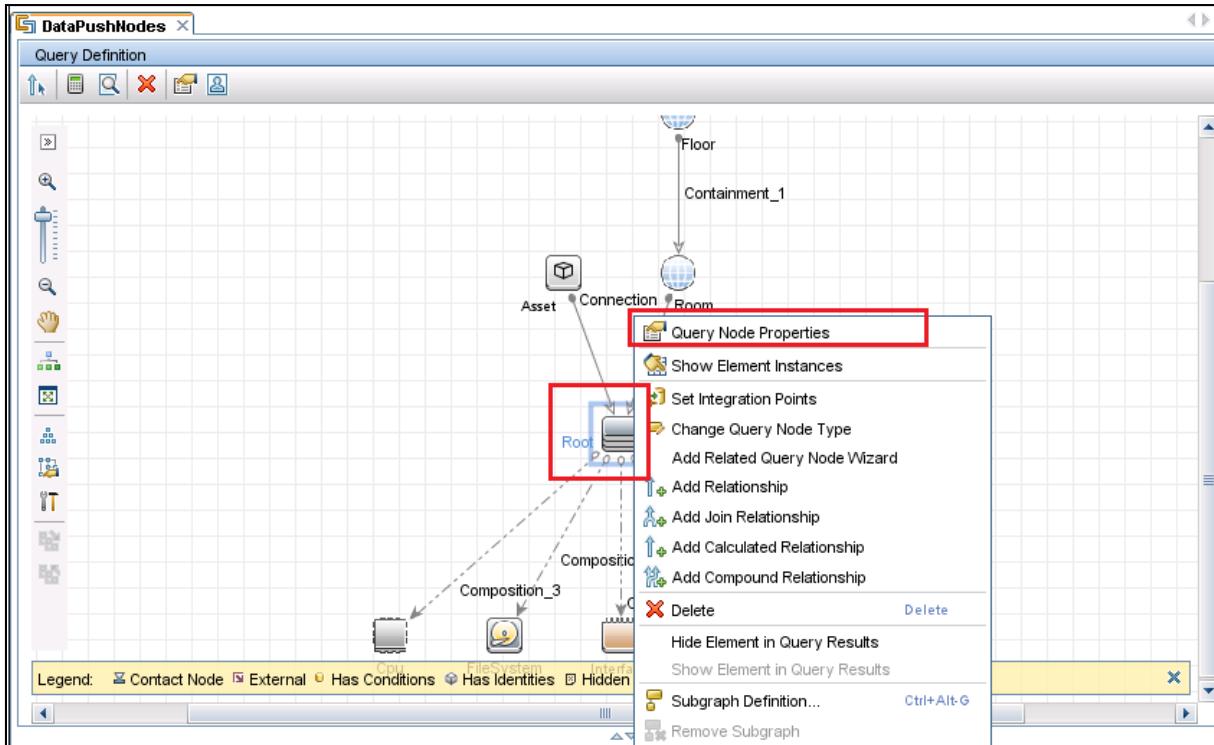


12. In the Save Query window, type **DataPushNodes** for the query name.

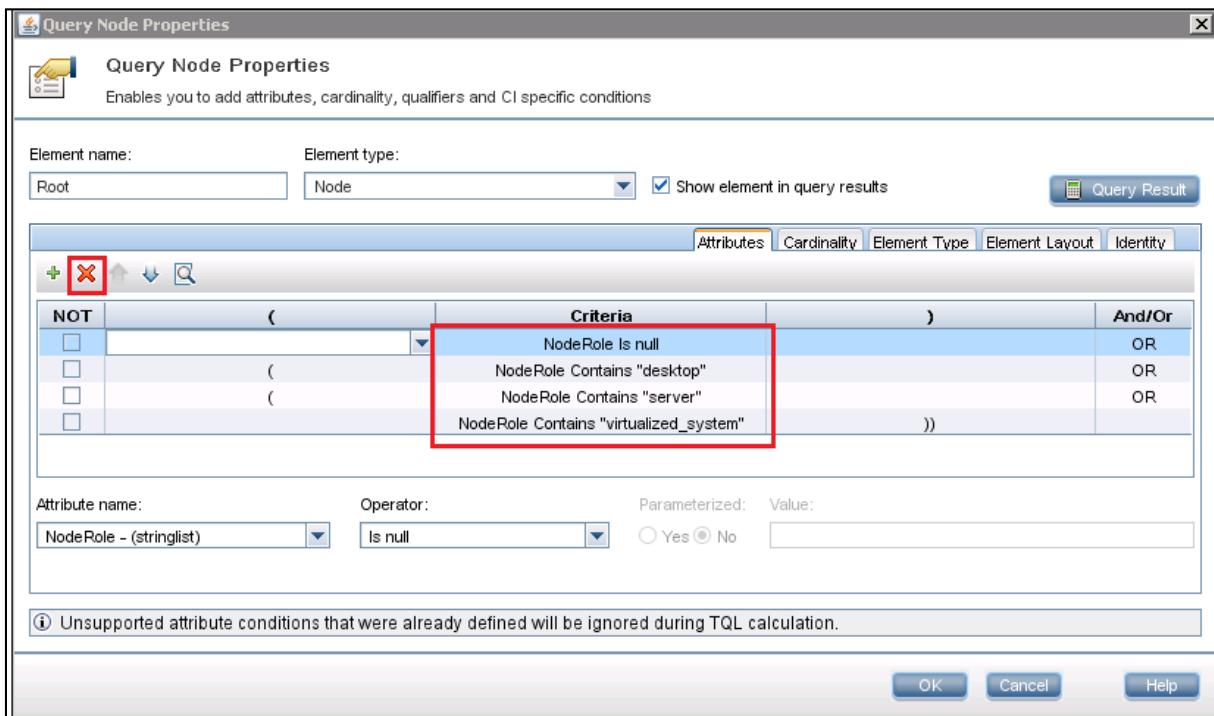
13. Click the OK button, as shown in the following screenshot:



14. Right-click the Root CIT in the TQL map and select Query Node Properties, as shown in the following screenshot:

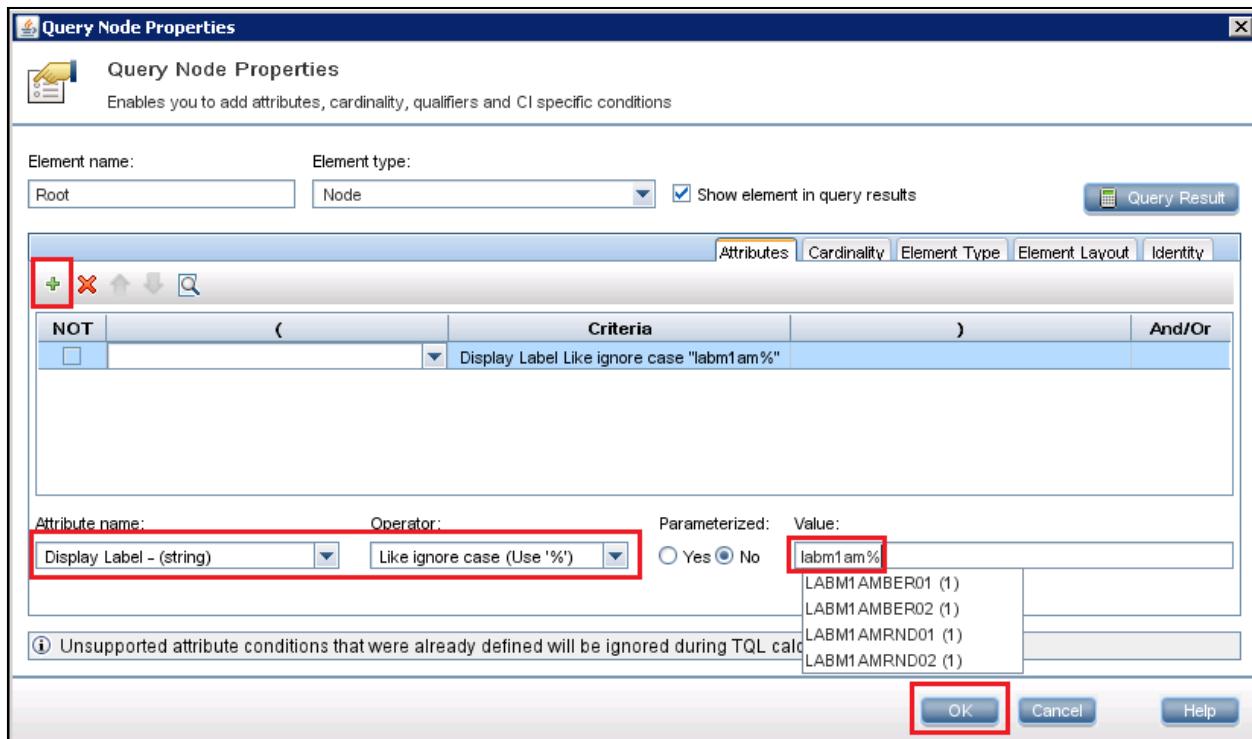


15. Delete all existing Node attribute conditions from the Query Node Properties window, as shown in the following screenshot:

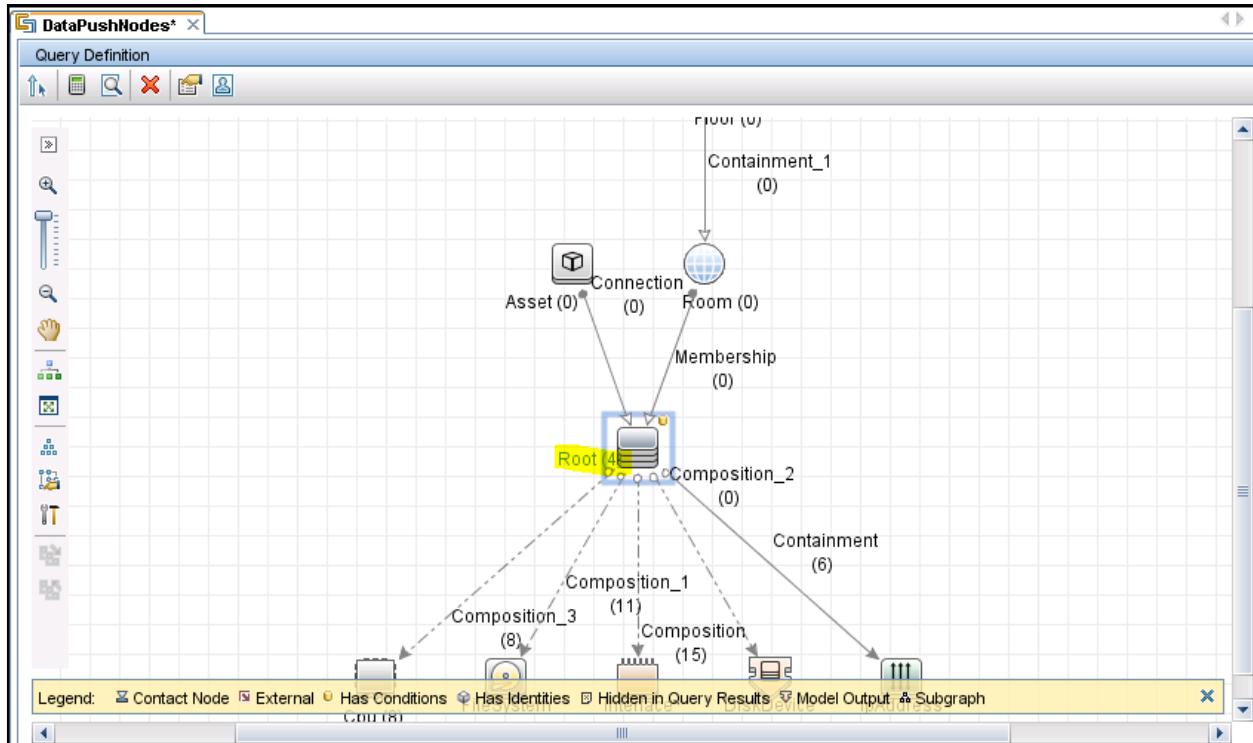


16. Click Add (+) and enter the following conditions: Then click the OK button, as shown in the following screenshot:

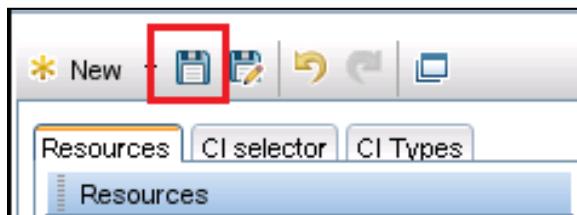
- Attribute name – **Display Label – (String)**
- Operator – **Like Ignore Case (Use '%')**
- Parameterized – **No**
- Value – **labm1am%**



17. Click Query Result Count and make sure you have four Root nodes, as shown in the following screenshot:



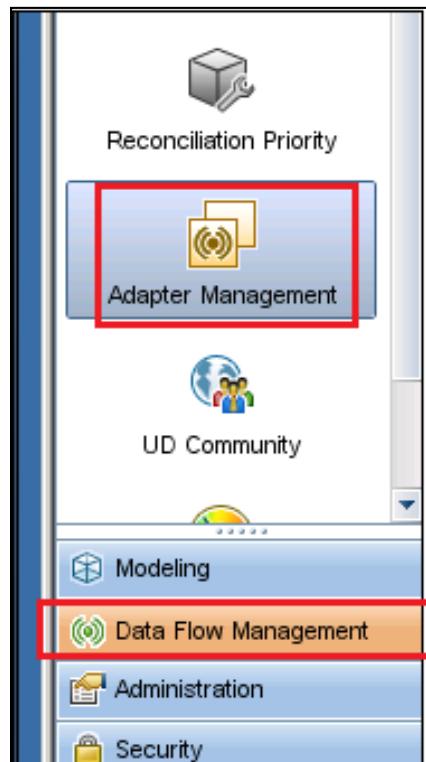
18. Click the Save button.



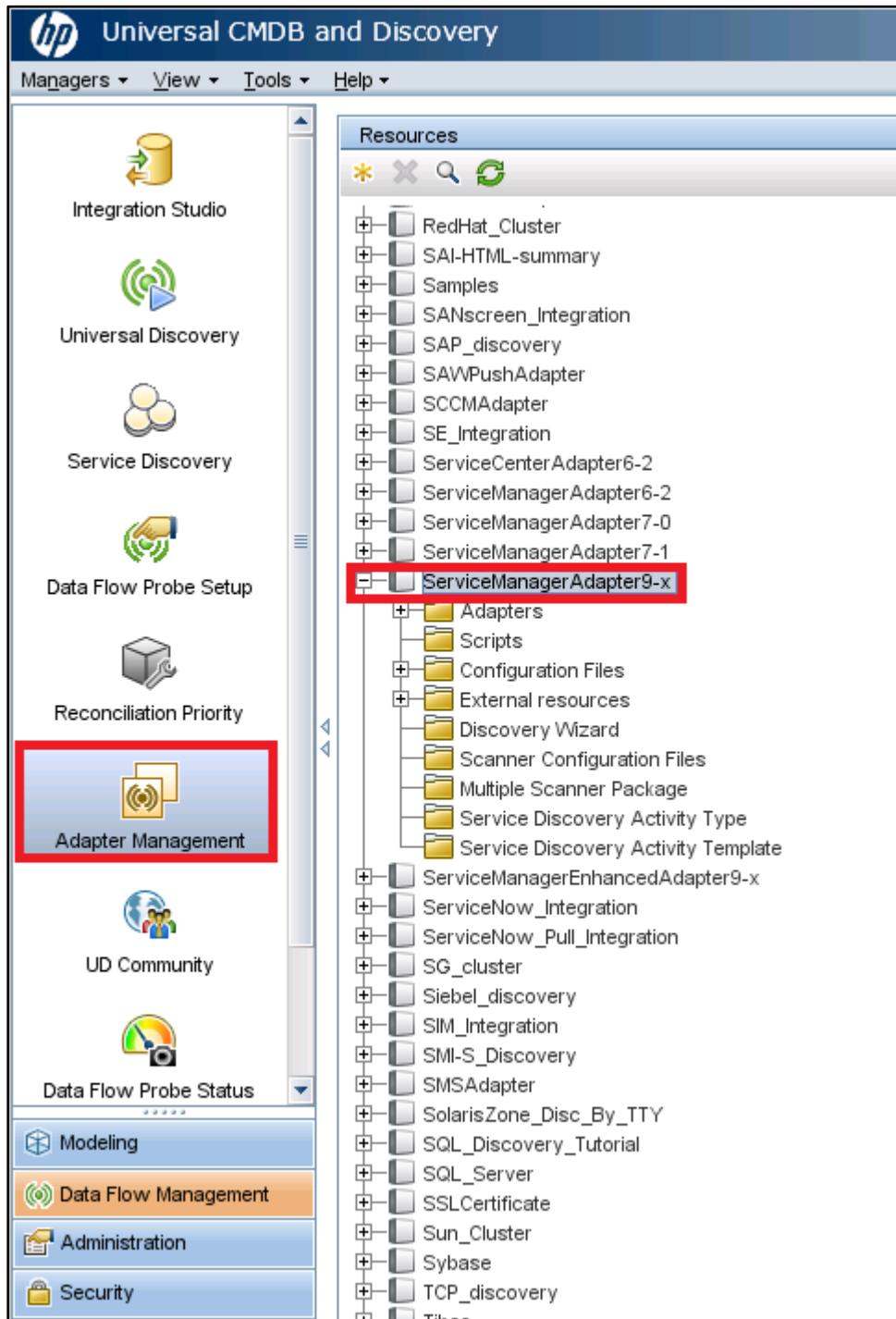
## Exercise 2 – Mapping the New TQL

To map the new TQL, complete the following steps:

1. Click Data Flow Management in the bottom part of the left navigation bar.
2. Click Adapter Management, as shown in the following screenshot:

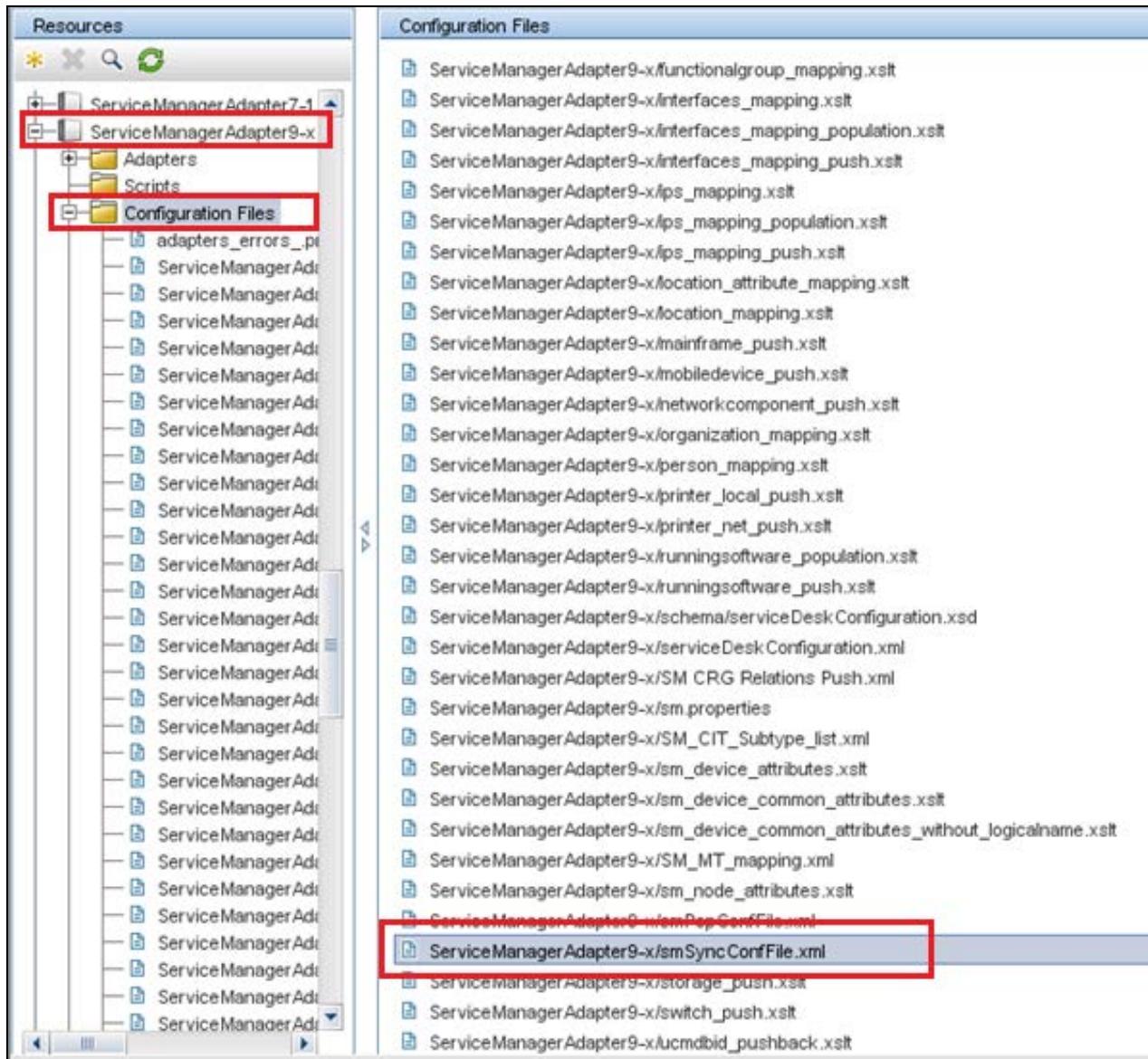


3. Expand the ServiceManagerAdapter9-x folder, as shown in the following screenshot:

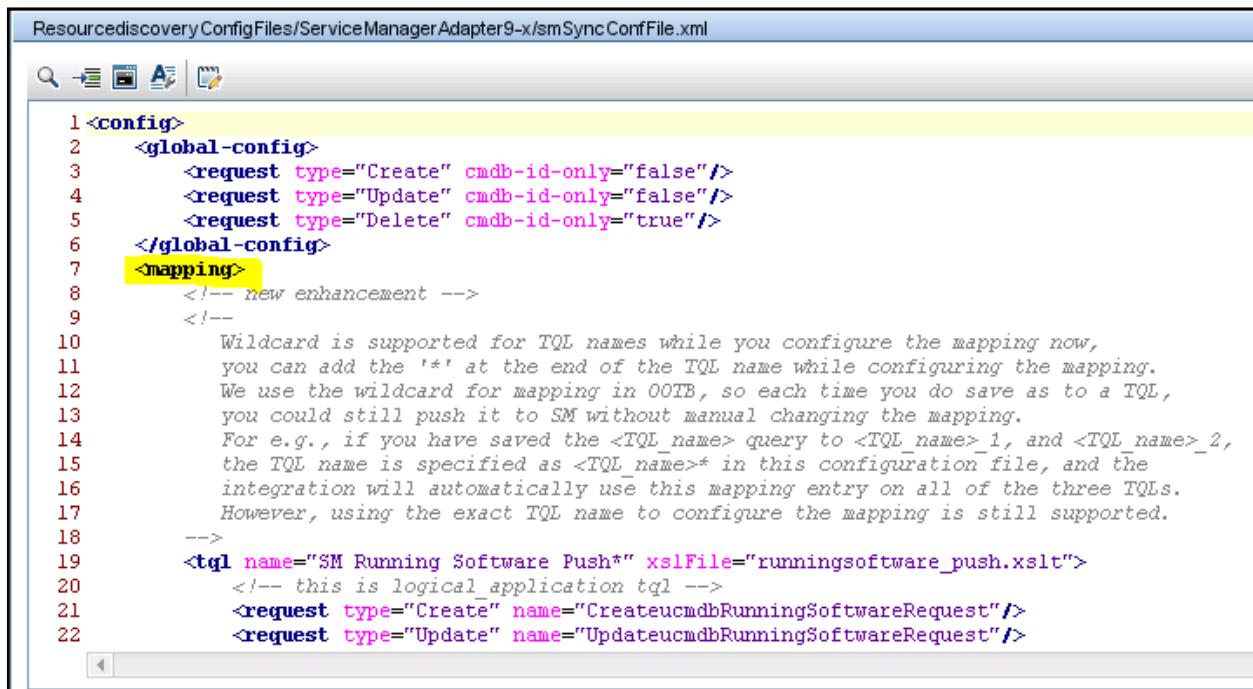


4. Expand the Configuration Files folder.

5. Scroll down on the right side panel and locate ServiceManagerAdapter9-x/smSyncConfFile.xml. Then double click and open ServiceManagerAdapter9-x/smSyncConfFile.xml, as shown in the following screenshot:



6. Locate the <mapping> node in the XML file, as shown in the following screenshot:



```
ResourcediscoveryConfigFiles/ServiceManagerAdapter9-x/smSyncConfFile.xml

1<config>
2  <global-config>
3    <request type="Create" cmdb-id-only="false"/>
4    <request type="Update" cmdb-id-only="false"/>
5    <request type="Delete" cmdb-id-only="true"/>
6  </global-config>
7  <mapping>
8    <!-- new enhancement -->
9    <!--
10      Wildcard is supported for TQL names while you configure the mapping now,
11      you can add the '*' at the end of the TQL name while configuring the mapping.
12      We use the wildcard for mapping in OOTB, so each time you do save as to a TQL,
13      you could still push it to SM without manual changing the mapping.
14      For e.g., if you have saved the <TQL_name> query to <TQL_name>_1, and <TQL_name>_2,
15      the TQL name is specified as <TQL_name>* in this configuration file, and the
16      integration will automatically use this mapping entry on all of the three TQLs.
17      However, using the exact TQL name to configure the mapping is still supported.
18    -->
19    <tql name="SM Running Software Push*" xsfFile="runningsoftware_push.xslt">
20      <!-- this is logical_application tql -->
21      <request type="Create" name="CreateucmdbRunningSoftwareRequest"/>
22      <request type="Update" name="UpdateucmdbRunningSoftwareRequest"/>
```

7. Type the following XML as a separate tag section under the <mapping> node, as shown in the following screenshot.

```
<tql name="DataPushNodes" xslFile="computer_push.xslt">
  <!-- this is host->ip,interface,sm_server tql -->
  <request type="Create" name="CreateucmdbNodeRequest"/>
  <request type="Update" name="UpdateucmdbNodeRequest"/>
  <request type="Delete" name="DeleteucmdbNodeRequest"/>
</tql>
```

ResourcediscoveryConfigFiles/ServiceManager Adapter9-x/smSync ConfFile.xml

```

15      the TQL name is specified as <TQL_name>* in this configuration file, and the
16      integration will automatically use this mapping entry on all of the three TQLs.
17      However, using the exact TQL name to configure the mapping is still supported.
18      -->
19      <tql name="SM Running Software Push*" xslFile="runningsoftware_push.xslt">
20        <!-- this is logical_application tql -->
21        <request type="Create" name="CreateucmdbRunningSoftwareRequest"/>
22        <request type="Update" name="UpdateucmdbRunningSoftwareRequest"/>
23        <request type="Delete" name="DeleteucmdbRunningSoftwareRequest"/>
24      </tql>
25      <tql name="SM Business Service Push*" xslFile="business_service_push.xslt">
26        <!-- this is business service for_catalog tql -->
27        <request type="Create" name="CreateucmdbBusinessServiceRequest"/>
28        <request type="Update" name="UpdateucmdbBusinessServiceRequest"/>
29        <request type="Delete" name="DeleteucmdbBusinessServiceRequest"/>
30      </tql>
31      <tql name="DataPushNodes" xslFile="computer_push.xslt">
32        <!-- this is host->ip,interface,sm server tql -->
33        <request type="Create" name="CreateucmdbNodeRequest"/>
34        <request type="Update" name="UpdateucmdbNodeRequest"/>
35        <request type="Delete" name="DeleteucmdbNodeRequest"/>
36      </tql>

```

Validation Information

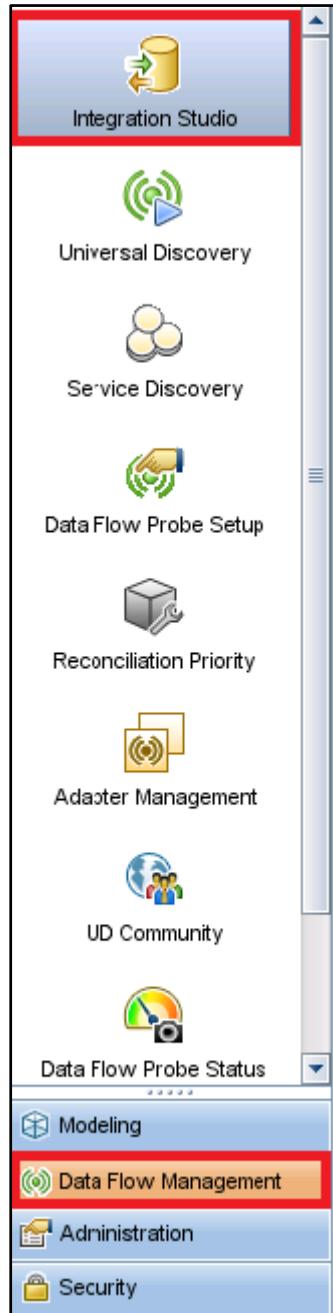
Valid XML file.

8. Click the Save button to save your changes.

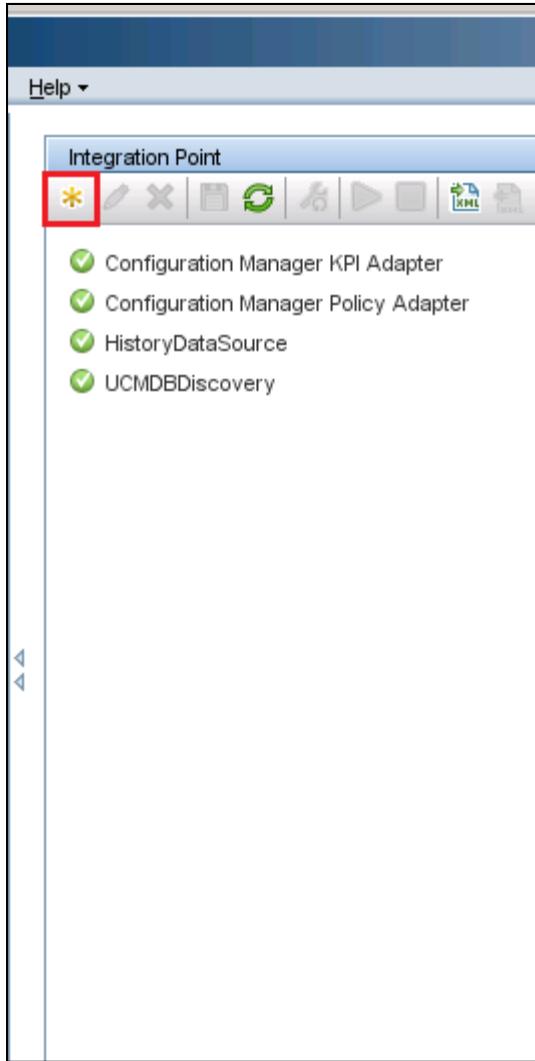
## Exercise 3 – Creating an Integration Point to SM

To create an integration point to SM, complete the following steps:

1. Click Data Flow Management in the bottom part of the left navigation bar.
2. Click Integration Studio, as shown in the following screenshot:



3. Click the New Integration Point  button, as shown in the following screenshot:



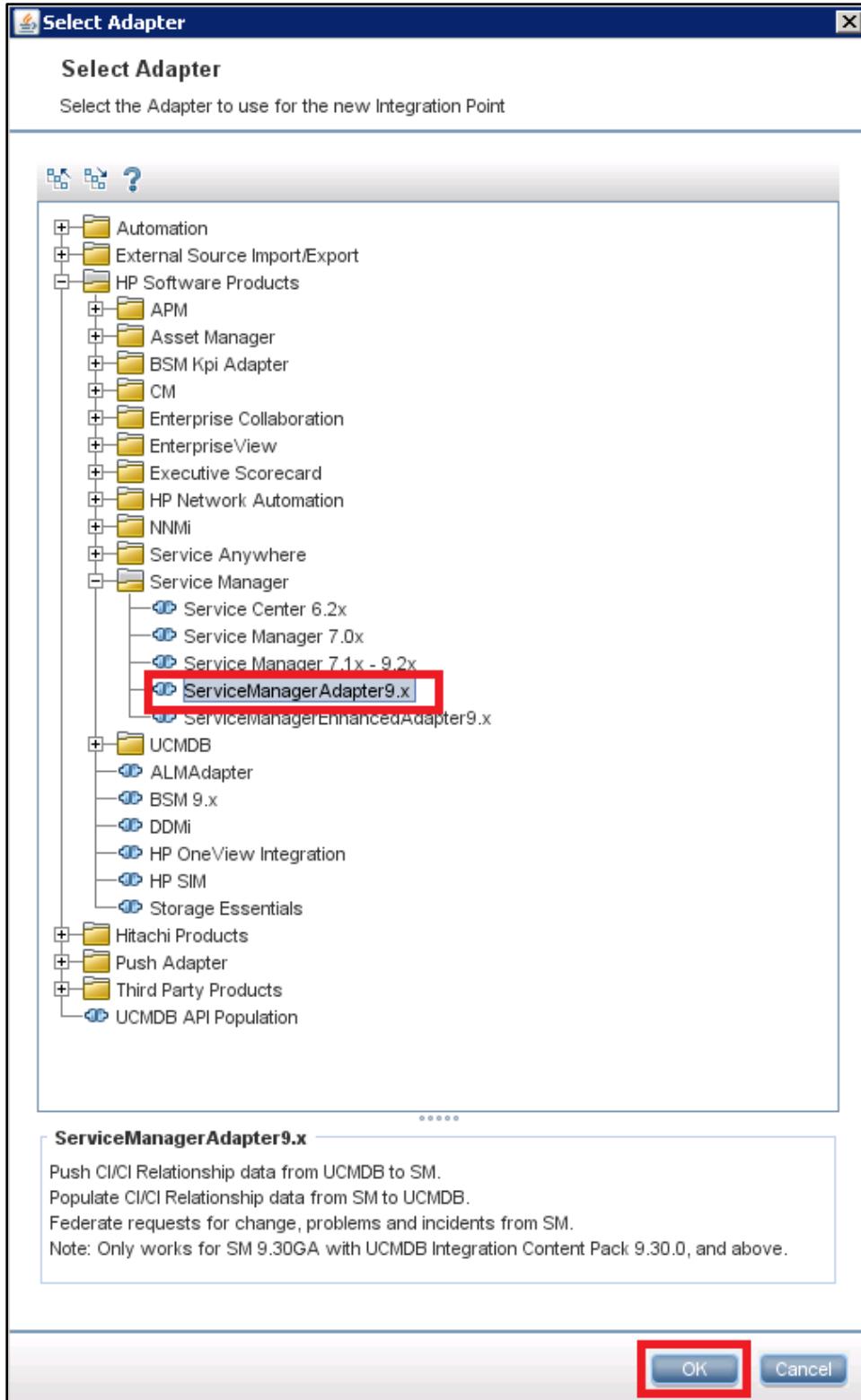
4. In the New Integration Point window, enter the following information:

- Integration Name – **ServiceManager Integration**
- Integration Description – **Integration with Service Manager.**

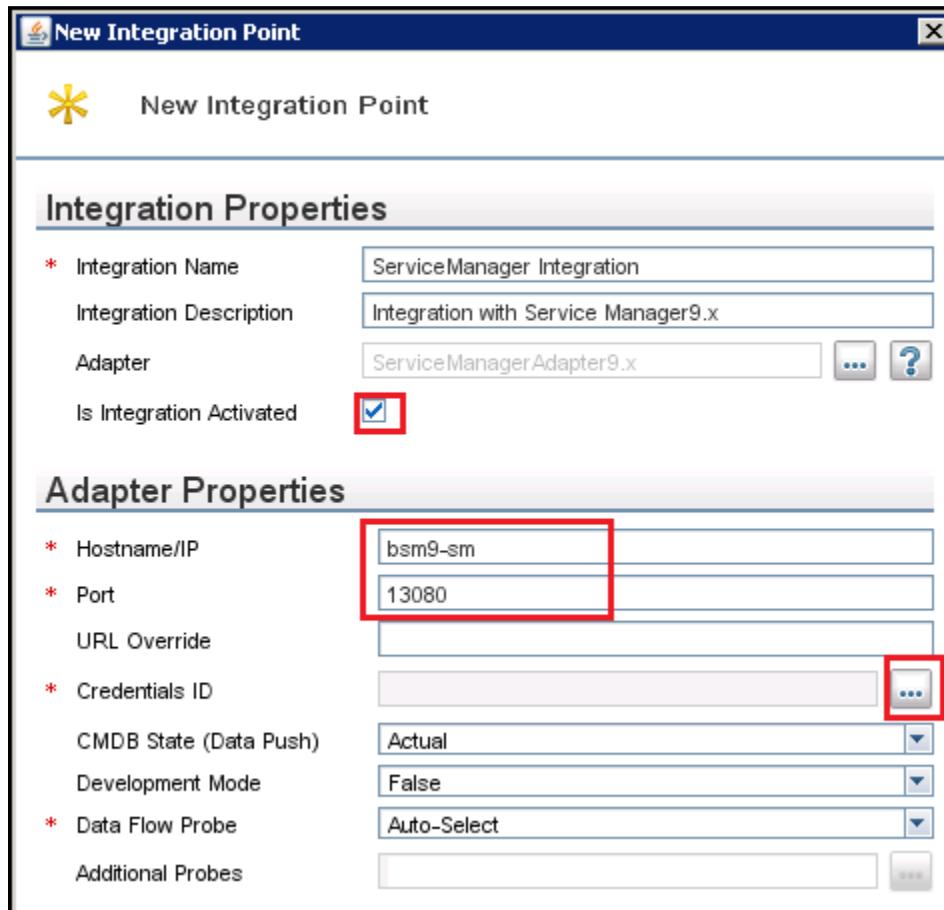
- a. Click the Select Adapter button to select the adapter, as shown in the following screenshot:



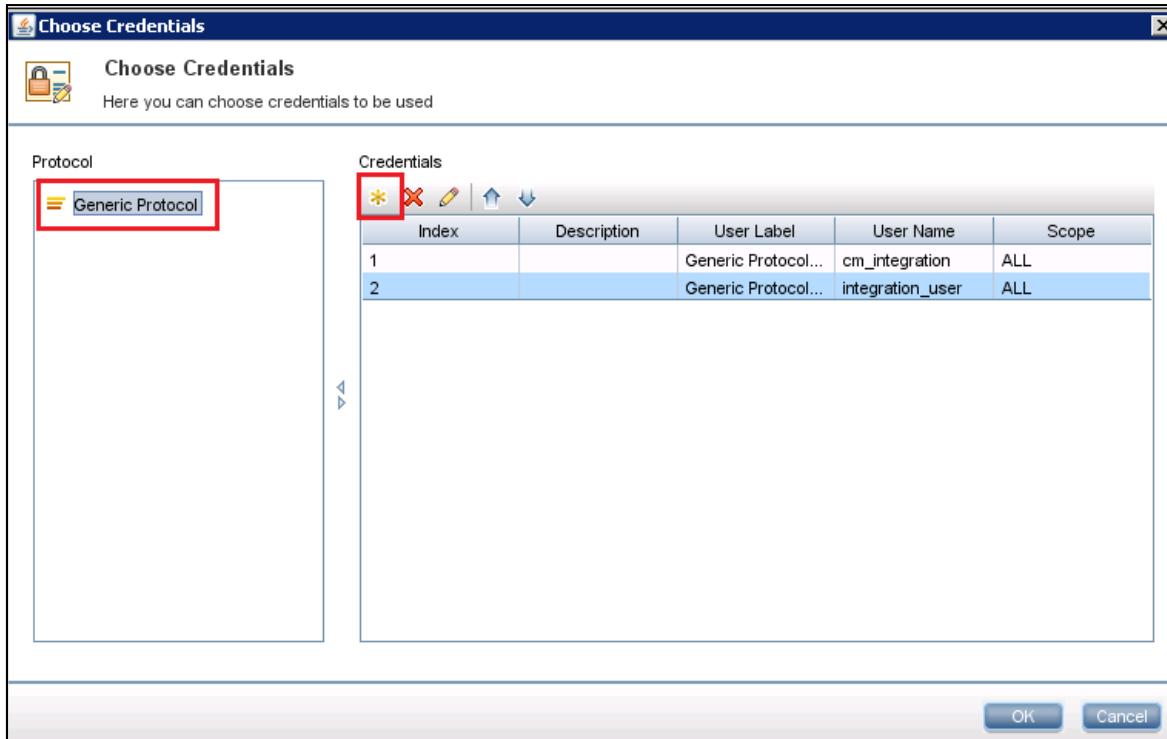
- b. From the Select Adapter window, select the adapter, HP Software Products → Service Manager → ServiceManagerAdapter9.x. Then click the OK button to close the window, as shown in the following screenshot:



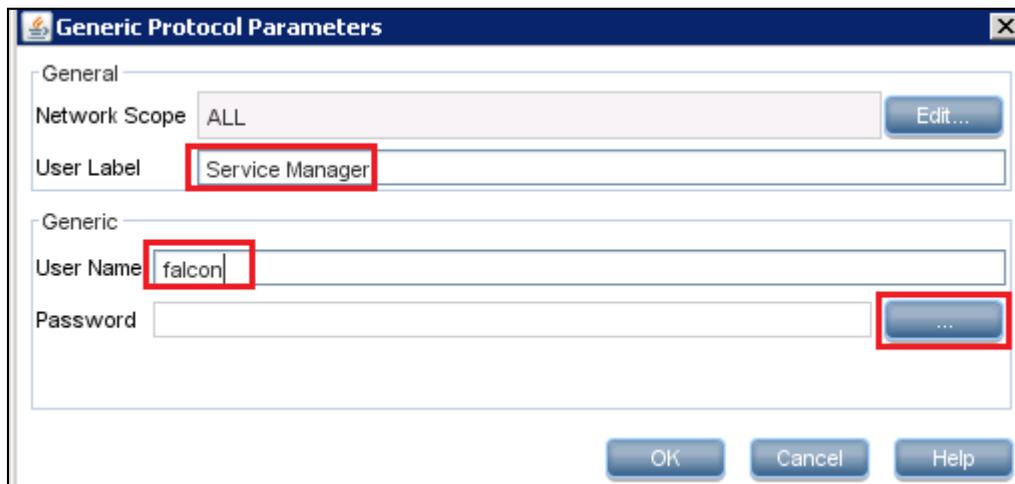
5. In the same New Integration Point window, continue to enter the details:
- Keep the Is Integration Activated check box checked.
  - Type Hostname/IP as **bsm9-sm**.
  - Retain the Port as 13080 (default value).
  - Click the Select Credential Id button to select the SM credential details, as shown in the following screenshot:



- e. In the Choose Credentials window, select Credentials – Generic Protocol and click the New button, as shown in the following screenshot:



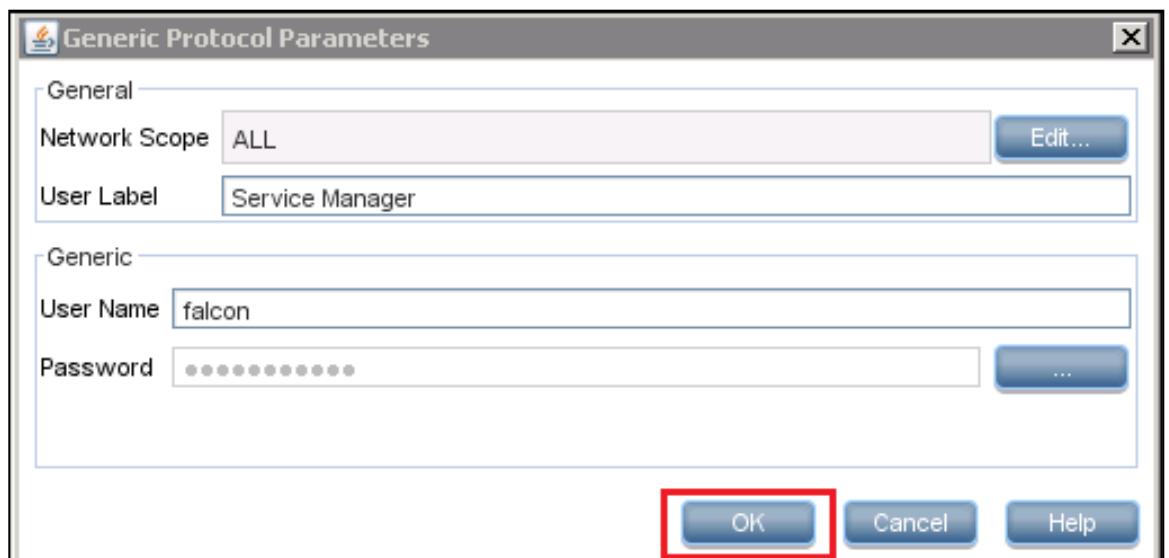
- f. In the Generic Protocol Parameter window, enter the following details:
- Network Scope – **ALL**
  - User Label – **Service Manager**
  - User Name – **falcon**
  - Click the Password button, as shown in the following screenshot:



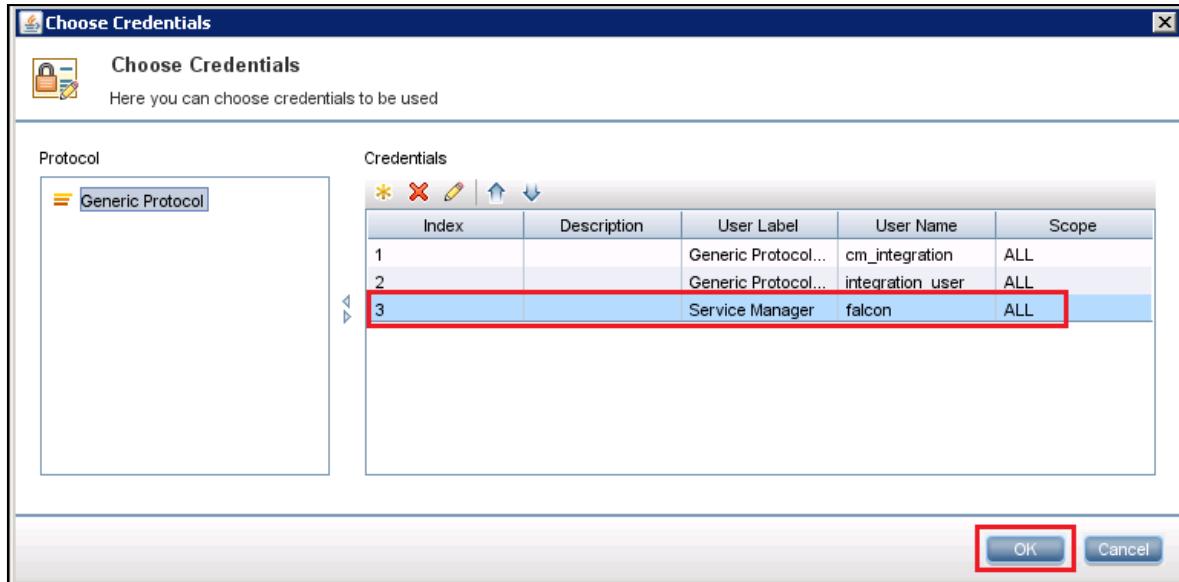
- g. In the Edit Password window, enter Password as **hpswDemo\$09** and click the OK button on the Edit Password window, as shown in the following screenshot:



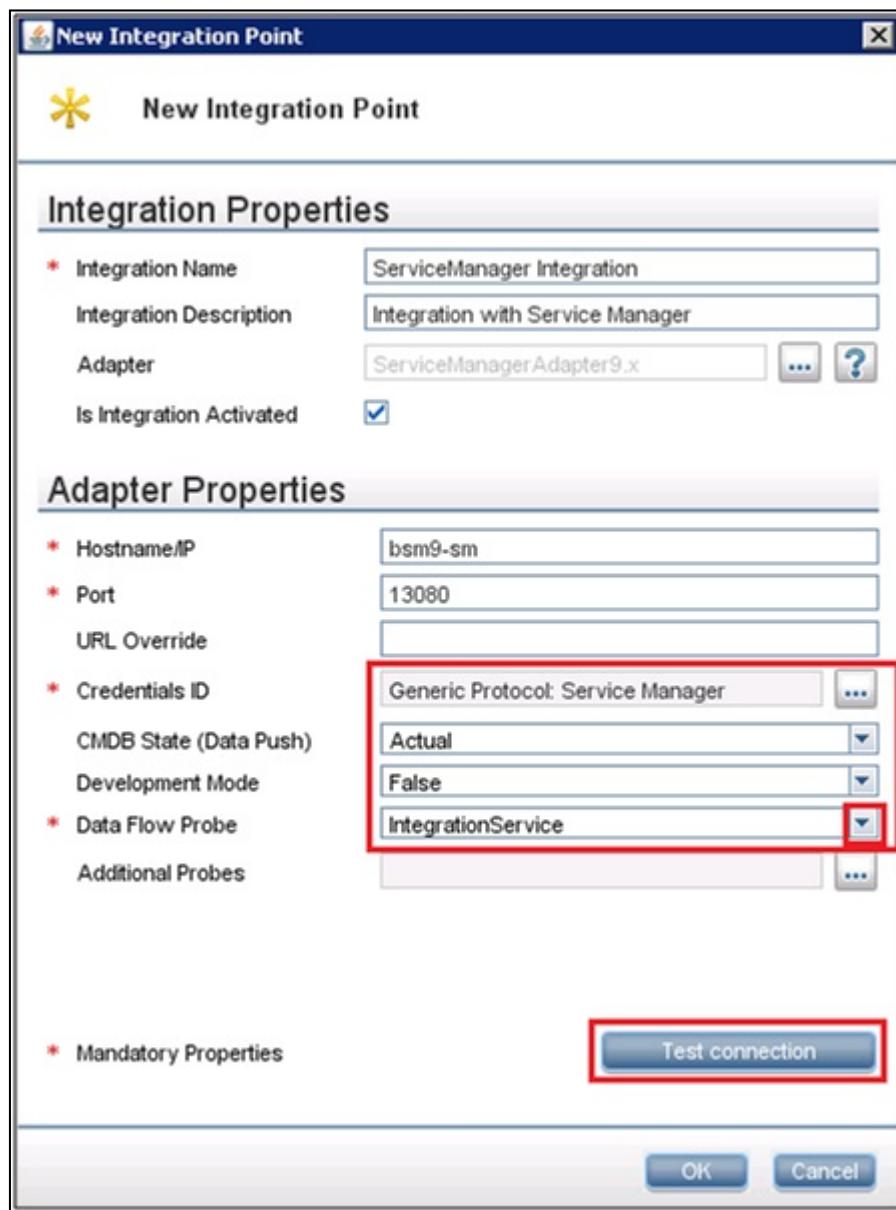
- h. Click OK button to close the Generic Protocol Parameters window, as shown in the following screenshot:



- i. With the new entry selected, click the OK button to close the Choose Credentials window, as shown in the following screenshot:



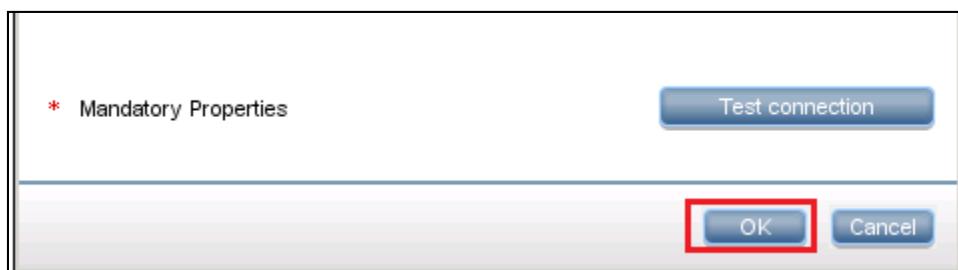
6. In the New Integration Point window, continue to enter the following details and then Click the Test connection button to verify the connection, as shown in the screenshot on the next page:
- CMDB State (Data Push) – **Actual**
  - Development Mode – **False**

c. Dataflow Probe – **IntegrationService**

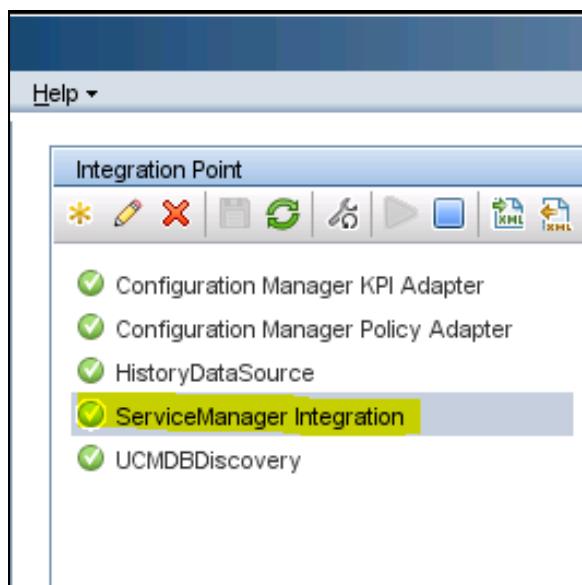
- d. A Connection Test Status with Connection succeeded message prompt is displayed. Click the OK button to close it, as shown in the following screenshot:



7. When you get the Successful message, click the OK button to close the New Integration point window, as shown in the following screenshot:



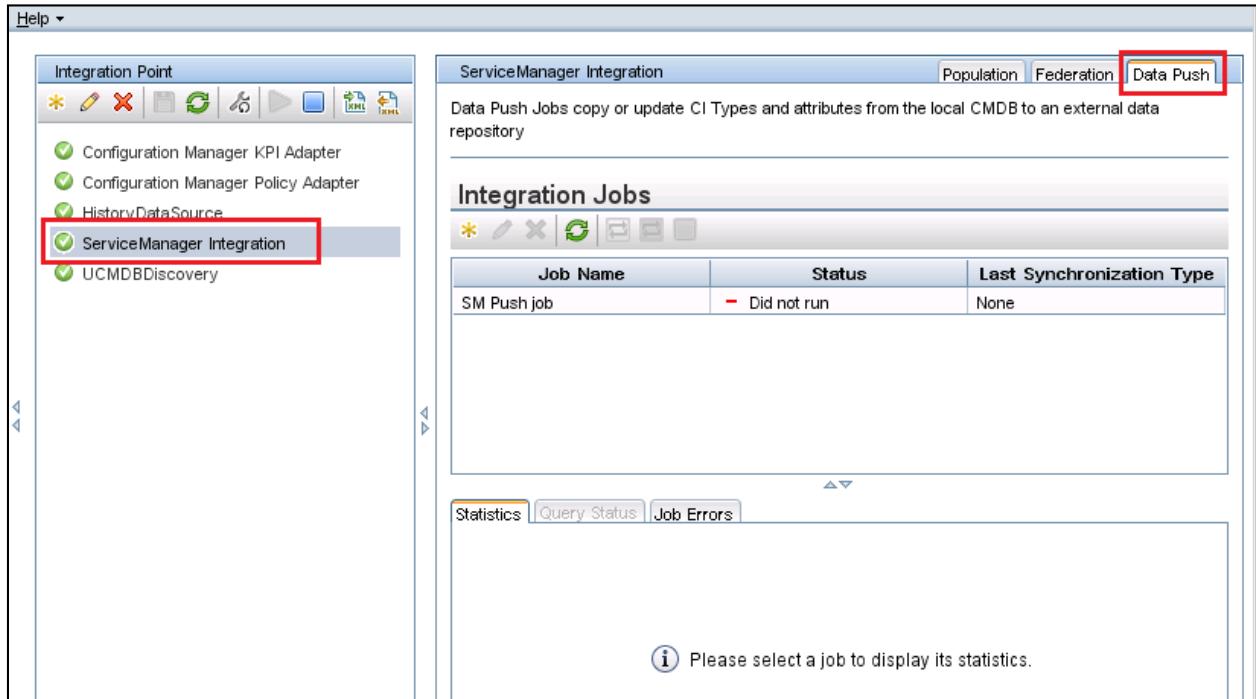
8. Verify that the integration point is now displayed in the pane, as shown in the following screenshot:



## Exercise 4 – Creating a Data Push Job

To create a Data Push job, perform the following steps:

1. From UCMDB Integration Studio, select the Integration Point created previously and click the Data Push tab from the Integration Jobs pane on the right side, as shown in the following screenshot:



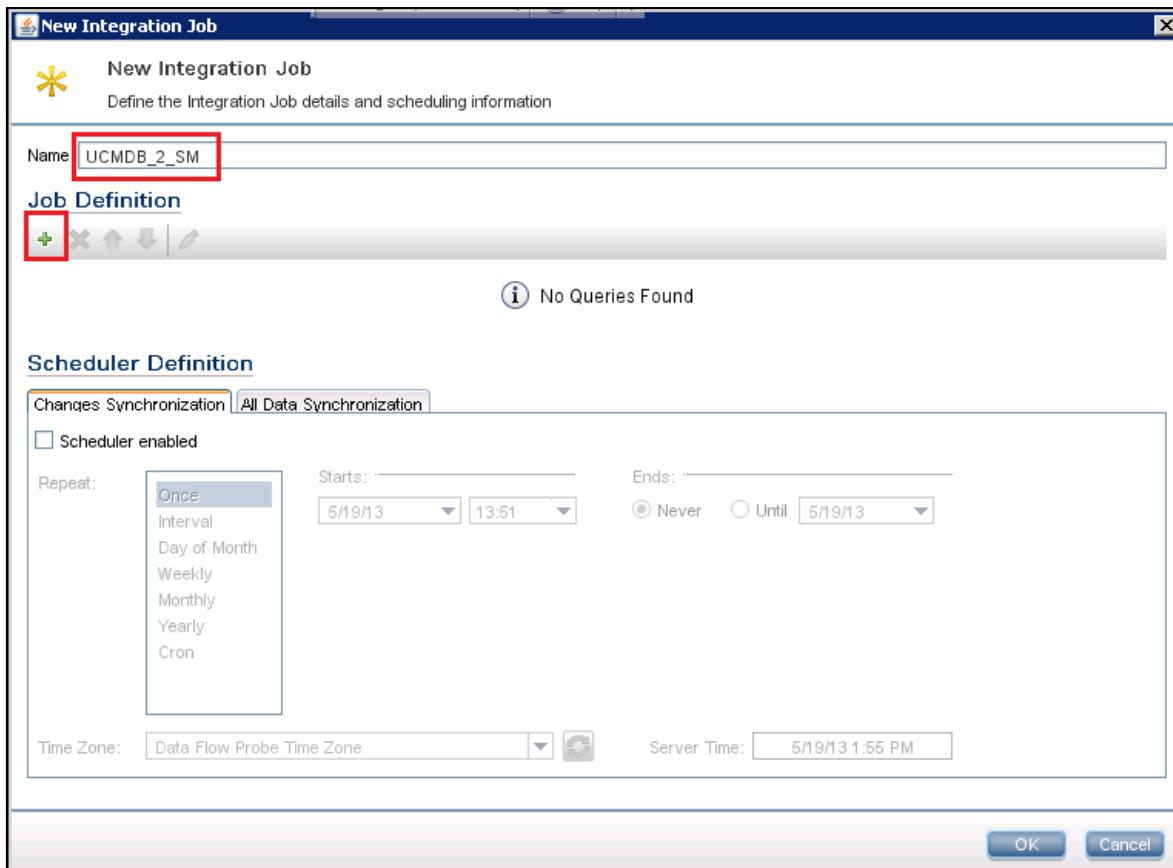
2. Click the New Integration Job button, as shown in the following screenshot:

The screenshot shows the 'ServiceManager Integration' interface with the 'Data Push' tab selected. The main area displays 'Integration Jobs' with a single entry: 'SM Push job' (Status: Did not run, Last Synchronization Type: None). Below the table are tabs for 'Statistics', 'Query Status', and 'Job Errors'. A message at the bottom says 'Please select a job to display its statistics.'

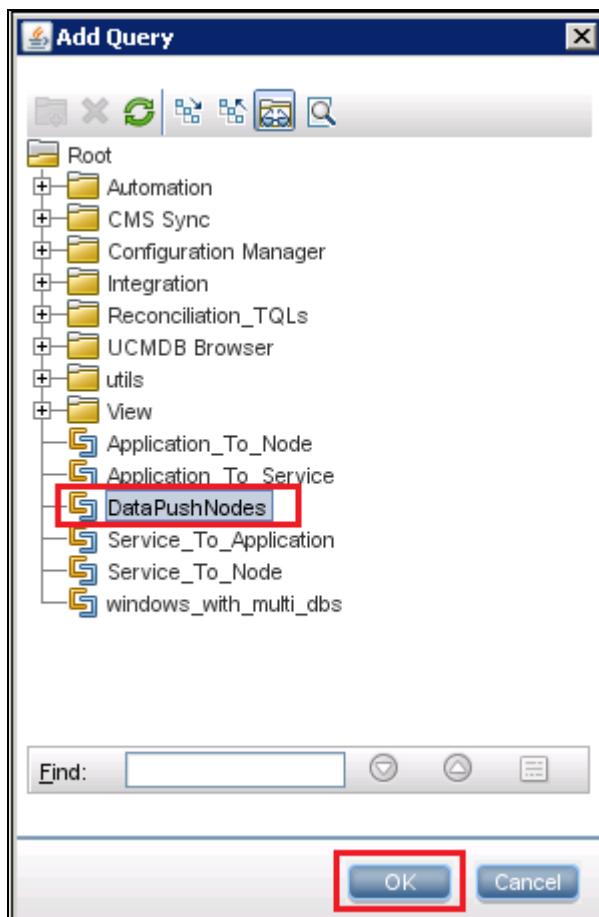
Job Name	Status	Last Synchronization Type
SM Push job	Did not run	None

3. In the New Integration Job window, enter Name as UCMDB\_2\_SM.

4. Click the Add Query button (plus) under the Job Definition section, as shown in the following screenshot:

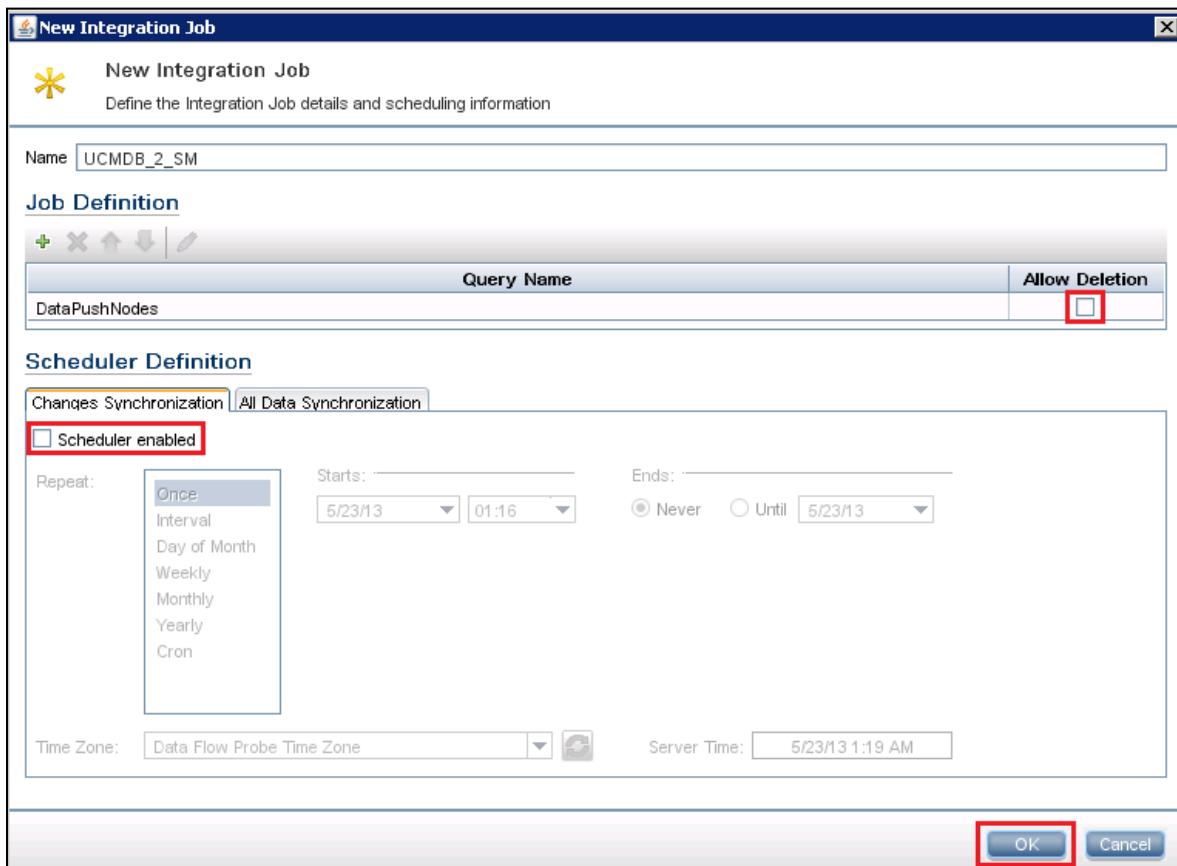


5. The Add Query window is displayed. Select the DataPushNodes query and click the OK button, as shown in the following screenshot:



6. In the New Integration Job window, under the Job Definition section, keep the Allow Deletion check box against the DataPushNodes query unchecked.

7. Under the Scheduler Definition section, keep the Scheduler enabled check box unchecked. Then Click the OK button to close the New Integration Job window, as shown in the following screenshot:



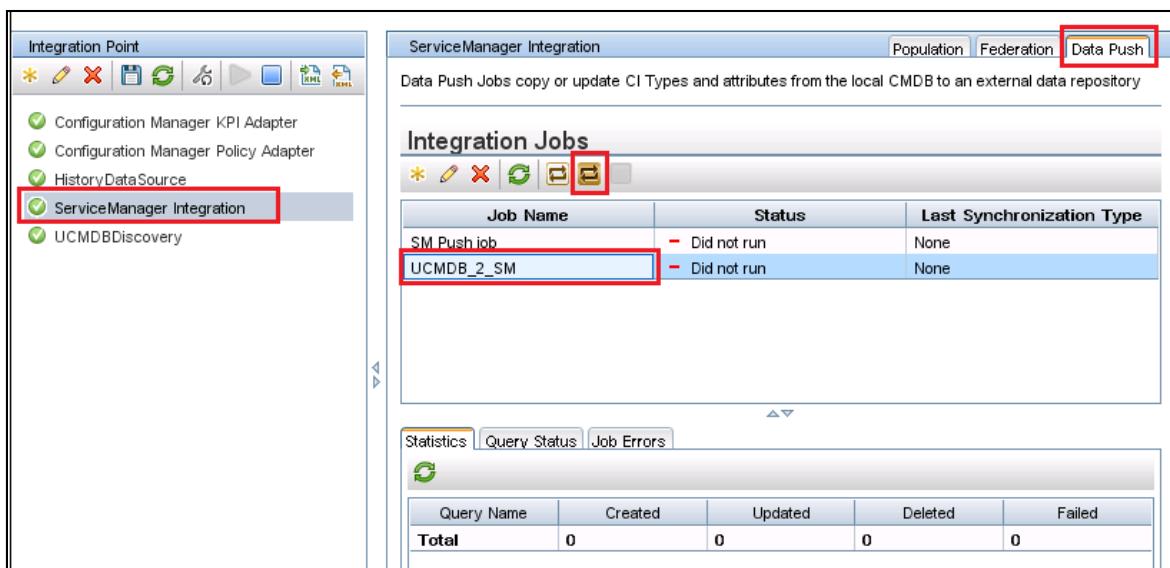
8. Click the Save button in the Integration Point pane, as shown in the following screenshot:

Job Name	Status	Last Synchronization Type
SM Push job	Did not run	None
UCMDB_2_SM	Did not run	None

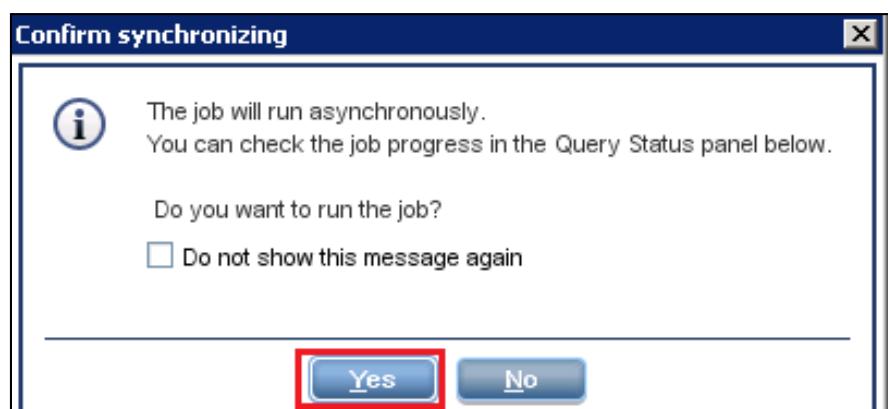
## Exercise 5 – Running the Population Job

To run the population job, perform the following steps:

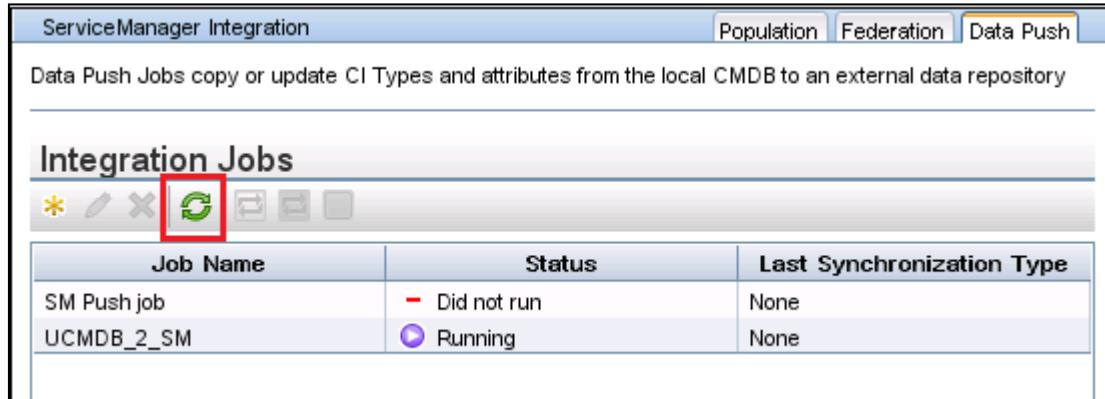
1. From Integration Studio, select Service Manager Integration, and click the Data Push tab.
2. Select the UCMDB\_2\_SM job.
3. Click the Full Synchronization – Runs the Selected job  button, as shown in the following screenshot:



4. Click the Yes button in the Confirm synchronizing dialog box that is displayed, as shown in the following screenshot:

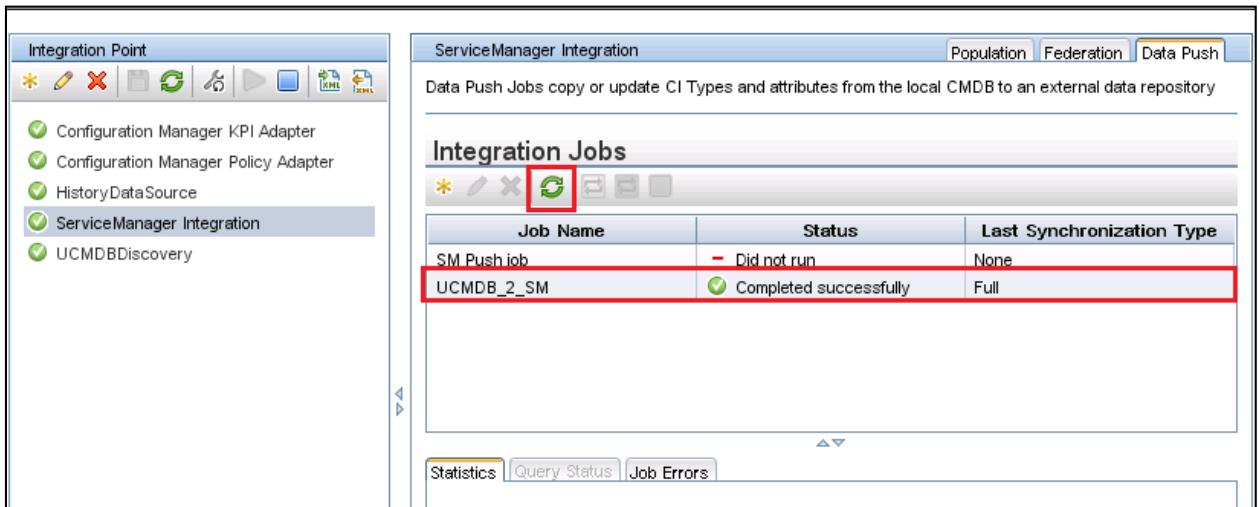


5. Click the Refresh  button to verify that the status changes to Running, as shown in the following screenshot:



Job Name	Status	Last Synchronization Type
SM Push job	Did not run	None
UCMDB_2_SM	Running	None

6. Click Refresh  every 30 seconds or so, until the status changes to **Completed successfully**, as shown in the following screenshot:



Job Name	Status	Last Synchronization Type
SM Push job	Did not run	None
UCMDB_2_SM	Completed successfully	Full

7. Select the job and click the Statistics tab to make sure that four CIs were transferred, as shown in the following screenshot:

The screenshot shows the 'ServiceManager Integration' interface with the 'Data Push' tab selected. The main area displays 'Integration Jobs' with two entries:

Job Name	Status	Last Synchronization Type
SM.Push.job	Did not run	None
UCMDB_2_SM	Completed successfully	Full

The 'UCMDB\_2\_SM' row is highlighted with a red box. Below the table, there are tabs for 'Statistics', 'Query Status', and 'Job Errors'. The 'Statistics' tab is selected, showing the following data:

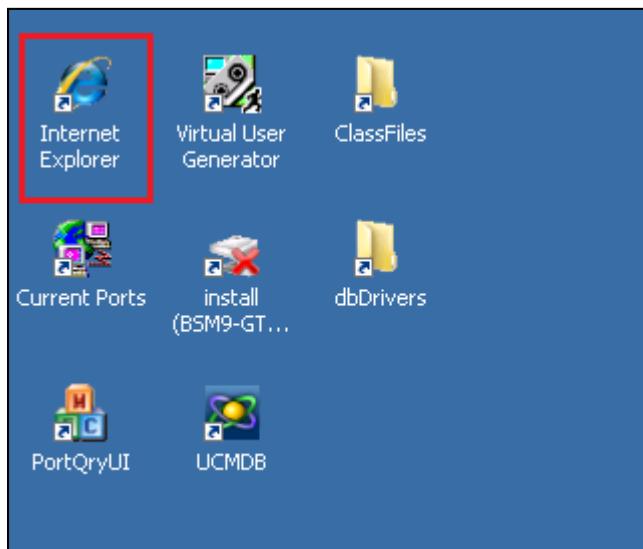
Query Name	Created	Updated	Deleted	Failed
DataPushNodes	4	0	0	0
Total	4	0	0	0

At the bottom, a status message reads: 'Last Updated: 05/23/2013 01:35:46 AM (Valid to: 05/23/2013 01:40:18 AM)'.

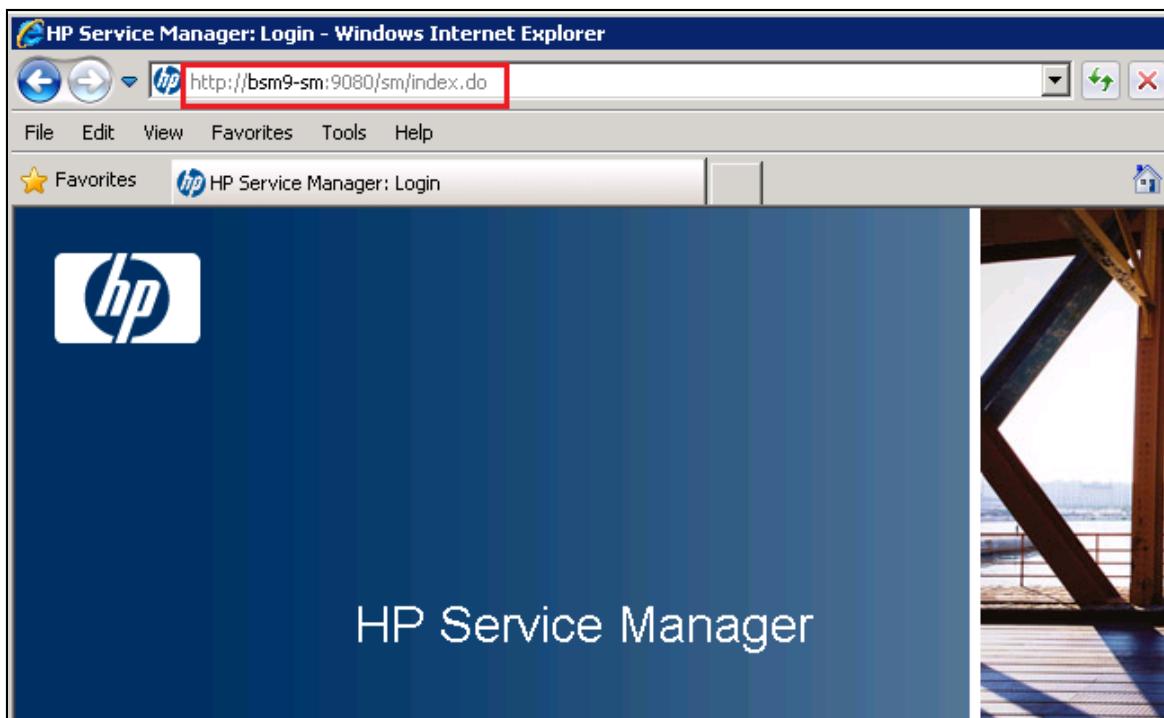
## Exercise 6 – Viewing CIs in SM

To view the CIs in SM, complete the following steps:

1. From the Access VM desktop, double-click the IE shortcut and open the browser, as shown in the following screenshot:

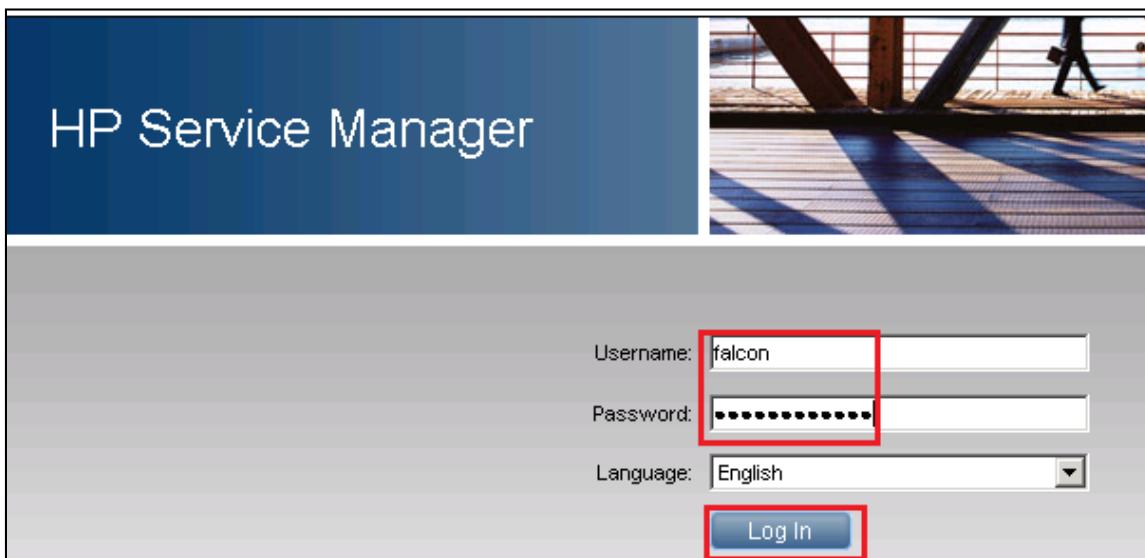


2. Type the Service Manager web client URL `http://bsm9-sm:9080/sm/index.do` in the browser address bar and press Enter, as shown in the following screenshot:

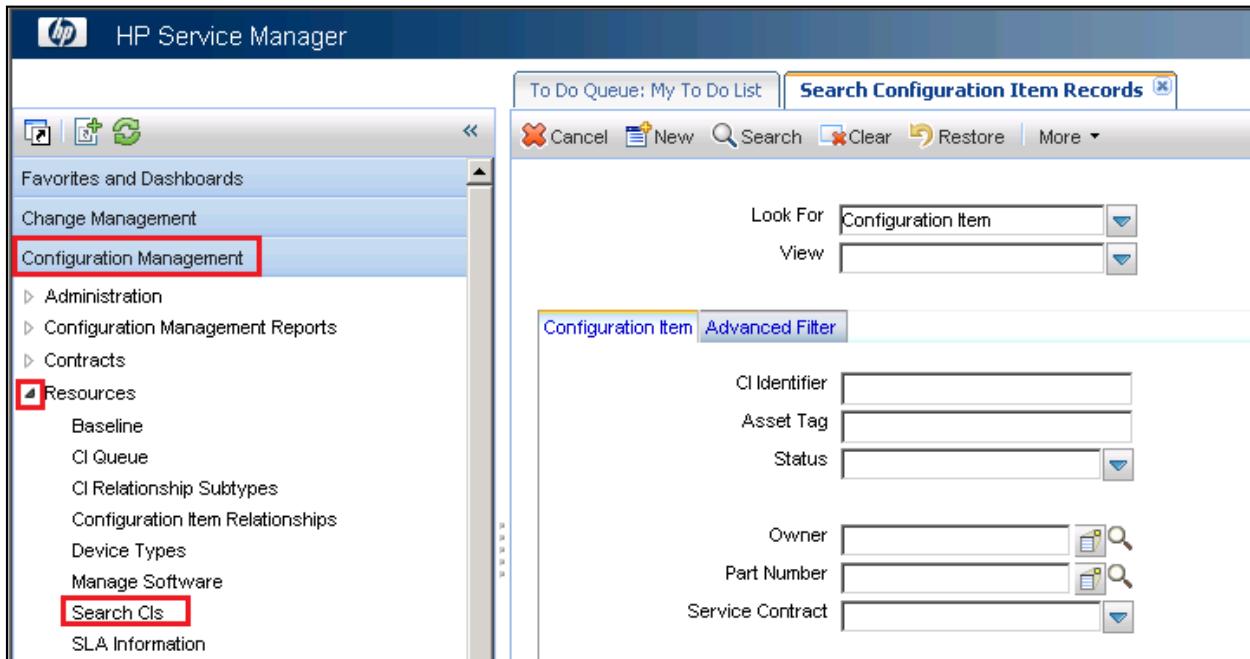


3. From the SM Login page, in the Username field, enter **falcon**.
4. In the Password field, type **hpswDemo\$09**.

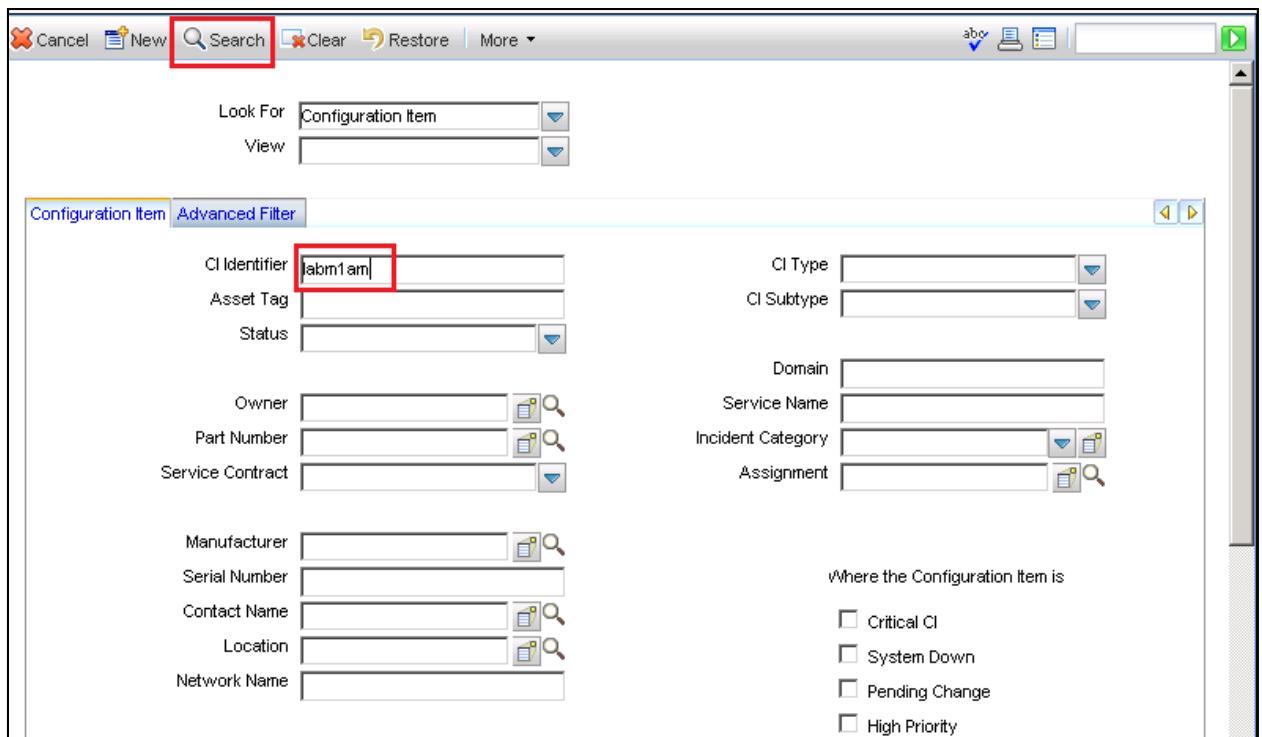
5. Click the Log In button, as shown in the following screenshot:



6. In the left pane of SM, expand Configuration Management → Resources and click Search Cls, as shown in the following screenshot:



7. Enter the CI Identifier as **labm1am** and click Search on the toolbar, as shown in the following screenshot:



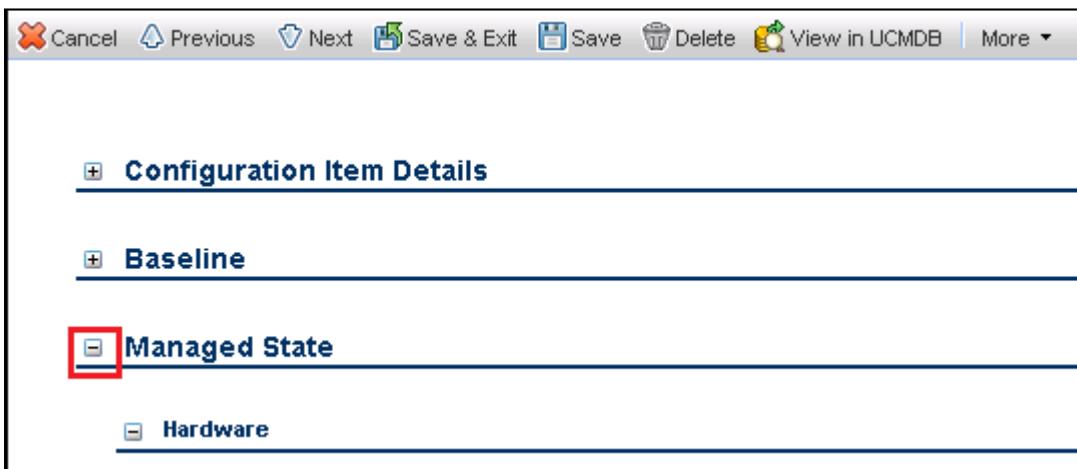
8. The output is displayed, as shown in the following screenshot:

To Do Queue: My To Do List   Configuration Item: LABM1AMBER01								
	CI Identifier	Type	Network Name	Location	Istatus	Is Down	Company	Ucmdb Id
<input checked="" type="checkbox"/>	LABM1AMBER01	computer	labm1amber01.devlab...		Installed			791c62084f110434896443b19cf87d7b
<input type="checkbox"/>	LABM1AMBER02	computer	labm1amber02.devlab...		Installed			b91c3c0f11c2284ce55e594a81886852
<input type="checkbox"/>	LABM1AMRND01	computer	labm1amrnd01.devlab...		Installed			49dfa393ce6ffd46de0d7226c73c68d2
<input type="checkbox"/>	LABM1AMRND02	computer	labm1amrnd02.devlab...		Installed			859edea8a218cb9c84918c99966bf0ca

**Note:** Verify that all these hosts were replicated from UCMDB because all the CIs have a value in the field Ucmdb Id.

9. Click LABM1AMBER02.

10. Click the Managed State section, as shown in the following screenshot:



11. Expand different sub-sections under the Managed State section and observe the values displayed. These are attributes that were replicated from the UCMDB.