

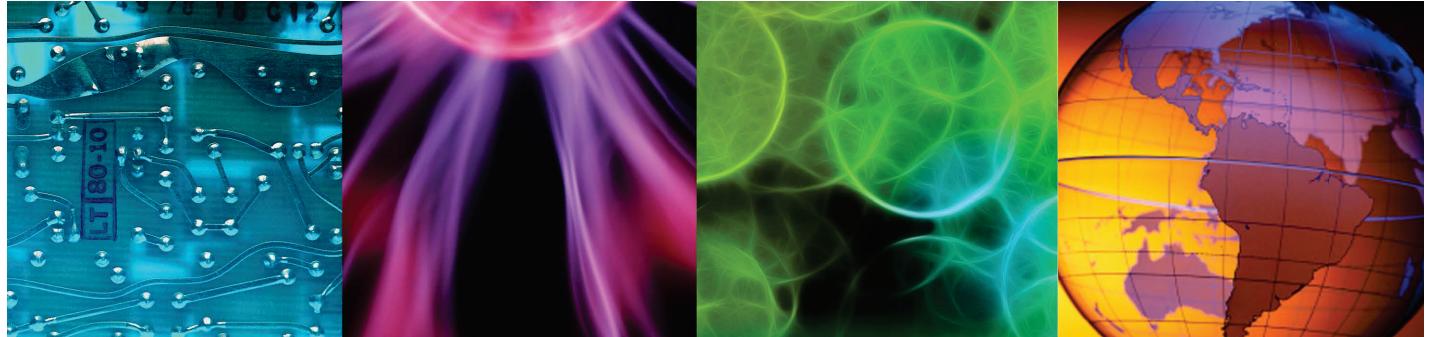


IBM Training

IBM Tivoli Monitoring 6.3 Fundamentals Student Exercises

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About these exercises

The exercise environment consists of two Linux images and one Windows image:

- **VM01** hosts these Tivoli Monitoring components:
 - Hub Tivoli Enterprise Monitoring Server
 - Tivoli Enterprise Portal Server
 - Portal server database using DB2® UDB
 - Tivoli Enterprise Portal (client)
 - Monitoring Agent for Linux OS
 - Tivoli Log File Agent
 - IBM Tivoli Agent Builder agent
 - Warehouse Proxy Agent
 - Summarization and Pruning Agent
 - Tivoli Data Warehouse database using DB2 UDB
- **VM02** hosts these Tivoli Monitoring components:
 - Remote Tivoli Enterprise Monitoring Server
 - Monitoring Agent for Linux OS
 - Tivoli Log File Agent
 - Tivoli Enterprise Portal Java Webstart Client
- **VM03** hosts these Tivoli Monitoring components:
 - Monitoring Agent for Windows OS
- **VM03** also hosts these components
 - WebSphere Application Server instance
 - IBM Dashboard Application Services Hub
 - Tivoli Common Reporting

The primary system to work with is VM01. You can use any type of portal client that you want.

All exercises have step-by-step instructions. Some skills you learn in earlier exercises will also apply to later exercises, so later exercises might show fewer basic details.

You perform only numbered steps and lettered steps (for example, 1. Instruction and a. Substep). All other instructions provide background information, describe what you should achieve in an exercise, or explain the result of a step or steps.



1 Introduction and overview exercises

The exercises for Unit 1 teach starting and logging in to the lab systems and verifying connectivity.

Exercise 1. Starting the VMware virtual machines

1. Start the three virtual machine images according to your instructor's instructions.

Log in to VM01

2. Log in to VM01 using these case-sensitive credentials:
 - User ID: **root**
 - Password: **object00**

3. Verify that DB2 is running by performing the following steps on VM01:
 - a. Open a terminal window.



- b. Issue the following commands:

```
su - db2inst1  
db2start
```

If DB2 is already running, a message indicates that the database manager is already active.

4. Type **exit** to return to the root prompt.
5. Start the script to generate data for later exercises. Change to the directory where the script is and execute it. Notice the period and slash before the script name.

```
cd /labfiles/ABK  
.abk.sh
```



Important: The script runs continuously. Leave the command window open.

Log in to VM02.

6. Log in to VM02 using these case-sensitive credentials:
 - User ID: **root**
 - Password: **object00**

7. Open another terminal window on VM01 and send a ping to VM02 as follows to validate that the network is functioning properly.

ping VM02

If the ping returns normally, press **Ctrl+C** to interrupt it.

The screenshot shows a terminal window titled "Terminal". The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area displays the following command and its output:

```
VM01:/ # ping VM02
PING VM02.TIVOLI.EDU (192.168.100.2) 56(84) bytes of data.
64 bytes from VM02.TIVOLI.EDU (192.168.100.2): icmp_seq=1 ttl=64
64 bytes from VM02.TIVOLI.EDU (192.168.100.2): icmp_seq=2 ttl=64

--- VM02.TIVOLI.EDU ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1004ms
rtt min/avg/max/mdev = 0.223/4.295/8.367/4.072 ms
VM01:/ #
```

If the ping does not return normally or the network is unreachable, ask your instructor for assistance.

8. In a terminal window on VM02, send a ping to VM01 as follows to validate that the network is functioning properly.

ping VM01

If the ping returns normally, type **Ctrl+C** to interrupt it.

Log in to VM03.

9. Log in to VM03 using these case-sensitive credentials:

- **User ID: Administrator**
- **Password: object00**

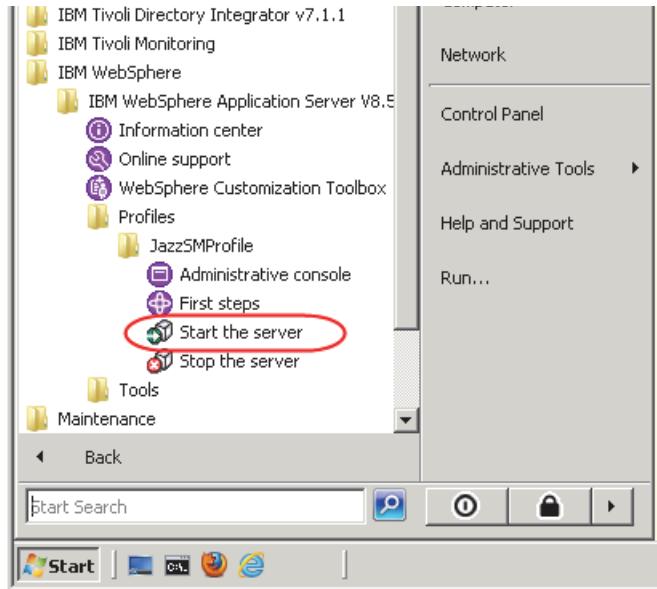
10. Open a Command Prompt window and send a ping VM01 and VM02 to validate network connectivity. The ping command stops after four iterations.

11. Ping VM03 from VM01 and VM02.

1 Introduction and overview exercises
Exercise 1. Starting the VMware virtual machines

12. On VM03, start the WebSphere Application Server instance that hosts the Dashboard Application Services Hub. Use the JazzSM profile.

Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > JazzSMProfile > Start the server



The start script runs and starts the server instance. The window automatically closes.



2 Using and navigating the Tivoli Enterprise Portal exercises

When you complete these exercises, you can perform the following tasks:

- Start the Tivoli Enterprise Portal clients.
- Describe the components of the application window.
- Switch Navigator views.
- Navigate workspaces by using Navigator items and links.
- Describe the process of how data is collected and displayed.

These exercises show you how to navigate many of the options available in the Tivoli Enterprise Portal client application window. Whenever you are not sure what you are looking at, access the online help and try to find the answer yourself before asking the instructor. For the student exercises, you are primarily using the desktop client.

Exercise 1. Starting the desktop portal client

On Linux or UNIX, you can start the desktop portal client from the Manage Tivoli Enterprise Monitoring Services application.

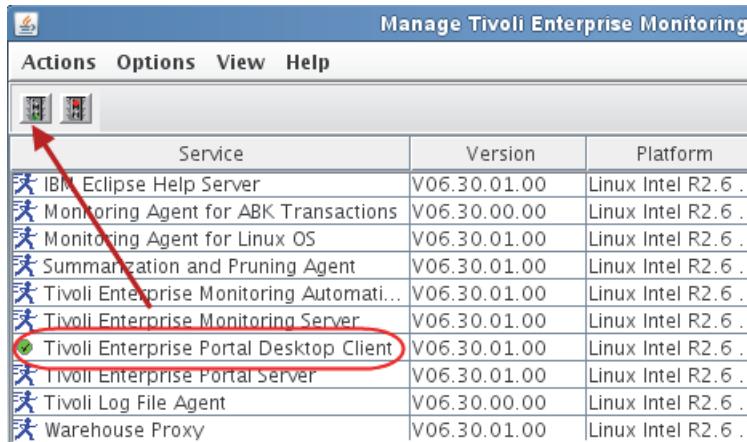
1. Open a terminal window on VM01. Change to the **/opt/IBM/ITM/bin** directory and start the Manage Tivoli Enterprise Monitoring Services application. Notice the period and slash before the **itmcmd** command.

```
cd /opt/IBM/ITM/bin  
.itmcmd manage &
```

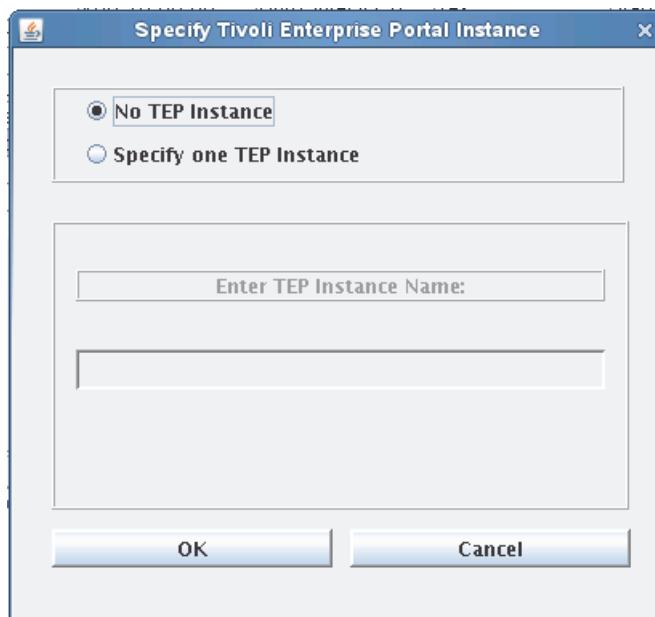
2 Using and navigating the Tivoli Enterprise Portal exercises

Exercise 1. Starting the desktop portal client

2. Click the Tivoli Enterprise Portal Desktop service to select it. Click the green light icon. You can also right-click and click **Start Service**.



3. When the **Specify Tivoli Enterprise Portal Instance** window opens, leave **No TEP Instance** selected and click **OK**.



4. After it prompts you, enter user ID **sysadmin** with no password. Click **OK** or press **Enter** to log on.

After you successfully access the portal client, the application window opens.

Exercise 2. Starting the Java Webstart client

Perform this exercise on the **VM02** host. IBM Java 7 Java Runtime Environment is part of the base Tivoli Monitoring installation. The Java Web Start client is preinstalled to save time. Installing Java Web Start consists of downloading the application with a browser or the **javaws** program. After Java Web Start installation, start it from the desktop icon.

1. Double-click the Java Web Start icon on the VM02 desktop.



This action starts the program loading process and a progress window opens.



2. When a login window opens, type **sysadmin** in the **Login ID** field and leave the password blank. Click **OK** to log in.

After you successfully start the portal client, the application window opens.



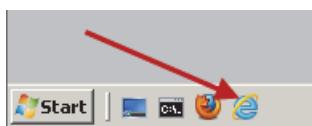
Note: In most of the remaining exercises in this class, it makes no difference which client you use.

Exercise 3. Starting the web browser client

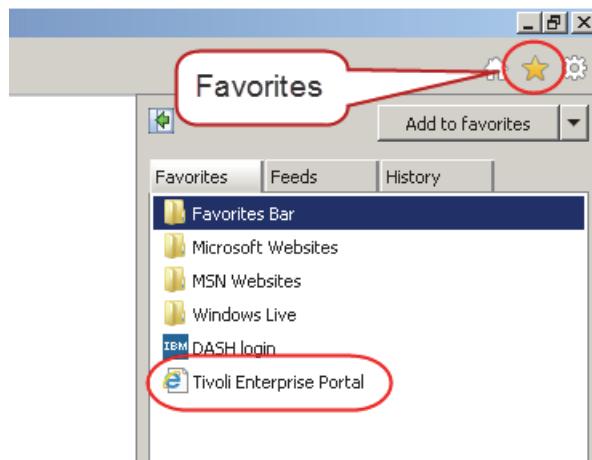
The first time that you start the browser client, the necessary Java files are copied from the portal server on VM01. Subsequent browser starts cause a handshake to the portal server and a check for new or updated resources.

Perform this exercise on VM03, the Windows 2008 server.

1. Open Internet Explorer by clicking the icon in the Windows taskbar.



2. Click the Favorites tool in the upper right corner of the browser window. Click **Tivoli Enterprise Portal®**.



3. Log in to the portal client as user **sysadmin** and no password.

The browser client has the same functionality as the other client types with some exceptions:

- You can save Navigator items as *favorites*.
- There are no Forward and Back arrows on the portal client toolbar. Use the browser Forward and Back arrows for navigation.
- There is a Log Out link.
- You can open multiple browser tabs. There is no File > Open New Window.

Close the browser client for now and return to one of the other client types.

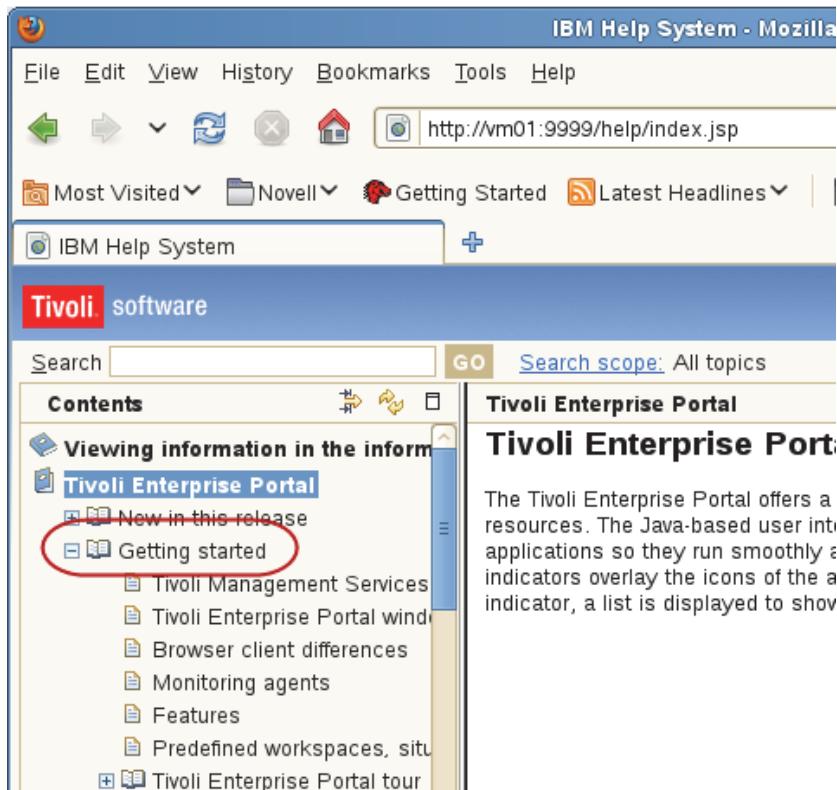
Exercise 4. Using the online documentation and help

The online documentation is a good way to get started and learn about the available options in the portal client.

1. From the portal client on **VM01**, open and explore the online help window by clicking **Help > Contents and Index**.

When you access the help from the main portal client window, it opens to a default page. You can also click **Help** on specific menus, and it opens the context help that applies to that area.

2. Click **Tivoli Enterprise Portal** in the **Contents** list. Expand the **Getting Started** entry. Explore the **Getting started** section to see more information about using the product. Select **Tivoli Enterprise Portal > Getting Started**.

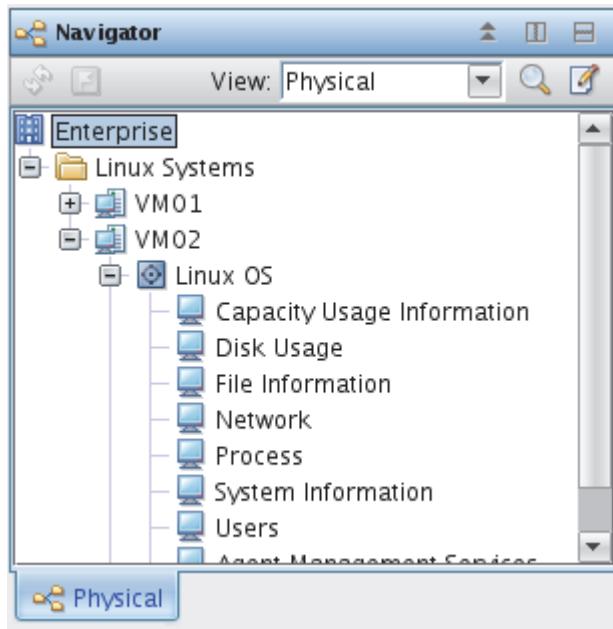


Note: If you use the browser client, the help might open into the current browser window. If help opens into the portal client browser client window, click **Back** until you return to the portal client.

3. Close the browser window.

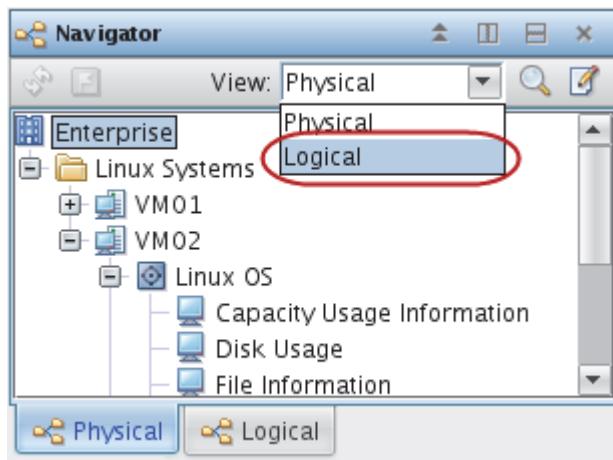
Exercise 5. Managing Navigator views

Navigator views provide a way of logically structuring the hierarchy of your enterprise. Use different Navigator views to navigate and monitor the installed systems in different ways. In the Navigator Physical default view, the Tivoli Enterprise Portal application window opens.



The Navigator Physical view contains all systems that are installed and configured to communicate with the hub monitoring server. This Navigator is product-provided and you cannot modify it.

1. Open the Navigator Logical view by selecting it from the menu in the upper left corner of the portal client application window.

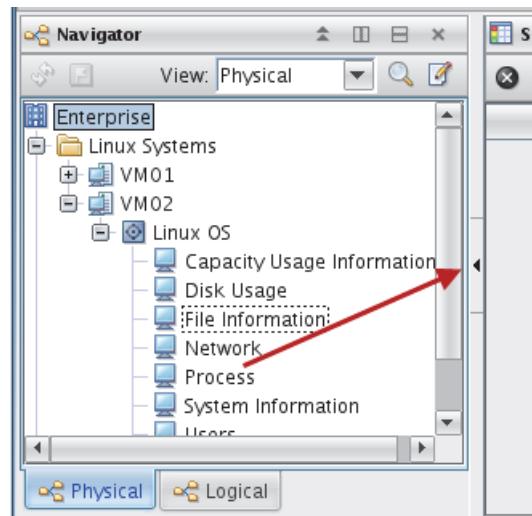


Click the down arrow button on the top of your Navigator Physical view to see an entry for the Navigator Logical view.

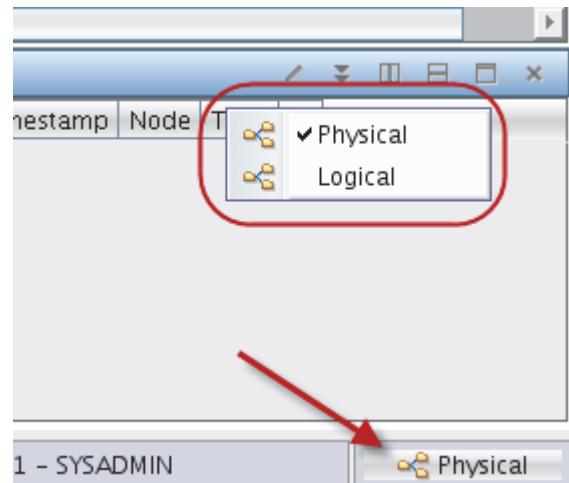


Note: In the Navigator Logical view, by default, workspaces that are associated with Navigator items do not show meaningful information. You must modify the default workspaces to create views with meaningful information. Modifying default workspaces is covered later in this course.

2. Return to the Navigator Physical view.
3. Collapse and expand the Navigator Physical view by clicking the **Collapse** tab at the right of the Navigator view. This action increases the allotted viewing space.

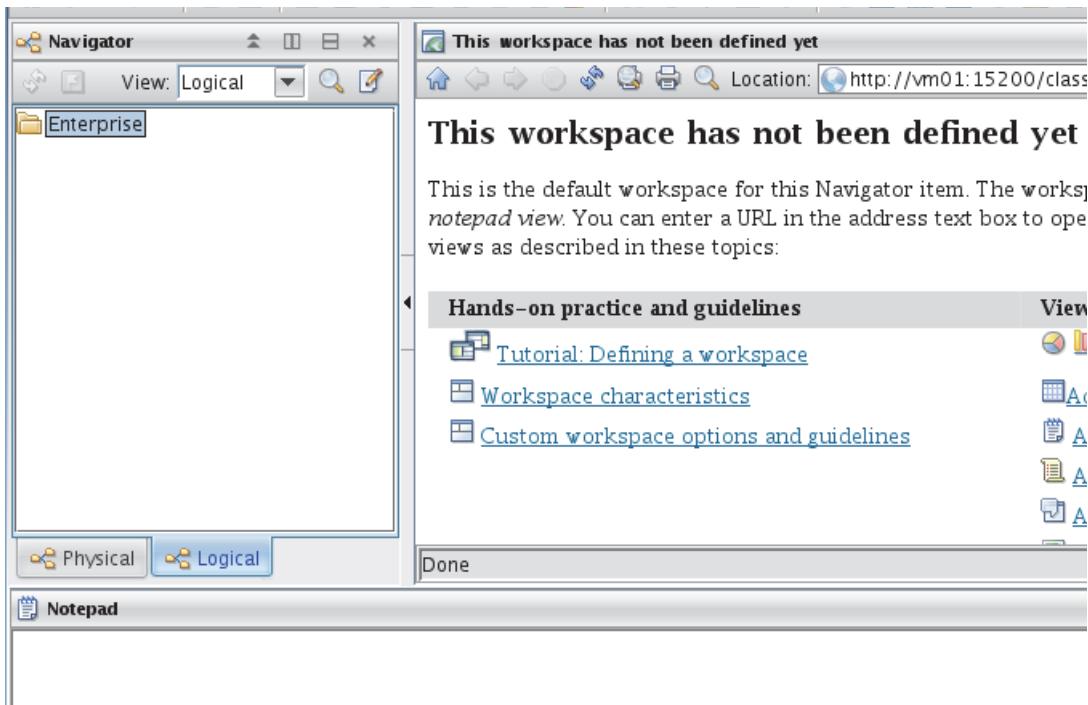


4. Collapse the Navigator view again and leave it collapsed for the next step.
5. Right-click the **Restore Navigator** button at the lower right of the workspace to see all the Navigators available to you.



Notice that it shows all Navigators available to you.

6. Select the Logical Navigator.



You switched to the default workspace of the Logical Navigator without using the Navigator. The Navigator view expanded automatically.

Exercise 6. Navigating workspaces

Accessing default workspaces

Each Navigator view contains Navigator items that are associated with workspaces. One way of navigating between workspaces is to use Navigator items.

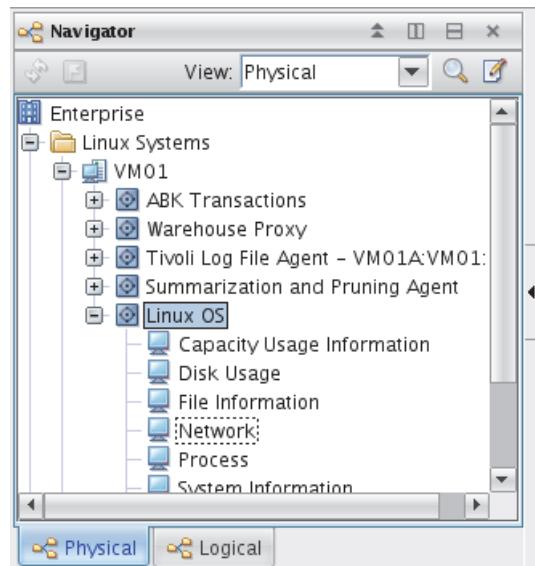
To view the full structure of a Navigator, click the plus sign (+) to expand subtrees. Click the minus sign (-) to collapse subtrees.

To access the default workspace that is associated with a particular Navigator item, select the item with a single left click.



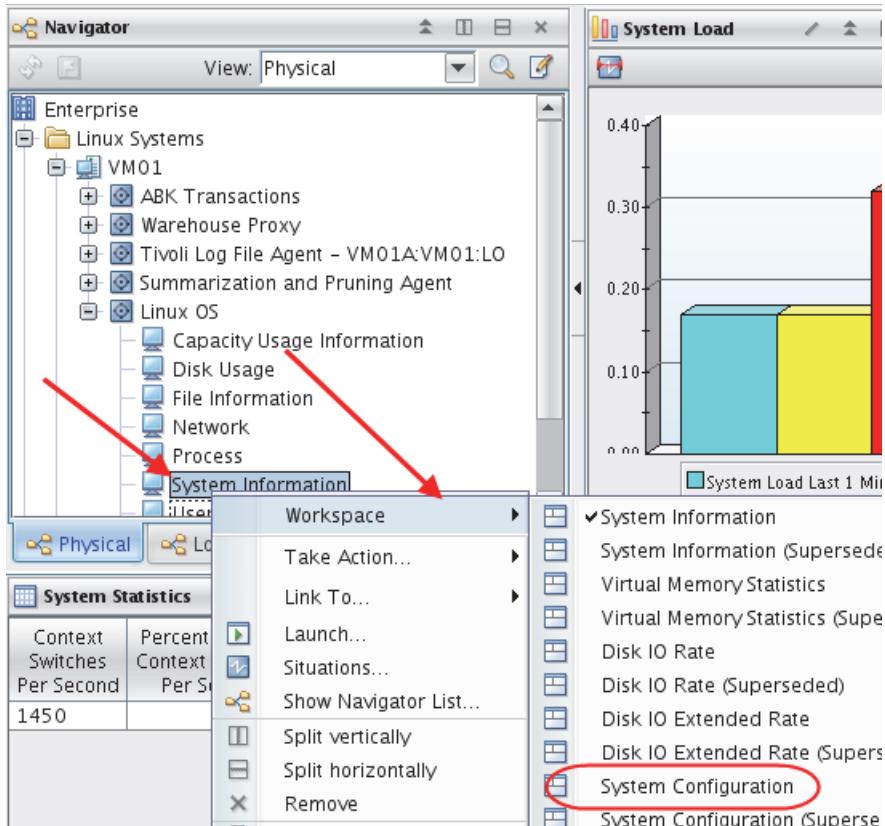
Note: Throughout the remaining exercises in this course, do not save workspaces unless explicitly told to do so.

1. Select the **Navigator Physical view** to access product-provided workspaces.
2. Expand the **Linux Systems** Navigator item beneath **Enterprise** by clicking the plus sign. Expand the **VM01** Navigator item that represents your host name VM01. Expand the **Linux OS** agent Navigator item and click **Linux OS** to select it.
The visible information changes with different views.



Opening secondary workspaces that are associated with Navigator Items

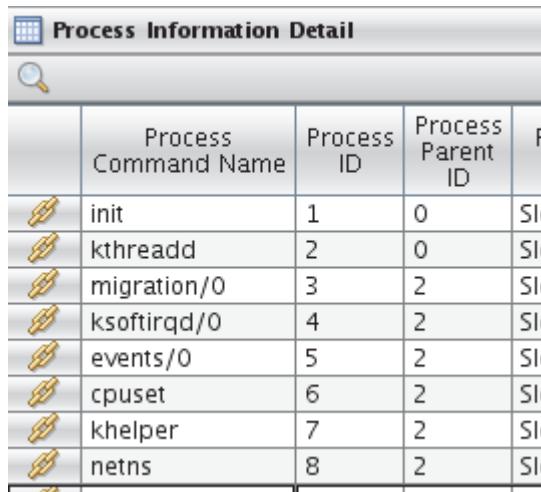
3. Click the **System Information** Navigator item to access the default workspace. Right-click the Navigator item and click **Workspace > System Configuration** from the menu.



Navigating workspaces by using links

Open links from the Navigator item or from within workspaces. Some product-provided workspaces include links from table views for navigating to related or more detailed information.

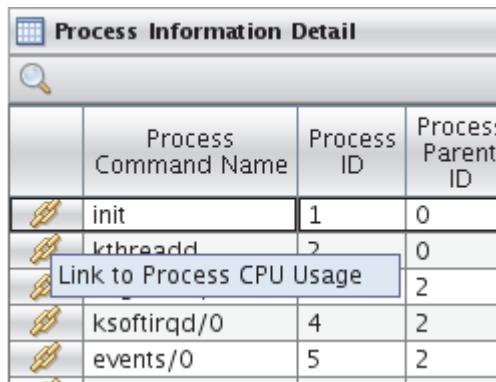
- Click the **Process** Navigator item. Locate the **Process Information Detail** table view. It contains a list of processes. Each process has a link icon on the left side of the view.



	Process Command Name	Process ID	Process Parent ID	F
	init	1	0	Sl
	kthreadd	2	0	Sl
	migration/0	3	2	Sl
	ksoftirqd/0	4	2	Sl
	events/0	5	2	Sl
	cpuset	6	2	Sl
	khelper	7	2	Sl
	netns	8	2	Sl

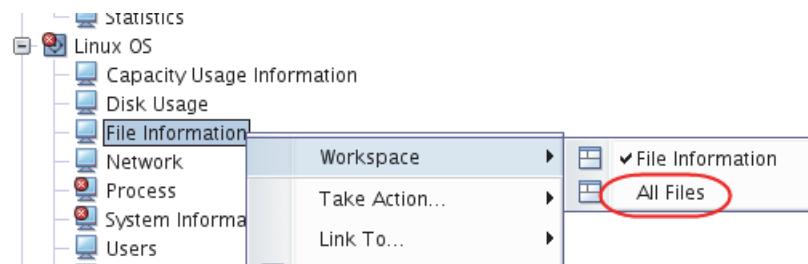
- Position your mouse pointer over a link icon, but do not click it.

A rectangle shows the name of the link that represents the workspace destination.



	Process Command Name	Process ID	Process Parent ID
	init	1	0
	kthreadd	2	0
	Link to Process CPU Usage	2	2
	ksoftirqd/0	4	2
	events/0	5	2

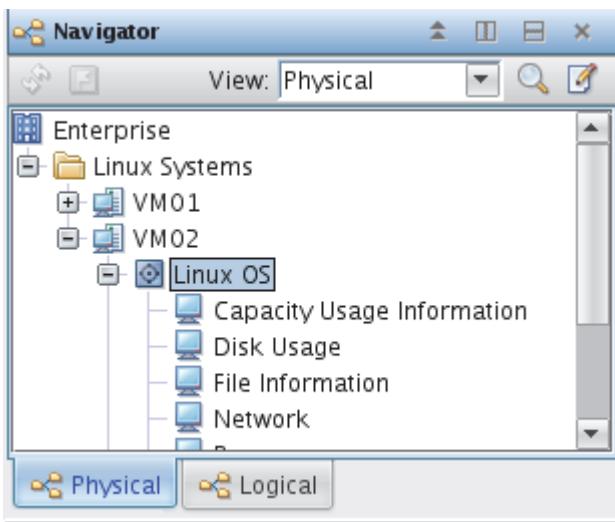
- Click the link for the process at the top of the view to open a new workspace. The new workspaces shows details about the process that you select.
- Click the **Back** button on your portal client toolbar to return to your previous workspace. Click the link from another row in the table. Observe the details for the process you select.
- As a second example, access the nondefault workspace **All Files**, under the Linux OS **File Information** item on VM01.



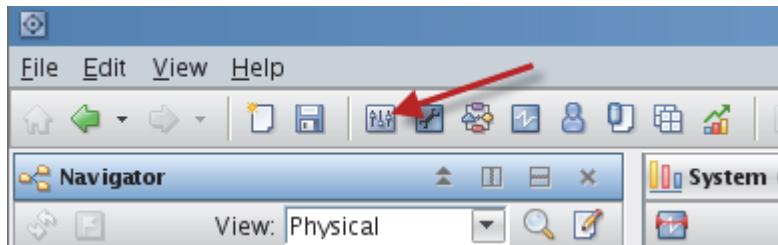
9. Locate the table view named **All Files**. All rows in the table have links available. Scroll down to locate the file **opt**. Right-click the link to see where the link goes. Click **Specific File Information**.
10. /opt is the top directory node for the IBM Tivoli Monitoring installation files. Find the table view that provides file information for /opt and click **IBM**, which is the next level of the path.
11. Continue clicking link icons to drill down to **/opt/IBM/ITM/config**. Using the column sorting feature, locate the file **ms.ini**, which is the configuration file for the hub Tivoli Enterprise Monitoring Server. This view is a good place to see file size, permissions, last date changed, and so on.

Assigning a Home workspace

12. Go to a workspace that you would like to define as your home workspace. For example, click the default **Linux OS** Navigator item on VM02.

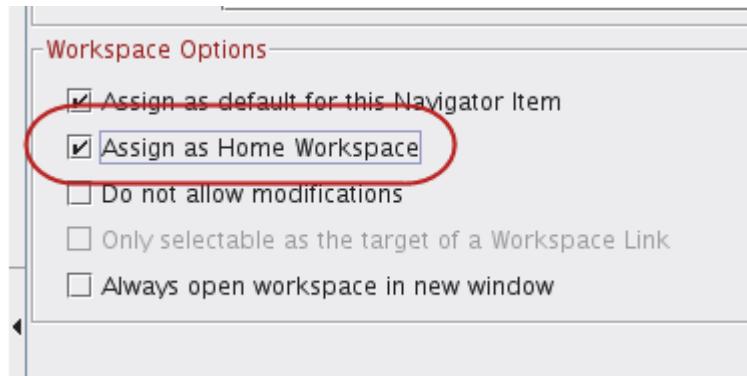


13. Click the **Properties** button in the portal client toolbar.



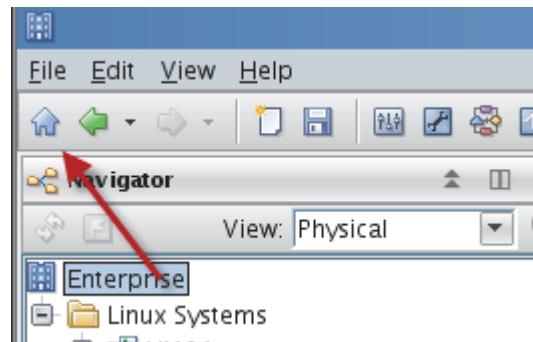
The Properties page for this workspace opens.

14. Select **Assign as Home Workspace** and click **OK**.



15. Change to another workspace.

16. Click the **Home** button to return to your home workspace.

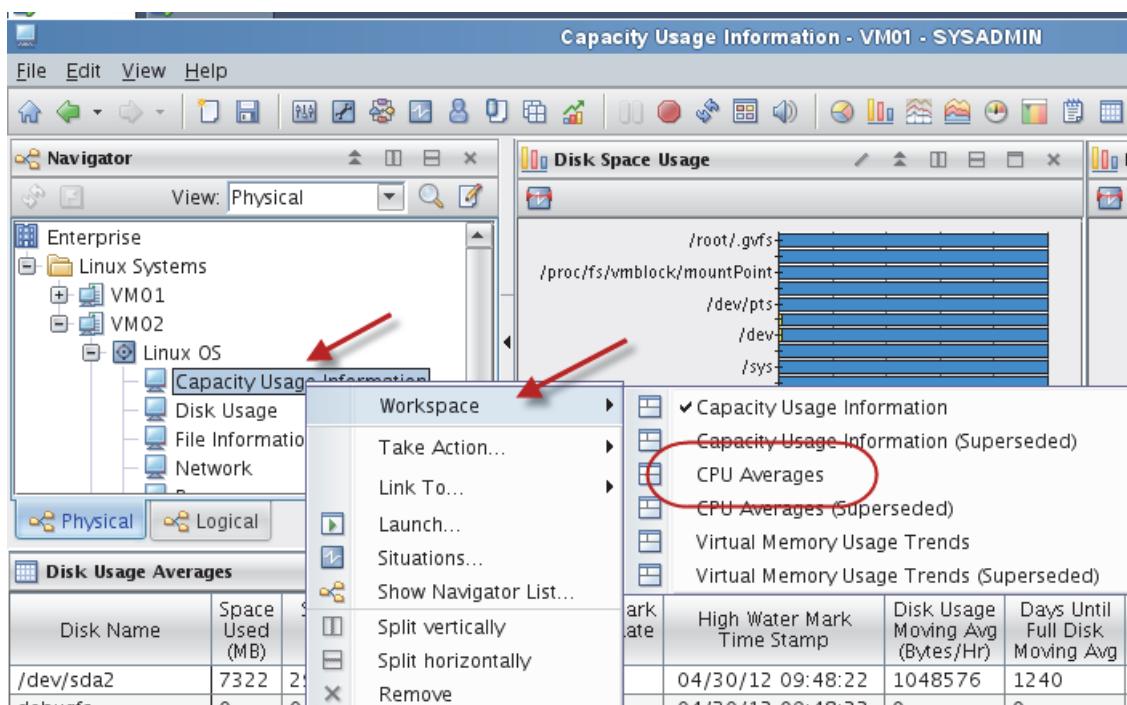


Exercise 7. Refreshing workspaces

Manually refreshing workspaces

Whenever you access a workspace that contains views that show agent data, the data is requested from an agent then.

1. Click the **Linux OS > Capacity Usage Information** Navigator item on VM01 to open its default workspace. Right-click the Navigator item, click **Workspace** in the menu, and click **CPU Averages**.



The data in the views seems static, but for the computer, the data changes, depending on system activity.

2. Wait for 30 seconds and then refresh the display by pressing **F5** or clicking the **Refresh** icon that is on the toolbar. Watch the data change in the linear gauge and bar chart views.

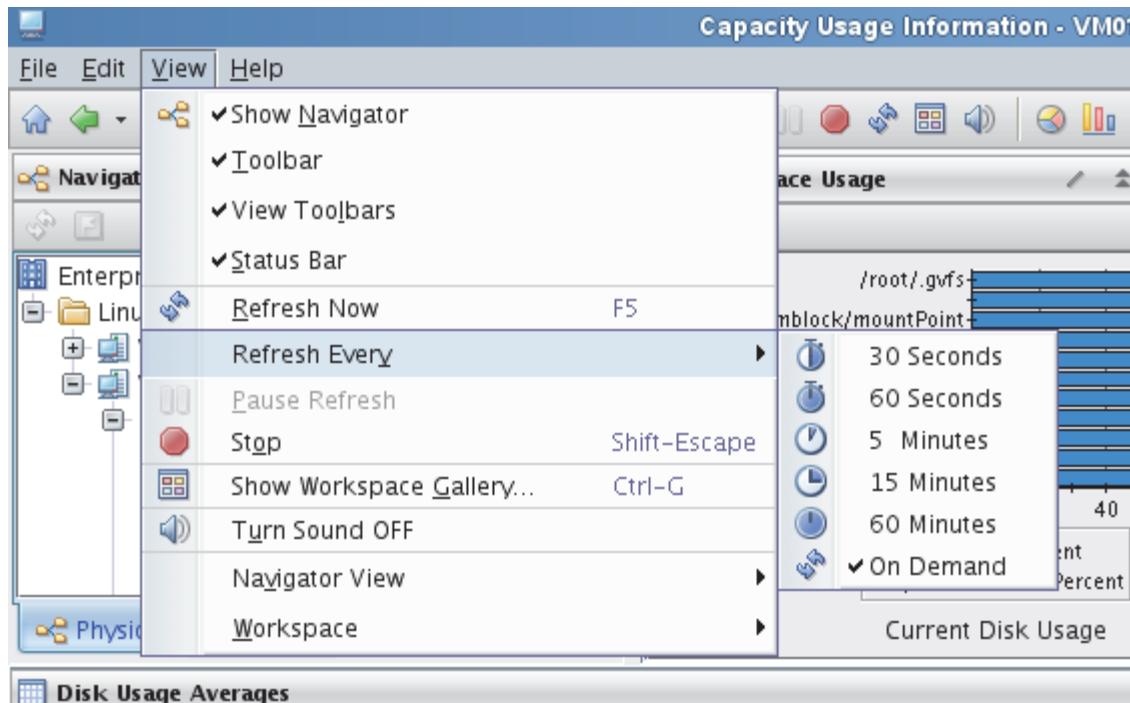




Note: Because your classroom system is lightly loaded, the changes in CPU usage are small.

Automatically refreshing workspaces

- To automatically refresh the workspace, click **View > Refresh Every**.



- Select the **30 Seconds** interval and monitor the changes.

The automatic refresh feature has the same effect as a user manually refreshing the workspace every 30 seconds.

The refresh rate change that you made affects only the active workspace.

As with all workspace changes, you must save the workspace so that the changes remain when you return to the workspace later. By default, product-provided workspaces cannot be changed. Therefore, rename your workspace to save it. To have it open whenever you select the System Information Navigator item, set it as the default workspace.

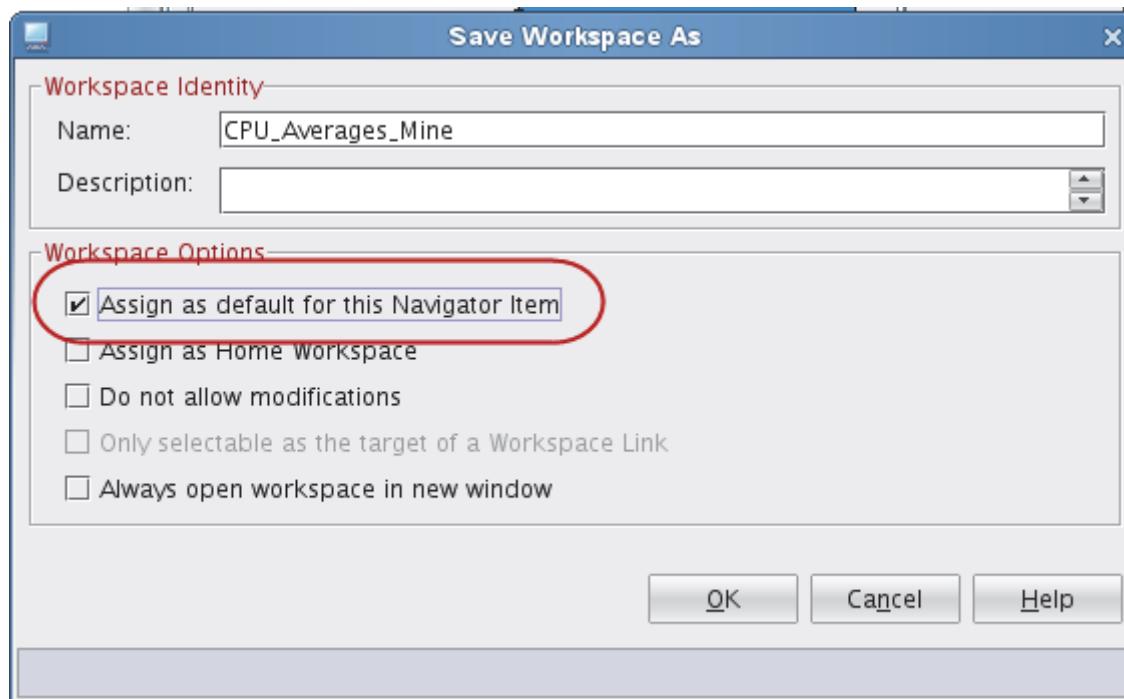
- Select **File > Save Workspace**.

You cannot save this workspace until you create and name a new workplace.

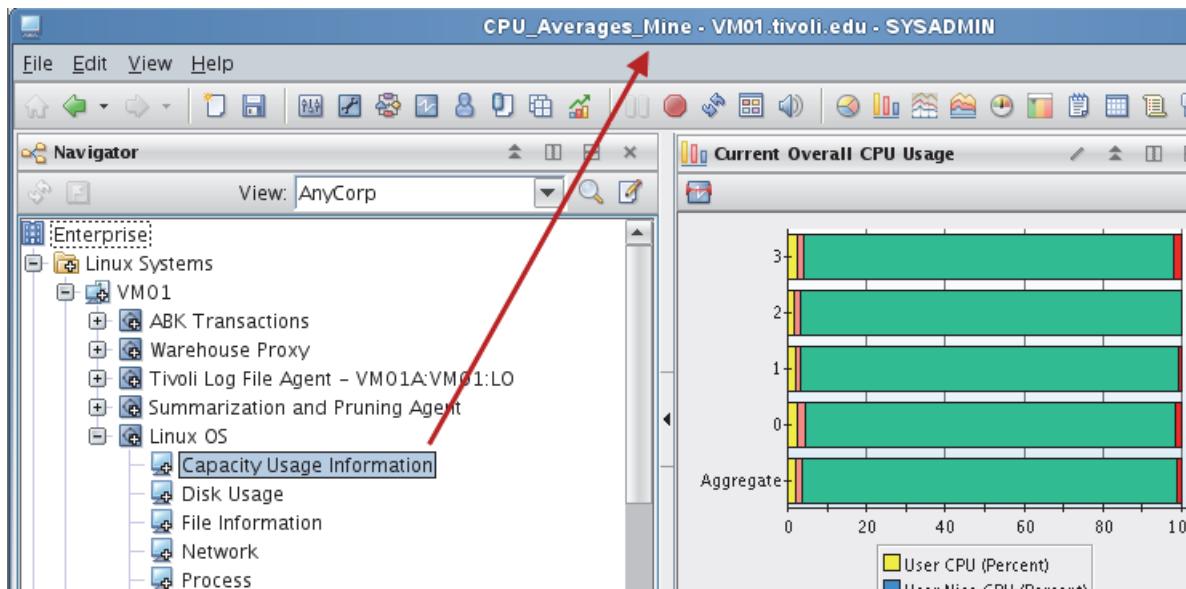
- Click **Yes** to create and save a new workspace.

- In the **Name** field, type **CPU Averages_Mine**.

8. Select **Assign as default for this Navigator Item**.



9. Click **OK** to save the workspace.
10. Leave the current workspace by clicking a different Navigator item. Return to that workspace by clicking **Capacity Usage Information** again.
11. Verify that your new workspace opens by default. Confirm by checking for your workspace changes or by right-clicking **Capacity Usage Information** and selecting **Workspace**. If **CPU Averages_Mine** has a check mark, it is the current workspace.

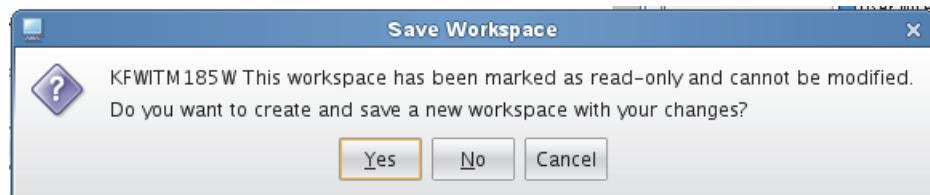


Exercise 8. Managing views

During this exercise, you learn to make simple modifications to your workspaces. More advanced workspace changes, including visualizing monitoring data, are in [Unit 6, “Visualizing monitoring data exercises,”](#) on page 93.

Modifying workspaces

Most product-provided workspaces are read-only and you cannot modify them. If you change a read-only workspace, you can save it with a new name.



Workspaces are user ID-dependent. Modifications apply only to the user ID that modifies or creates them. No other user can see a modified workspace unless an administrator publishes it to everyone.

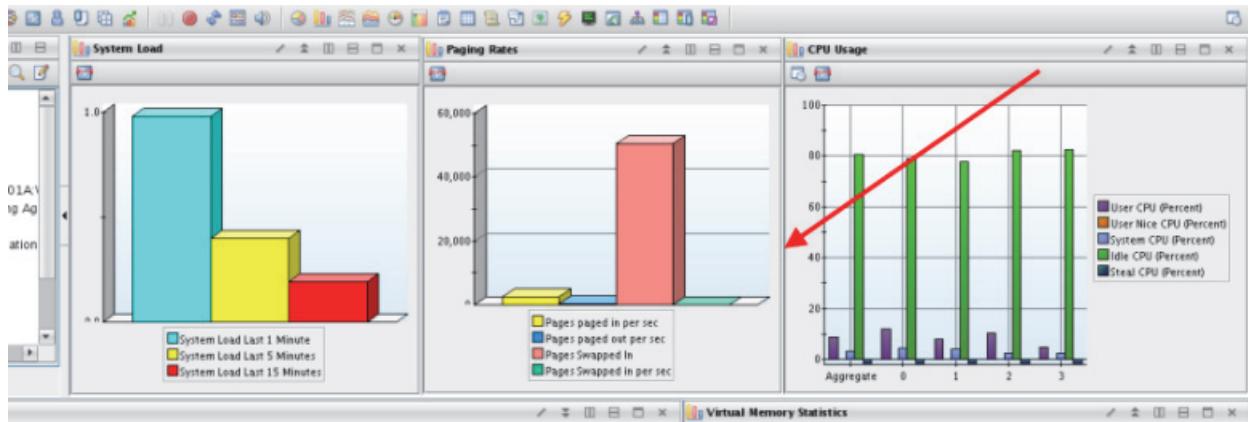
Resizing workspace panes

You might need to adjust the view and workspace sizes because you use different screen resolutions than the person who created the workspace.

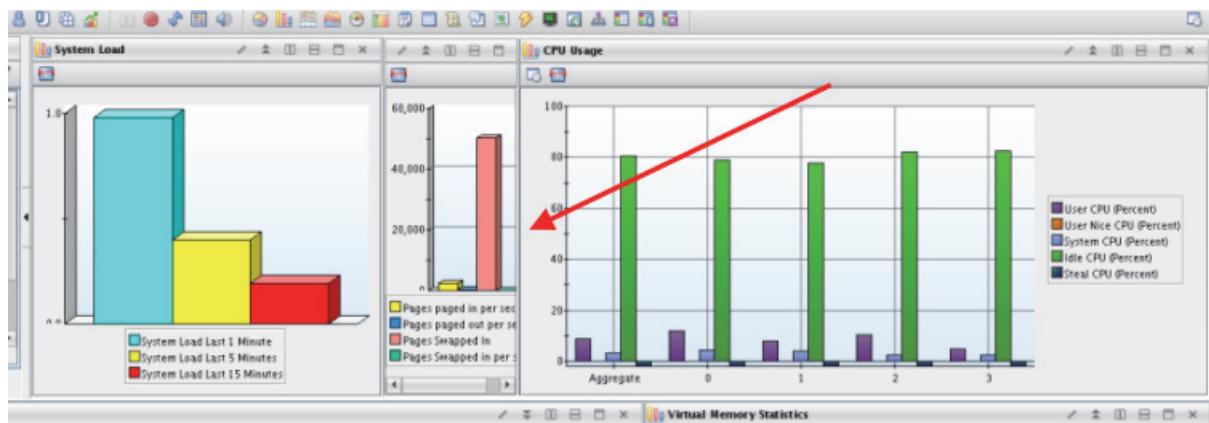
Adjust the view panes to optimize your display. Adjust the workspace if you do not want to use full-screen mode or if you use browser mode.

1. Open the default workspace for **Linux OS > System Information** on VM01.

2. To move the view border for the **CPU Usage** view, click the border and hold the left mouse button. Drag it where you want, to adjust the view size. For this step, drag the Navigator view border to the left.



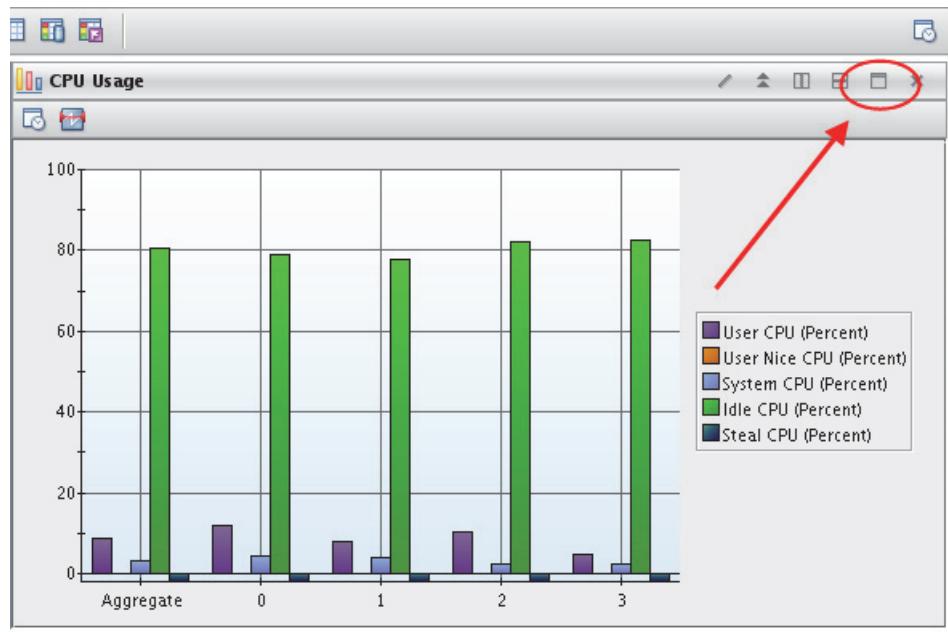
The result looks like the following example, with the view farthest right now wider.



Maximizing and restoring views

If you want to increase the size of a specific view to see the data better, you can easily maximize each view and restore it to its previous size and location.

3. From any view in the current workspace, click the **Maximize** icon in the upper right corner of the view.



4. To restore the view, click the **Restore** icon in the same corner.

Modifying table views

When working with table views, you can modify the column width, sort order, and sequence of columns. You can save all changes with the workspace.

Sorting columns

5. Open the Linux OS **Process** workspace on VM01. Find the **Process Information Detail** table view. The view is sorted in process ID order by default.

	Process Command Name	Process ID	Process Parent ID
1	init	1	0
2	kthreadd	2	0
3	migration/0	3	2
4	ksoftirqd/0	4	2
5	migration/1	5	2
6	ksoftirqd/1	6	2
7	migration/2	7	2
8	ksoftirqd/2	8	2
9	migration/3	9	2
10	ksoftirqd/3	10	2
11	events/0	11	2
12	events/1	12	2
13	events/2	13	2
14	events/3	14	2

6. Click the column header **Process Command Name** one time. The view is now sorted by process command name in ascending order.

	Process Command Name	Process ID	Process Parent ID
1	aio/0	45	2
2	aio/1	46	2
3	aio/2	47	2
4	aio/3	48	2
5	async/mgr	18	2
6	ata_aux	141	2
7	ata/0	137	2
8	ata/1	138	2
9	ata/2	139	2
10	ata/3	140	2
11	bash	4005	23301
12	bdi-default	21	2
13	CandleManage	1933	1922
14	cannaserver	4148	1

7. Note the results and click the column header again. The view is now sorted by process command name in descending order.

A screenshot of a table titled "Process Information Detail". The table has four columns: "Process Command Name", "Process ID", and "Process Parent ID". A red arrow points down next to the "Process Command Name" column header, indicating it is sorted in descending order. The data rows are as follows:

	Process Command Name	Process ID	Process Parent ID
	X	4343	4337
	vmware-vmblock-	2940	1
	vmtoolsd	2980	1
	vmmemctl	2700	2
	udevd	1040	1
	syslog-ng	2425	1
	sync_supers	20	2
	scsi_eh_2	147	2
	scsi_eh_1	146	2
	scsi_eh_0	122	2
	rpcbind	3786	1
	qmgr	4277	4253
	pm	19	2
	nsqd	4177	1

8. Click the Process Command Name column header again. The view is returned to its original, default order by process ID.

A screenshot of the same table, "Process Information Detail". The red arrow now points down next to the "Process Command Name" column header, indicating it is sorted in ascending order. The data rows are as follows:

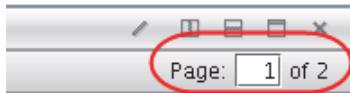
	Process Command Name	Process ID	Process Parent ID
	init	1	0
	kthreadd	2	0
	migration/0	3	2
	ksoftirqd/0	4	2
	migration/1	5	2
	ksoftirqd/1	6	2
	migration/2	7	2
	ksoftirqd/2	8	2
	migration/3	9	2
	ksoftirqd/3	10	2
	events/0	11	2
	events/1	12	2
	events/2	13	2
	events/3	14	2

These actions toggle the sort order for no sorting, ascending, and descending. Only one column is sortable at a time. Nested sorts are not available.



Note: Table views can show maximum numbers of rows. You can set the maximum row numbers in view properties.

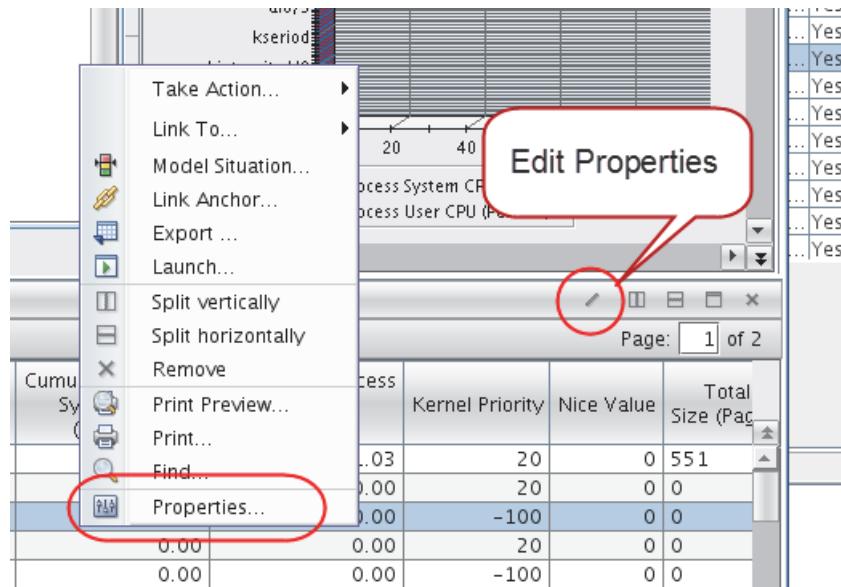
If the limit is fewer than the number of rows that the query returns, the table view separates into pages. The current page number and the total number of pages are shown in the upper right corner of the view.



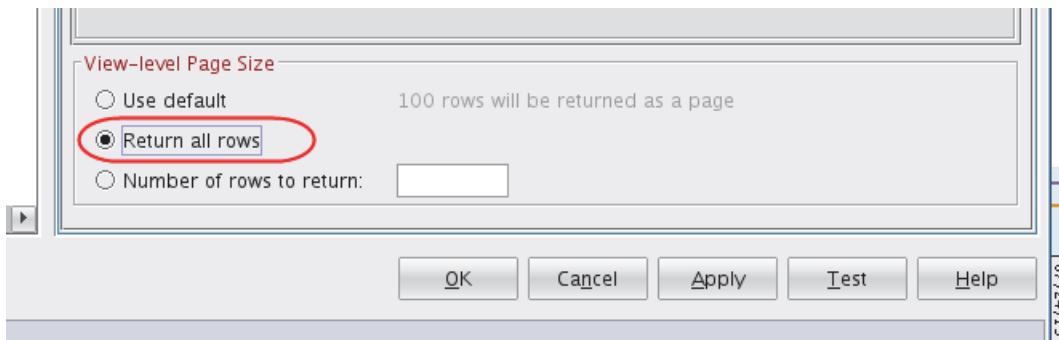
Operations on a table view affect only the current page. View other pages by typing a page number in the current page field and pressing **Enter**. To scroll one page at a time, click the double down arrows or double up arrows.

If you want to see the entire table regardless of number of rows or pages, change the view properties to return all rows.

9. Open the Process Information Detail view properties. You can click the **Edit Properties** icon or right-click in the view and click Properties.

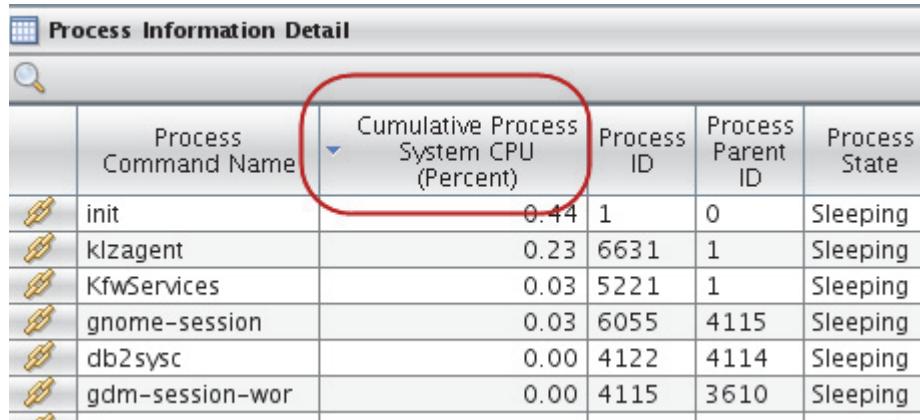


10. Click the **Return all rows** radio button. Click **OK** to apply the change and close the Properties editor. The view no longer has the page counter.



Changing column sequence

11. In the same view, click a column heading. With the left mouse button pressed, drag the title somewhere else in the heading.



	Process Command Name	Cumulative Process System CPU (Percent)	Process ID	Process Parent ID	Process State
1	init	0.44	1	0	Sleeping
2	klzagent	0.23	6631	1	Sleeping
3	KfwServices	0.03	5221	1	Sleeping
4	gnome-session	0.03	6055	4115	Sleeping
5	db2sysc	0.00	4122	4114	Sleeping
6	gdm-session-wor	0.00	4115	3610	Sleeping
...					



Note: It might be helpful to maximize the table view.

The horizontal scroll bar is under the second column. The first column is locked to prevent it from scrolling horizontally. The course teaches column locking later.

Finding data in a table

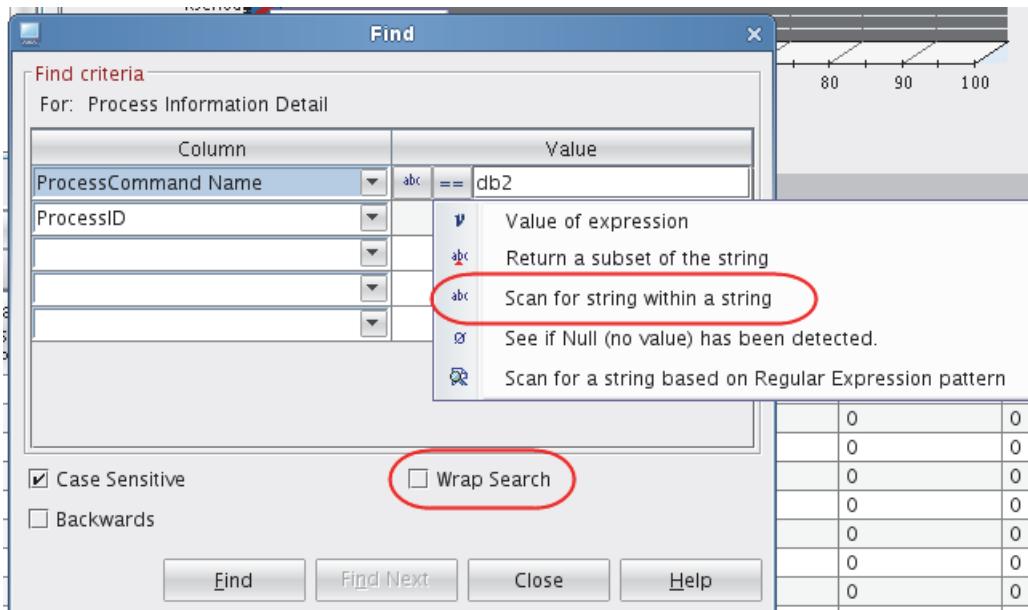
When working with tables, you can search for data within the table. In this example, search for all processes on VM01 whose command name begins with **db2**.

Continue working with the Process Information Detail view.

12. Click the **Find** icon.



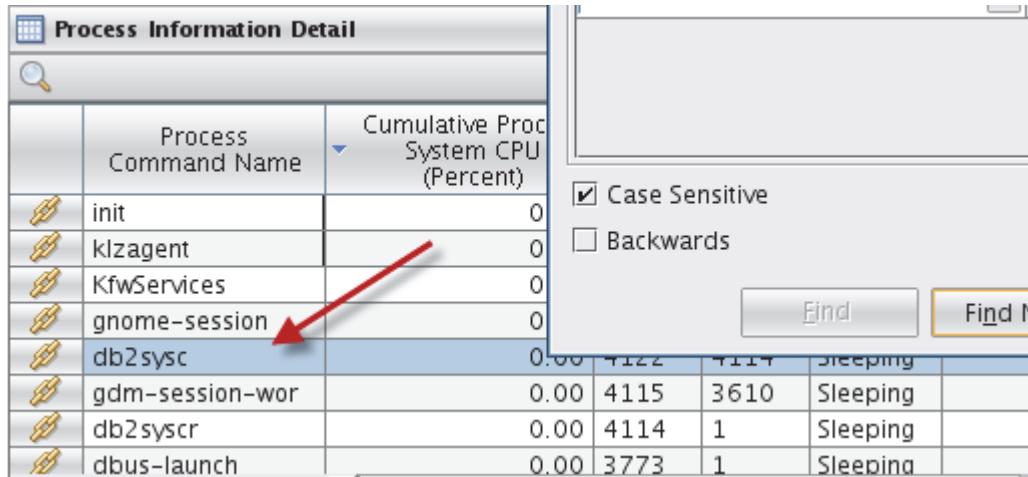
13. On the **Process Command Name** column, set the Function to **Scan for a string within a string**. Set the Operator to **Equal (==)** and enter **db2** in the **Value** field. Clear the **Wrap Search** check box.



14. Click **Find**.

The first instance of *db2* is shown highlighted.

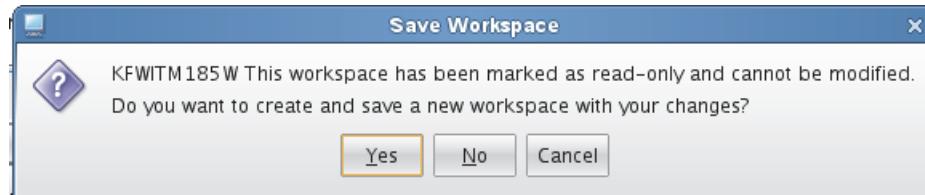
15. Click **Find Next** and repeat the searches until you find no more occurrences.



You can search a different column. You can also search more than one column at a time, forming a Boolean AND.

16. Click **Close** to close the Find window.

17. Changing the view properties caused the workspace to change. Go to any other workspace and reply **No** when it prompts you to save the change with a new name.





3 Managing Tivoli Monitoring components exercises

This exercise teaches different options for starting and stopping enterprise monitoring resources.

After the initial installation, Tivoli Monitoring components on Linux, installed by the **root** user, start automatically with the operating system. The components have a predefined start order to ensure the monitoring servers start before the monitoring agents start.

When starting components manually, ensure that your components start in the correct sequence. Start the hub monitoring server before starting all other components that communicate with it.



Note: When using the **Manage Tivoli Enterprise Monitoring Services** application on Linux, you must start or stop each component individually.

Exercise 1. Starting and stopping components



Note: Perform these steps on host VM01.

1. If the Manage Tivoli Enterprise Monitoring Services application is not running on VM01, start it now.
 - a. Open a Linux terminal window by right-clicking the desktop and selecting **Open in Terminal**.
 - b. In the terminal, change to the **/opt/IBM/ITM/bin** directory.
`cd /opt/IBM/ITM/bin`

- c. Run the **itmcmd** command to start the Manage Tivoli Enterprise Monitoring Services application. A period and slash precede the command name. The trailing ampersand causes the terminal window to release when the application starts.

```
./itmcmd manage &
```

In the Manage Tivoli Enterprise Monitoring Services application, the explanations of the symbols next to the service names are as follows:

- A blue running figure indicates that a service is running.
- A green check mark indicates a configured service, which you can start.
- A red exclamation mark shows an unconfigured service, which you cannot start until you configure it.

The screenshot shows a Windows application window titled "Manage Tivoli Enterprise Monitoring Services". The menu bar includes "Actions", "Options", "View", and "Help". Below the menu is a toolbar with two icons. The main area is a table with columns: "Service", "Version", "Platform", and "Configured". There are ten rows of data. The first three rows have a blue running figure icon. The fourth row has a red exclamation mark icon and is circled in red. The fifth row has a blue running figure icon. The remaining five rows have blue running figure icons. The data is as follows:

Service	Version	Platform	Configured
IBM Eclipse Help Server	V06.30.01.00	Linux Intel R2.6 ...	Yes
Monitoring Agent for ABK Transaction	V06.30.00.00	Linux Intel R2.6 ...	Yes
Monitoring Agent for Linux OS	V06.30.01.00	Linux Intel R2.6 ...	No
Summarization and Pruning Agent	V06.30.01.00	Linux Intel R2.6 ...	Yes
Tivoli Enterprise Monitoring Autom...	V06.30.01.00	Linux Intel R2.6 ...	Yes
Tivoli Enterprise Monitoring Server	V06.30.01.00	Linux Intel R2.6 ...	Yes
Tivoli Enterprise Portal Desktop Cli...	V06.30.01.00	Linux Intel R2.6 ...	Yes
Tivoli Enterprise Portal Server	V06.30.01.00	Linux Intel R2.6 ...	Yes
Tivoli Log File Agent	V06.30.00.00	Linux Intel R2.6 ...	Yes
Warehouse Proxy	V06.30.01.00	Linux Intel R2.6 ...	Yes

2. Select the **Monitoring Agent for Linux OS** and stop it, using any of the methods that are discussed in class. Watch the **Messages** window for status.
3. If the Tivoli Enterprise Portal desktop client is not running on VM01, start it now. Observe the status of the Linux OS monitoring agent in the Navigator Physical view.
4. Start the **Monitoring Agent for Linux OS** on VM01 by using the Manage Tivoli Enterprise Monitoring Services application. Observe the portal client to ensure that the agent starts and connects to the hub monitoring server.

Starting components on Linux by using the command-line interface

The two line commands on Linux to use for starting or stopping components are **itmcmd** and **tacmd**.

The **tacmd** line command starts and stops agents locally, and starts and stops nonoperating system agents remotely. The **itmcmd** command starts or stops components locally, UNIX and Linux only.

5. Open a terminal window on **VM02**. Use the **itmcmd** command to stop the Tivoli Log File agent, component ID **lo**. The Tivoli Log File agent can run multiple instances, and the itmcmd command requires the **-o** option to identify the instance name, VM02A in this case. Remember that **itmcmd** can run only if the system has an installed operating system agent.

```
cd /opt/IBM/ITM/bin  
.itmcmd agent -o VM02A stop lo
```

6. Use the **tacmd** command on VM02 to remotely stop the Tivoli Log File agent on VM01. Remotely stopping and starting agents requires you to log on to the server where the hub monitoring server is running.

- a. Run the following command:

```
./tacmd login -s VM01 -u sysadmin
```

- b. Press **Enter** at the password prompt.

- c. Enter **tacmd** with the **-n** parameter to identify the target node. The tacmd command does not accept a parameter for multiple-instance agents, and if multiple instances are running on the target server, the command stops them all.

The node is the target host system (VM01) concatenated with the operating system agent product code (LZ). The **-t** parameter identifies the target agent. **lo** is the product code for the Tivoli Log File agent.

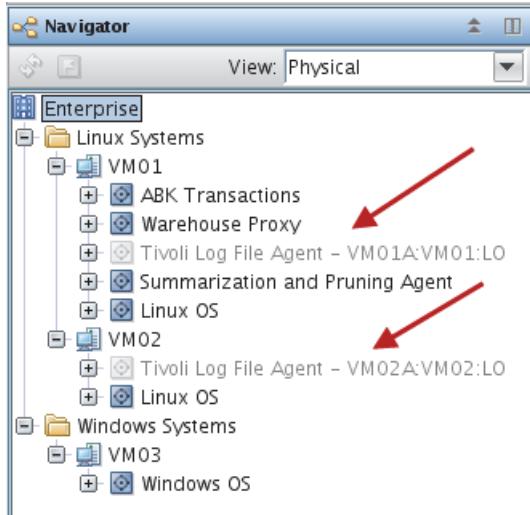
```
./tacmd stopAgent -n VM01:LZ -t lo
```

- d. Respond **Y** to the prompt and press **Enter**.



Note: You cannot use the tacmd command to start or stop operating system agents remotely. Because the operating system agent is the component that processes the tacmd start or stop command, the operating system agent must be running on the remote system.

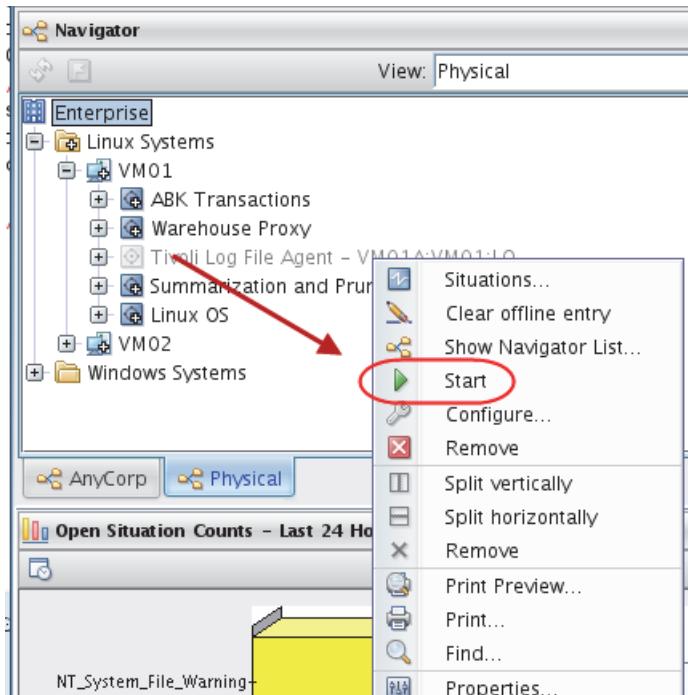
7. View the results of your actions on the portal client. The Tivoli Log File agents for both images become unavailable when they are stopped.



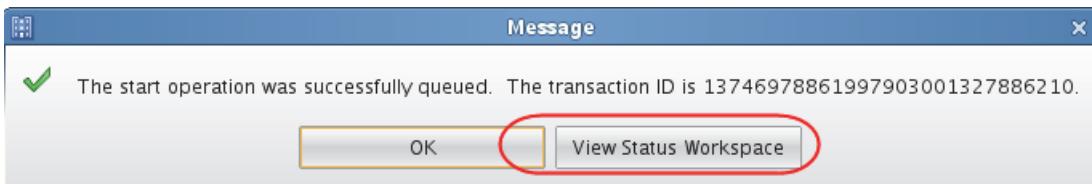
Managing nonoperating system components from within the portal client

You can start, stop, or reconfigure non-OS agents from the Navigator view. The OS agent must be running on the target system.

8. Right-click the **Tivoli Log File Agent - VM01A:VM01:LO** Navigator item on VM01 and click **Start**. You can perform these steps from either system.



9. Select **View Status Workspace** in the message to observe the result.



10. In the **Deployment Status Summary** workspace, find the **Deployment Status Detail** view.

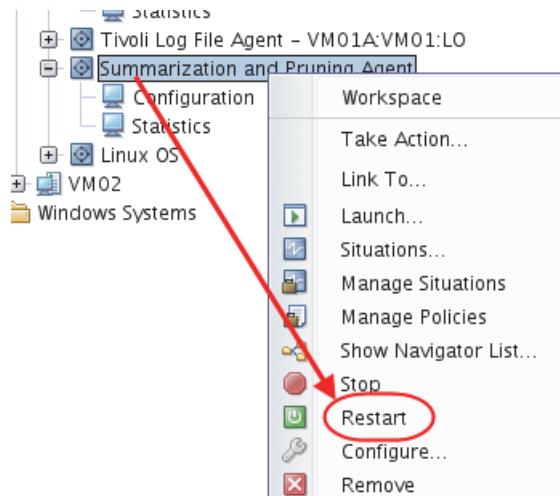
Refresh the workspace and observe the start operation for target managed system VM01A:VM01:LO in the **Deployment Status Detail** view. Refresh the workspace until the operation finishes.

Deployment Status Detail								
	Status	Command	Product ID	Product Version	Deploy TEMS	Target Managed System Name	Re	
	Success	START	LO	063000000	VM01_TEMS	VM01A:VM01:LO	KDY00281 Reque	

11. Start the Tivoli Log File agent on VM02 from within the portal client and observe the Deployment Status Summary workspace until the operation finishes.

You might need to recycle a managed system to pick up changes to the configuration. You can use the **Restart** option to perform this task.

12. Click the Summarization and Pruning Agent managed system. Right-click and click **Restart**. Click **OK** to dismiss the Message window.



The Summarization and Pruning agent goes offline and comes back online in a few minutes.

Exercise 2. Managed systems and managed system groups

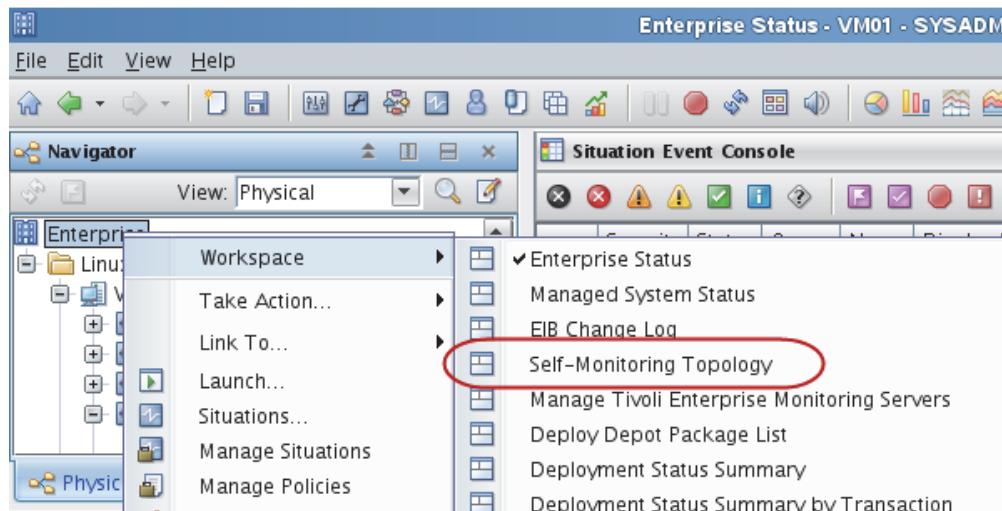
During this exercise, you learn to determine whether managed systems successfully connect to their monitoring server and whether they are online.

Create managed system groups to combine managed systems so that you can manage them as one entity. When an agent or remote monitoring server successfully connects, it is visible in the portal client as one or multiple managed systems. Within the portal client, agents are referred to as managed systems.

Viewing managed systems

You can view all managed systems that are connected to the same hub monitoring server in a separate workspace.

1. To see all your managed systems in a topology view, click the **Enterprise Navigator** item to select it. Right-click and click **Workspace > Self-Monitoring Topology**



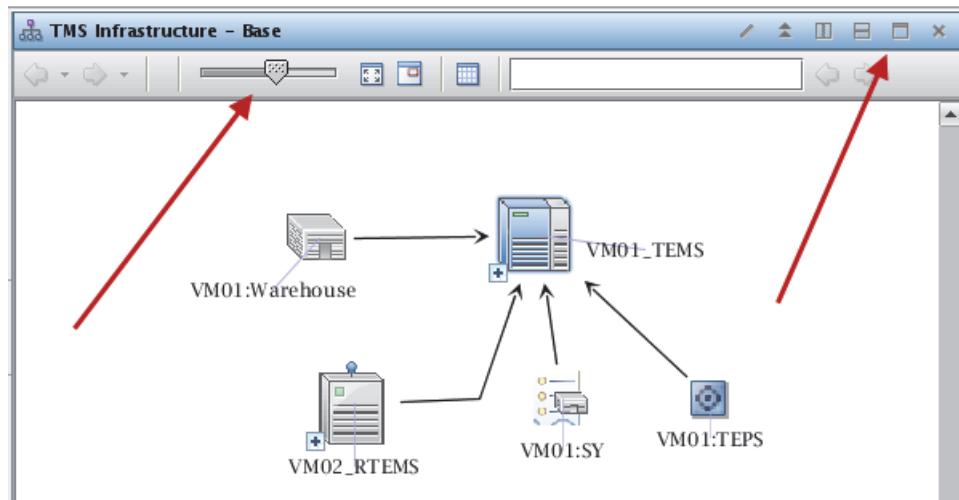
This action opens the **Self-Monitoring Topology** workspace that shows all managed systems in two types of formats:

- Topology view
- Bar Chart view

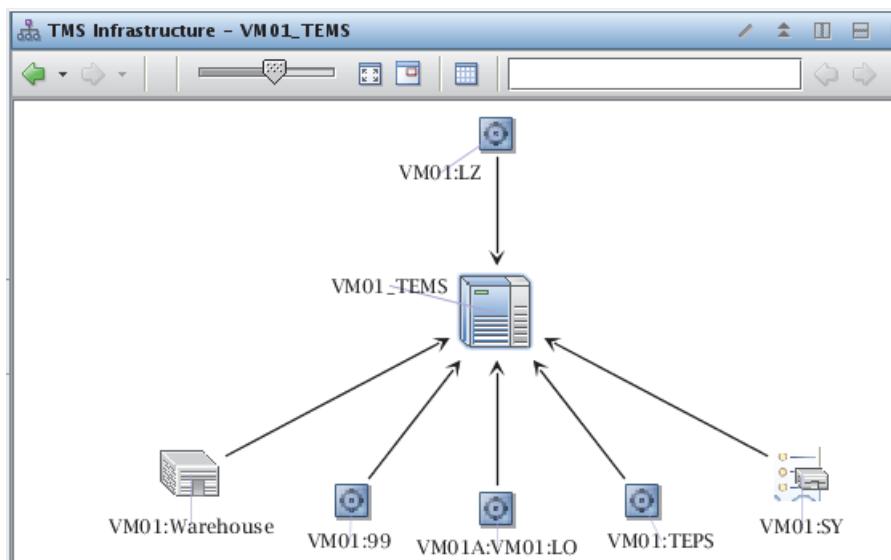
Tivoli Monitoring Services (TMS) Infrastructure views

Managed systems are running on hosts VM01 and VM02. Use the Tivoli Monitoring Services (TMS) Infrastructure - Base view to show your managed systems in either a topology or table view.

- Maximize the **TMS Infrastructure - Base** view by clicking the **Maximize** tool. Examine the topology view that opens.

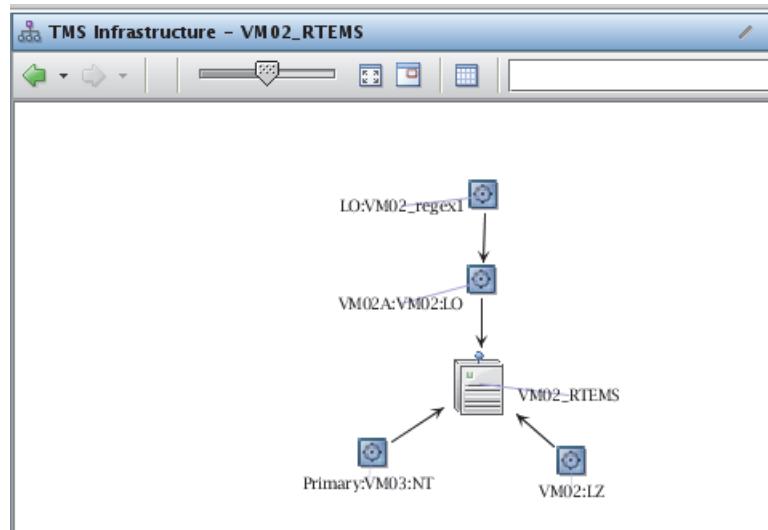


- Use the size control slider to enlarge the picture. Position the mouse pointer over the objects and view the details. Click an object and drag it to a different location. Can you see how you might rearrange the components any way you want?
- Locate the plus sign on the hub monitoring server and double-click it to expand the resources that connect to it. The **TMS Infrastructure - VM01_TEMS** view opens.



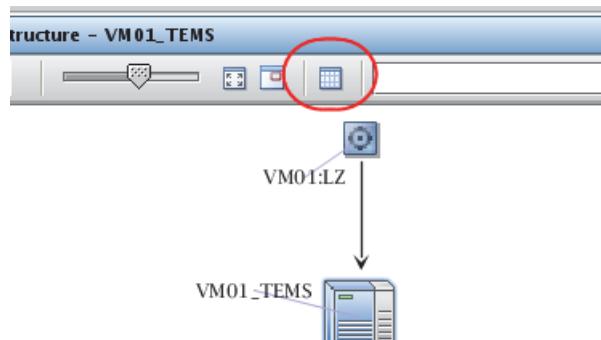
After you click the plus sign, you see the updates to the view:

- Click the back arrow in the view, not the workspace back arrow, to return to the **TMS Infrastructure - Base** view. Locate the plus sign on the VM02_RTEMPS object and double-click it. This view, TMS Infrastructure - VM02_RTEMPS, shows resources that connect to the remote monitoring server.



The table view contains more information.

- Return to **TMS Infrastructure - Base** by clicking the back arrow in the view.
- Double-click the plus sign on the **VM01_TEMS** icon to expand the view.
- To change the TMS Infrastructure view to a table, click the **View as Table** icon at the top of the view. Position the mouse pointer over the icons to locate the correct one.

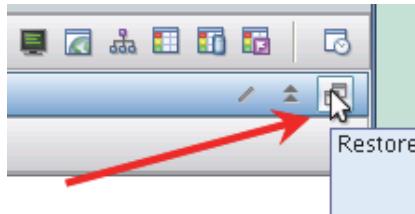


The view changes to a table view. Every managed system that connects to the hub monitoring server shows detailed information. Each system shows the IP address where the component is

running, the version, and host operating systems. One of the columns contains the time stamp indicating when the hub monitoring server last received a heartbeat from that component.

TMS Infrastructure - VM01_TEMS										
Status	Name	Resource	Product	IP Address	Version	Node	Host Info	Throughput	Latency	Uptime
<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>	<no filter>
Online	VM01:LZ	Agent LZ	LZ	192.168.1.100	06.30.01	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01:...	War...	HD	192.168.1.100	06.30.01	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01:99	Agent 99	99	192.168.1.100	06.30.00	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01A:...	Agent LO	LO	192.168.1.100	06.30.00	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01:...	Agent CQ	CQ	192.168.1.100	06.30.01	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01:SY	Sum...	SY	192.168.1.100	06.30.01	VM01	Linux	VM01...C	0.00 ms	2013-07-24 10:30:01
Online	VM01_...	TEMs EM	EM	192.168.1.100	06.30.01			VM01...C	0.00 ms	2013-07-24 10:30:01

9. If you maximized the view in an earlier step, click **Restore** to return to the full workspace.



Managed system status workspace and operations log

Another view that shows all managed systems in the enterprise is the **Managed System Status** workspace.

10. From the Enterprise Navigator item, locate and open the **Managed System Status** workspace.
Right-click **Enterprise** and click **Workspace > Managed System Status**.

Managed System Status						
	Status	Name	Product	Version	Managing System	Times
OK	*ONLINE	Primary:VM03:NT	NT	06.30.01	VM02_RTEMS	07/24/13
OK	*ONLINE	VM02A:VM02:LO	LO	06.30.00	VM02_RTEMS	07/24/13
OK	*ONLINE	VM01:TEPS	CQ	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM01:Warehouse	HD	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM02:LZ	LZ	06.30.01	VM02_RTEMS	07/24/13
OK	*ONLINE	VM01A:VM01:LO	LO	06.30.00	VM01_TEMS	07/24/13
OK	*ONLINE	VM01:LZ	LZ	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM01:SY	SY	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM01_TEMS	EM	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM02_RTEMS	EM	06.30.01	VM01_TEMS	07/24/13
OK	*ONLINE	VM01:99	99	06.30.00	VM01_TEMS	07/24/13

One feature available with this table is a link to the agent operations log.

11. Position your mouse pointer over the link icon of the **VM01:LZ** agent and click the link to view the operations log for that agent.

Global Timestamp	Message Number	Message Text
06/27/13 14:38:55	KRAIRA001	Stopping Enterprise situation dummysit <737150684,3088058...
06/27/13 14:38:42	KRAIRA000	Starting Enterprise situation dummysit <737150684,30880583...
06/27/13 14:15:04	KRAIRA000	Starting Enterprise situation UADVISOR_KLZ_LNXIPADDR <7392...
06/27/13 14:09:35	KRASCH000	Received calendar: "PrimeShift", operation: "INSERT", type: "CRO..."
06/27/13 14:09:35	KRASCH000	Received calendar: "NonPrimeShift", operation: "INSERT", type: "..."
06/27/13 14:09:35	KRASCH000	Received calendar: "Weekday", operation: "INSERT", type: "CRON..."
06/27/13 14:09:35	KRASCH000	Received calendar: "Weekend", operation: "INSERT", type: "CRO..."
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_High_CPU_Overload <737150...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_System_Thrashing <7371508...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_High_Zombies <737150873,...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation _Z_LNXDISK3 <737150819,29328...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_High_Packet_Collisions <7371...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_Packets_Error <737150831,...
06/27/13 14:09:35	KRAIRA000	Starting Enterprise situation Linux_BPC_Bad_Calls <737150811...

The operations log lists agent messages such as situation evaluations, heartbeats, connectivity messages, and other related actions.

12. Click the **Backward** arrow to return to the Managed System Status workspace.

Removing managed systems

Remove offline managed systems from within the portal client.

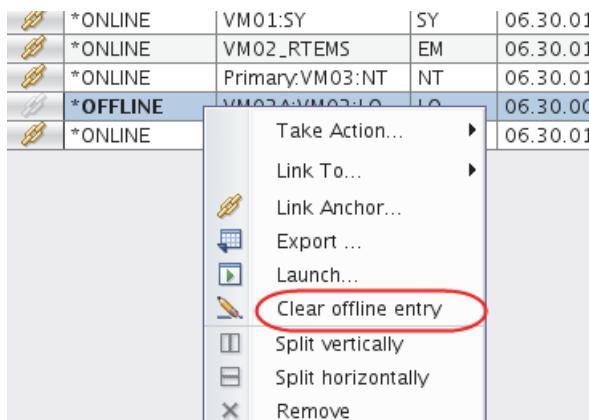
13. To mark a managed system as **offline**, stop the Tivoli Log File agent that is running on VM02 by using any method to stop the agent. The Navigator item for this agent is now unavailable.
14. Refresh the workspace to see the Managed System Status turn to *OFFLINE.

The screenshot shows the IBM Tivoli Monitoring Portal interface. On the left, the **Navigator** workspace displays a tree view of managed systems. Under the **Enterprise** node, there are two main categories: **Linux Systems** and **Windows Systems**. The **Linux Systems** category has two nodes: **VM01** and **VM02**. The **VM01** node contains several sub-agents: ABK Transactions, Warehouse Proxy, Tivoli Log File Agent - VM01A:VM01:LZ, Summarization and Pruning Agent, and Linux OS. The **VM02** node also contains these sub-agents. A red circle highlights the **Tivoli Log File Agent - VM02A:VM02:LZ** entry under VM02. On the right, the **Managed System Status** workspace displays a table of managed systems. The table has columns for Status, Name, and Pro. The entries are:

Status	Name	Pro
*ONLINE	VM01:99	99
*ONLINE	VM02:LZ	LZ
*ONLINE	VM01:TEPS	CQ
*ONLINE	VM01:Warehouse	HD
*ONLINE	VM01A:VM01:LO	LO
*ONLINE	VM01:LZ	LZ
*ONLINE	VM01:SY	SY
*ONLINE	VM02_RTEM	EM
*ONLINE	Primary:VM03:NT	NT
*OFFLINE	VM02A:VM02:LO	LO
*ONLINE	VM01_TEMS	EM

The row for **VM02A:VM02:LO** is highlighted with a red circle, indicating it is marked as offline.

15. From within your **Managed System Status** table, right-click the ***OFFLINE** entry and click **Clear offline entry**.



The managed system is no longer shown in the Managed System Status view. The Navigator items that belong to the Tivoli Log File agent no longer show in the Navigator Physical view for VM02. It might take several minutes to occur because of the heartbeat intervals.

Adding managed systems

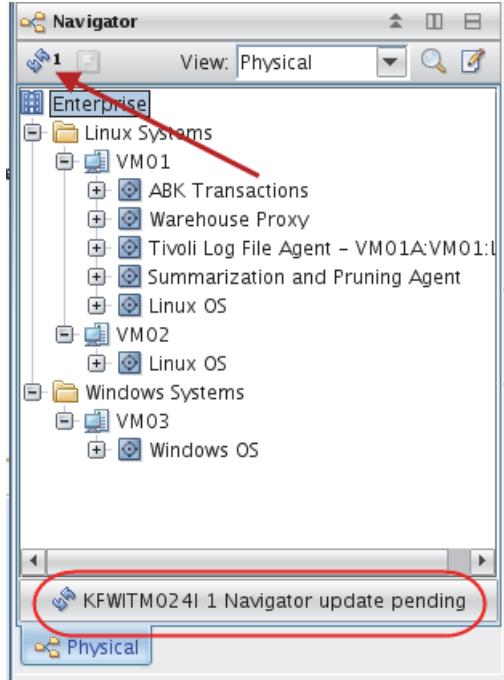
When a managed system successfully connects to the hub monitoring server, it is added to the **Managed System Status** table. Also, the Navigator Physical view shows it as a Navigator item.

16. After removing the offline managed systems for the Tivoli Log File agent on VM02, use any method that you want to restart the agent.

17. The **Managed Systems Status workspace** shows the Tivoli Log File agent. If the Managed System Status workspace is already open, refresh it to see the changes.

The Navigator view indicates that there are pending updates. It might take several minutes before you see the pending update icon.

18. To refresh the Navigator view, click the update icon or the message at the bottom of the Navigator.



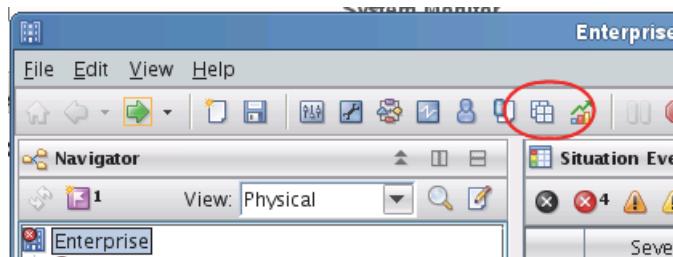
After refreshing the Navigator, the Tivoli Log File agent returns to the Navigator Physical view.

Exercise 3. Working with managed system groups

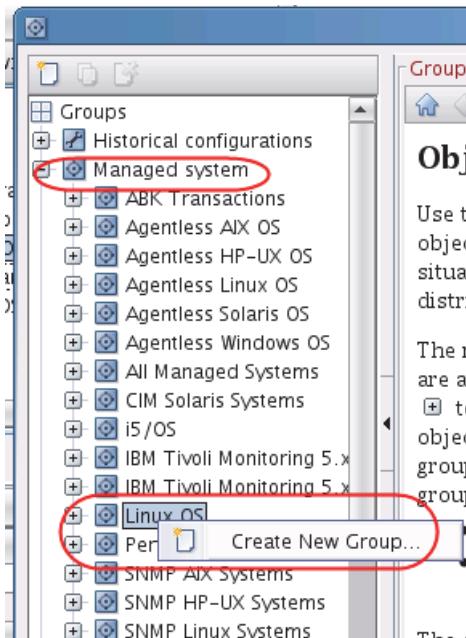
Managed system groups can facilitate managing situations by providing a single target for distributing situations, rather than distributing to each individual managed system. You create managed system groups by using the Object Group editor.

Create a managed system group that represents the servers that run the Apache web server. You use this group later in the course.

1. Open the Object Group editor by clicking the icon or pressing Ctrl+O.

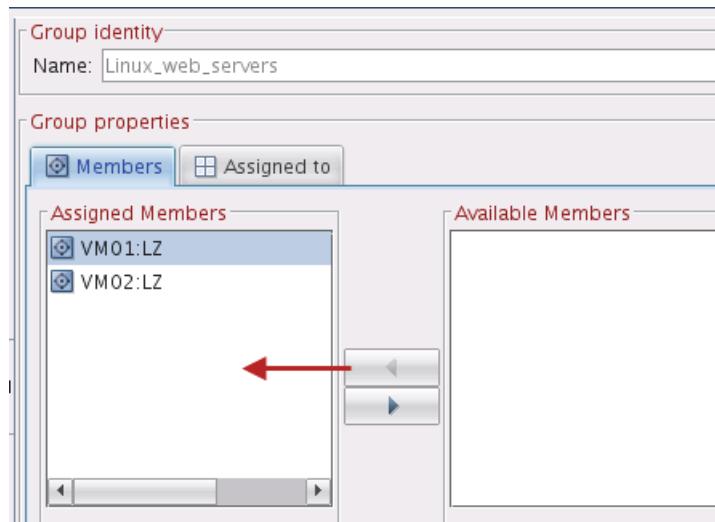


2. Expand the **Managed System** list and click **Linux OS**. Right-click and click **Create New Group**.



3. Name the new group **Linux_web_servers**.

4. Move both Linux servers from the Available Members pane to the Assigned Members pane by clicking them and clicking the left-pointing arrow between the panes.



5. Click **OK** to close the Object Group editor. The new group is now available for use with situation distribution in the next exercise set.



4 Monitoring your enterprise

As a first step of monitoring and managing your enterprise, create situations to detect problems with your enterprise resources. Trigger situation events when conditions occur that might adversely affect systems, applications, or even the business.

After completing these exercises, you can monitor for potential problems or situation events in critical systems or applications. You can create several situations to monitor for problems. Although situation events can originate from any agent or monitored system, focus on the Linux OS and the ABK Transactions application.

The process of building situations is similar for all Tivoli Enterprise Portal applications, and you can apply your knowledge directly to other scenarios. Your situations can monitor the following items:

- Processes
- Managed systems that are offline
- Security breaches when someone tries to log on to your system with a wrong user ID

Exercise 1. Working with situation events

Situation events compare attribute values with thresholds. When a condition becomes true, the situation triggers a situation event. Situation events are independent of user IDs. All users with permissions to access the information can view situation events.

In some cases, a situation event on your workstation reflects a product-provided situation. Because every environment is different, different situation events occur.

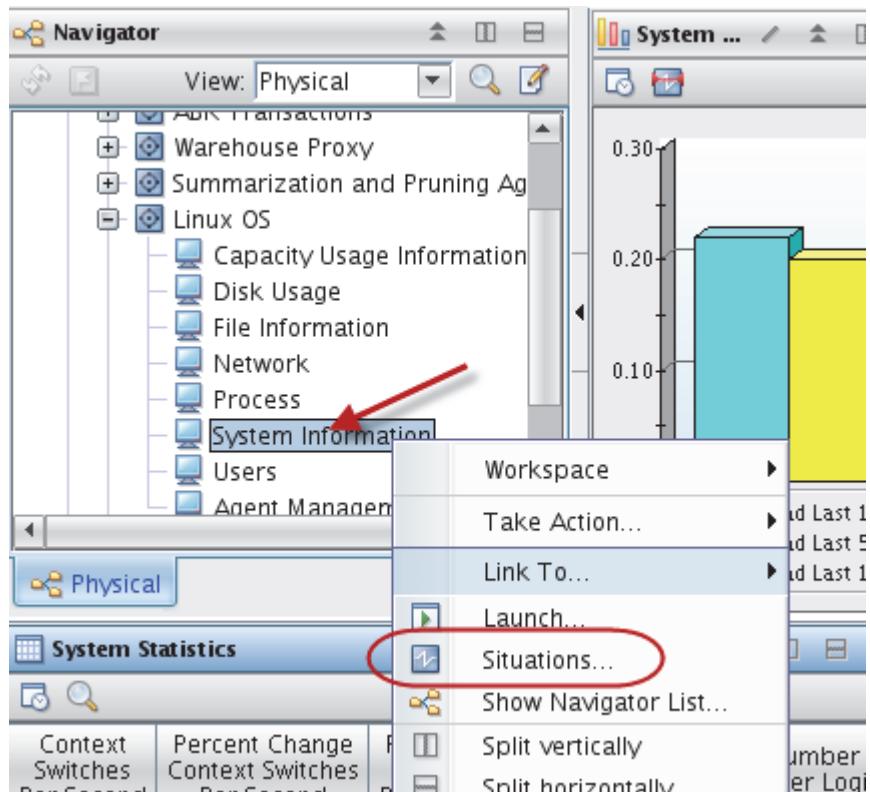
This exercise shows how to use situation event notification options in Tivoli Enterprise Portal. You also learn to view a situation event and access more information about it. You do not create new situations but modify an existing situation to simulate a problem on your system.

Generating situation events with a product-provided situation

To generate a situation event, modify a disk usage situation and set the threshold to trigger the situation. Set a threshold artificially low to force the situation to open.

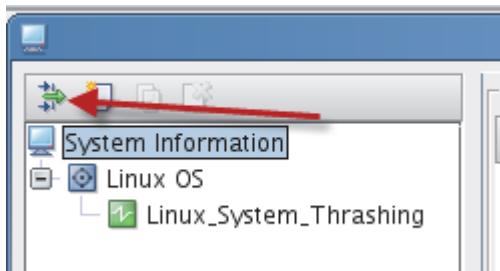
Both of your classroom systems include the situation. For this exercise, work with only VM01.

1. Open the default Navigator item for **Linux OS > System Information** on VM01. Right-click **System Information** and click **Situations** in the menu.



Note: If you open the Situation editor from the toolbar, some of the options that are required for this exercise are unavailable.

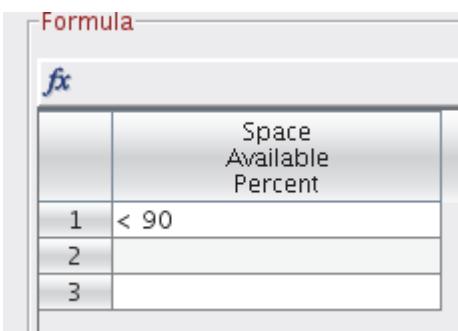
2. In the Situation editor, click the **Set Situation filter criteria** icon.



3. Select **Associated with Monitored Application** and click **OK**.



4. Expand the Situation Navigator in the Situation editor, find, and click the situation named **Linux_Low_percent_space** and change the **Space Available Percent** value to less than **90**. If the disk is less than 90% used, the situation opens.



5. Change the sampling interval to 30 seconds. Click the **mm** field and type **0 (zero)** and click the **ss** field. The seconds value changes to **30**. Check the **Run at startup** box.



6. Click **OK**. Your action changed the situation settings and restarted the situation on both systems.



Note: Clicking **Apply** also restarts the situation, but it does not close the editor.

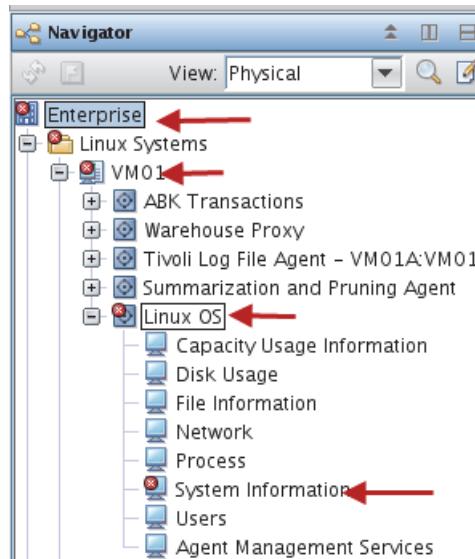
Viewing situation events

After a situation event occurs, it is displayed in different places in the portal client.

Using the Navigator item flyover

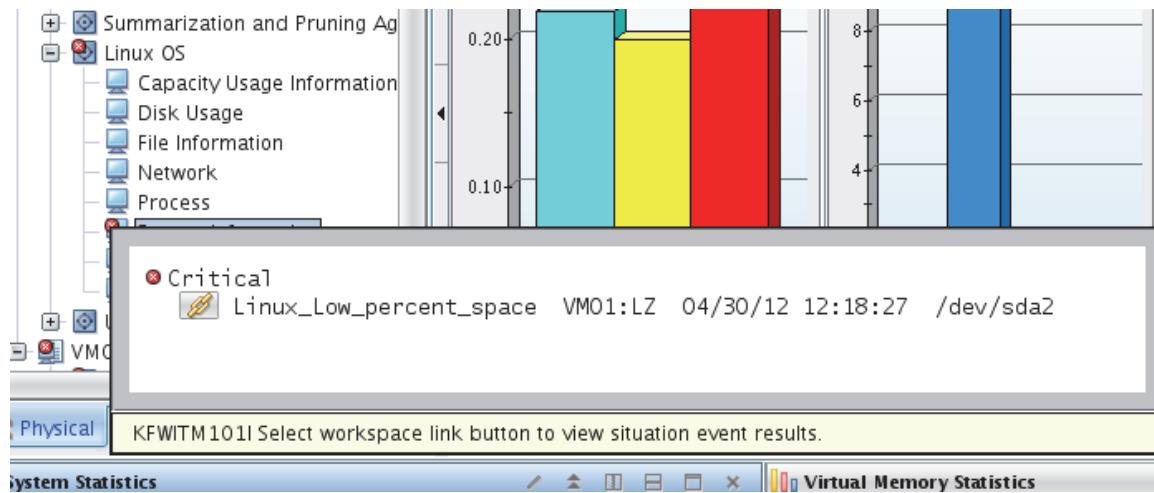
The situation event is displayed in your Navigator Physical view on the **System Information** Navigator item.

7. Expand the Navigator Physical view to see the Linux OS on VM01.



8. Hold your mouse pointer over the **System Information** Navigator item that is displaying the critical state indicator.

A flyover window opens, showing all situations that are open for this Navigator item. Typically, it also shows all states that apply to Navigator items in a lower level of the Navigator view, but those items do not apply to this case.



The flyover lists information about each situation event as follows:

- The severity of the situation event
- The situation name
- The managed system that triggered the situation event
- The date and time the event opened

The flyover also shows a link that accesses the Situation Event Results workspace. You learn more about links in a later exercise.

Using the Situation Event Console

Another place to view the situation event in the portal client is the Situation Event Console, which you can include as a view type in any workspace. By default, the Enterprise Status workspace includes the Situation Event Console and shows all situation events currently open in the enterprise.

9. Open the Situation Event Console by clicking the **Enterprise** Navigator item in the Navigator Physical view.
10. Review the situation events that are displayed in the Situation Event Console.

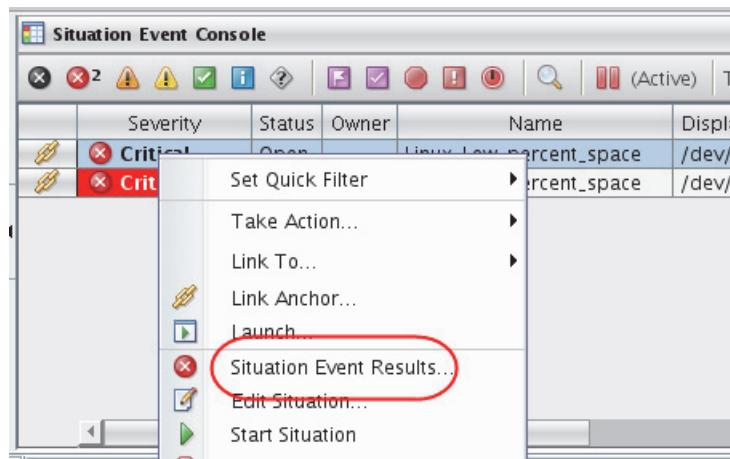
The screenshot shows the Situation Event Console window. The title bar says 'Situation Event Console'. The toolbar contains various icons for filtering and searching. A status bar at the bottom right shows 'Total Events: 2'.

	Severity	Status	Owner	Name	Display Item	Source
⚡	Critical	Open		Linux_Low_percent_space	/dev/sda2	VM01:LZ
⚡	Critical	Open		Linux_Low_percent_space	/dev/sda2	VM02:LZ

Using the Situation Event Results workspace

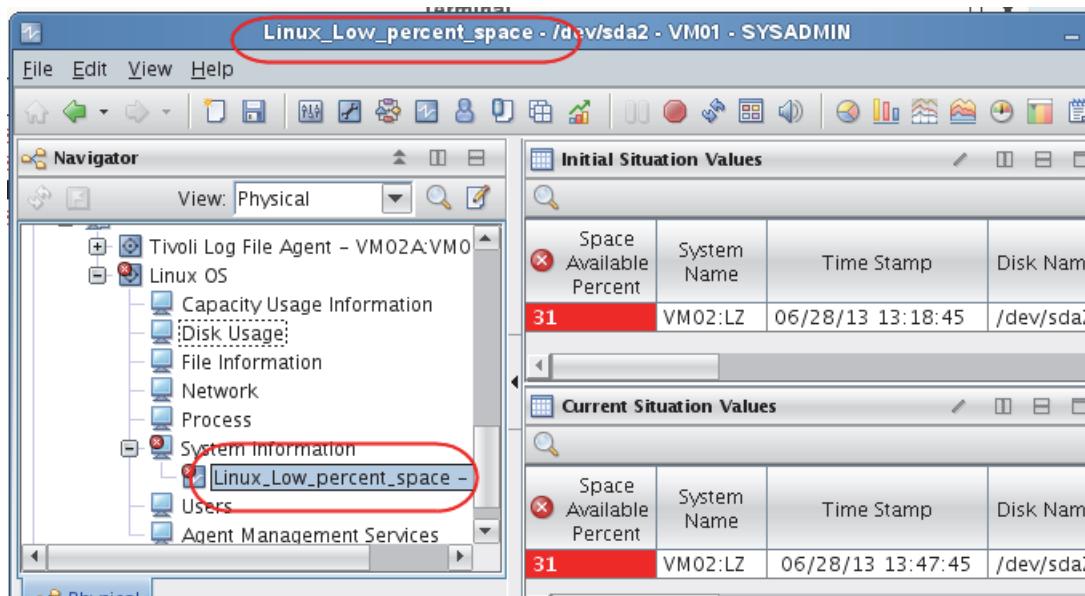
You already know some details about the situation event from the entries in the Situation Event Console. This section describes the situation event basis and how to solve the situation.

11. Open the Situation Event Results workspace from the Situation Event Console. Right-click the **Linux_Low_percent_space** situation event from VM02:LZ and click **Situation Event Results**. You must click in the body of the event, not the link icon. If prompted to save the workplace, click **No**.



The Situation Event Results workspace opens. The situation name is in the workspace title.

When the Situation Event Results workspace opens for the first time, a new Navigator item shows in the Navigator view. It is below the Navigator item that is associated with the situation.



This Situation Event Results workspace shows more specific information about the situation event and the situation that was associated with it.

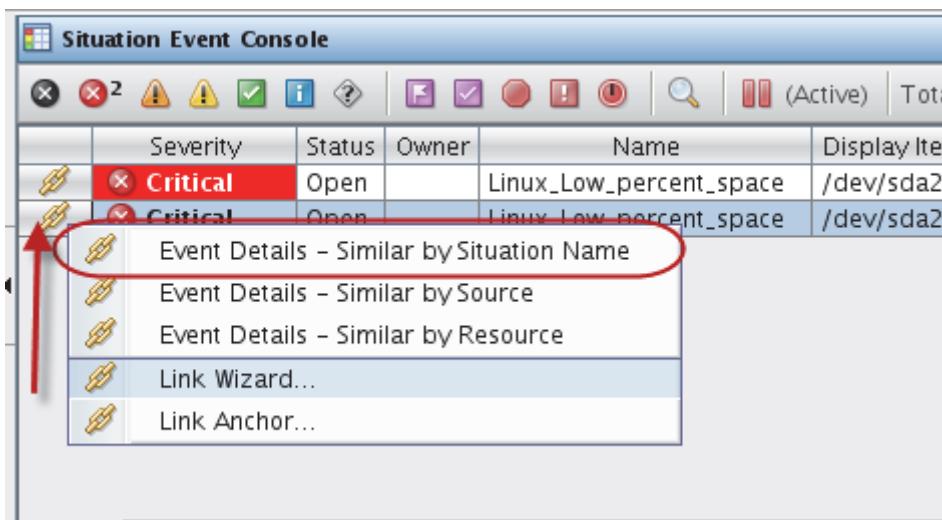
12. Navigate the different views in this workspace to better understand the information that is presented:

- **Initial Situation Values:** Values of all attributes for the same attribute group at the onset of the situation.
- **Current Situation Values:** Values that are displayed in real time when you access or refresh the workspace.
- **Expert Advice:** Information for resolving a situation, provided by the administrator who created the situation.
- **Command View:** Options to manually run commands on the system where the situation event occurred.

Viewing situation event details

From the Situation Event Console, you can access situation event details. This workspace provides additional information about the situation event. It also shows other situations that are related to the one you are working with.

13. Open the Situation Event Console on the **Enterprise Status** workspace. Right-click the link icon in the row that shows the **Linux_Low_percent_space** situation event.



Three options are available to filter the situations that are displayed in the Event Details workspaces when you select the link.

The first option is the default, and it shows all situation events that are based on the same situation. They can be active for different Navigator items.

14. Select **Event Details - Similar by Situation Name** and view the Event Details workspace.

The screenshot shows the Event Details workspace with two main sections:

- Selected Event:** A table with columns: Severity, Status, Owner, Name, Display Item, Source, Impact. It contains one row for "Linux_Low_percent_space" with Severity set to Critical.
- Similar Events by Situation Name:** A table with the same columns. It contains two rows, both for "Linux_Low_percent_space" with Severity set to Critical, but different Sources (VM01:LZ and VM02:LZ).

15. Click the **Back** button on your toolbar.

16. Select the second link, **Similar by Source**, from the same situation event.

This view shows all situations for the same managed system as the situation event you are working with. The view includes closed situation events.

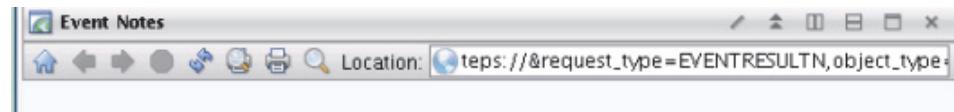
The screenshot shows the Event Details workspace with the "Similar Events by Source" section selected. It displays a table with the same structure as the previous section, showing two rows for "Linux_Low_percent_space" with Severity set to Critical and different Sources (VM02:LZ and VM02:LZ).

If no other situation events are active in your Navigator, the filters are the same.

Viewing event details

The Event Details workspace has a view on the lower left that provides information about all users that are managing the situation event. Use the **Event Notes** view in the next exercise.

Because no one worked with the situation event yet, the view is empty.



Monitoring situation event status changes

For viewing status changes of situation events, the portal client provides a message log.

17. Open the **Enterprise Status** workspace and view the Message Log view on the lower right.

Message Log						
Status	Name	Display Item	Origin Node	Global Timestamp	Last Seen	Event Type
Open	Linux_Low_percent_space	/dev/sda2	VM01:LZ	04/30/12 12:18:27	04/30/12 12:18:27	04/30/12 12:18:27
Open	Linux_Low_percent_space	/dev/sda2	VM02:LZ	04/30/12 12:18:27	04/30/12 12:18:27	04/30/12 12:18:27

The log shows entries for all situations in the enterprise that are, or were, true. The Message Log view lists open situation events, acknowledged situation events, and others.

To stop a situation and prevent it from automatically restarting, perform the following steps.

18. Right-click the **System Information** Navigator item and click **Situations**. Click the **Linux_Low_percent_space** situation to select it.
19. Clear the **Run at startup** check box.



20. Right-click the situation name and click **Stop Situation**. Click **OK** to apply the change and close the Situation editor.

Exercise 2. Generating new situation events

The next exercise works with a simple situation that verifies the availability of a process on Linux. This process directly applies to monitoring the availability of other components, such as a WebSphere® MQ queue manager that is down or DB2® that is slow.

Create a situation to verify that critical processes are running. If they are not running, you want a critical situation event to show on your Linux OS Process Navigator item.

It is best to copy a product-provided situation and use it as a model. However, no product-provided situations monitor for missing processes; so you must build one.



Note: To ensure that future updates to the monitoring server do not regress the situation that you create, do not modify product-provided situations in a production environment. Instead, copy the situation and save it with a new name, and then modify the situation formula.

Setting up

Name your new situation **Linux_Missing_Process**. It monitors the availability of all processes you list in the situation formula. For this exercise, monitor for the presence of processes **sshd** and **snmpd**.

You can easily stop and start those processes to test your situation without causing any disruption in the exercise environment. In a production environment, never monitor for trivial events or unimportant functions.

1. Open a terminal window on VM01.
2. Enter these commands, one per line.

```
cd /etc/init.d
./snmpd status
./sshd status
```

This situation monitors the status of the processes for the SNMP and SSH daemons. You can use these commands to check the respective status of these daemons.

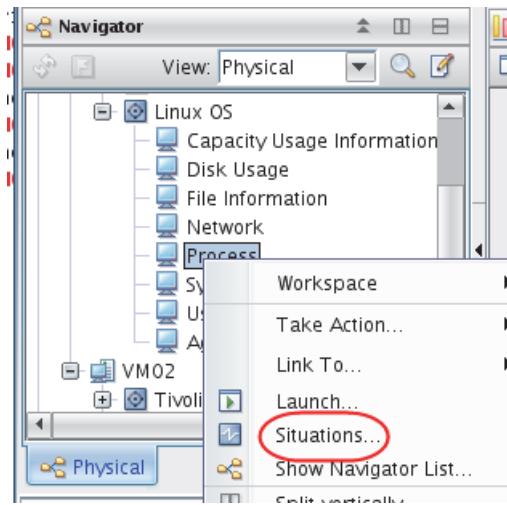
```
File Edit View Terminal Help
Directory: /root/Desktop
Tue May  1 05:26:02 GMT+8 2012
VM01:~/Desktop # cd /etc/init.d
VM01:/etc/init.d # ./snmpd status
Checking for service snmpd:
VM01:/etc/init.d # ./sshd status
Checking for service sshd
VM01:/etc/init.d #
```

Although there are different options for accessing the Situation editor, select it from the Navigator item where you want the situation event to show.

Starting the Situation editor from the Navigator item avoids having to separately associate the situation. Opening the Situation editor from a Navigator item automatically associates the situation.

3. Expand the Navigator view until you see the Linux OS Navigator item on VM01.

4. Click the Linux OS **Process** Navigator item for on VM01 to select it. Right-click the item and click **Situations**.



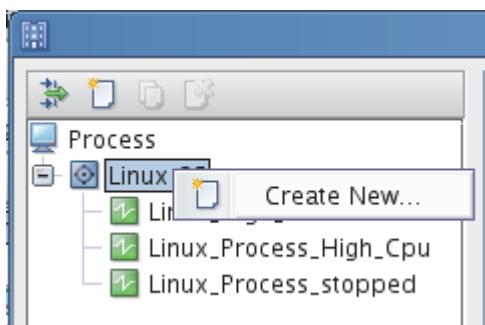
The Situation editor opens, showing all situations that are currently associated with the Process Navigator item.



Note: Hold your mouse pointer over the Navigator item and right-click. You do not have to click the Navigator item to access the menu.

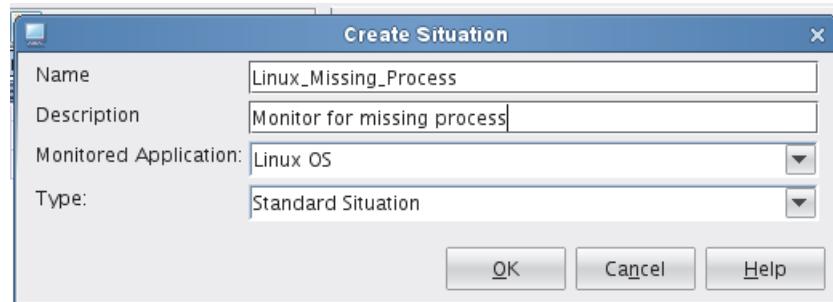
Create a situation

5. Click **Linux OS**, right-click, and click **Create New**.



Good naming conventions are important in a production environment. The names can reflect the systems that are monitored, the group that is responsible for maintaining them, or a geography.

6. Name this situation **Linux_Missing_Process** and provide a meaningful description. The Monitored Application is not available for selection because you opened the Situation editor from the Linux OS item.



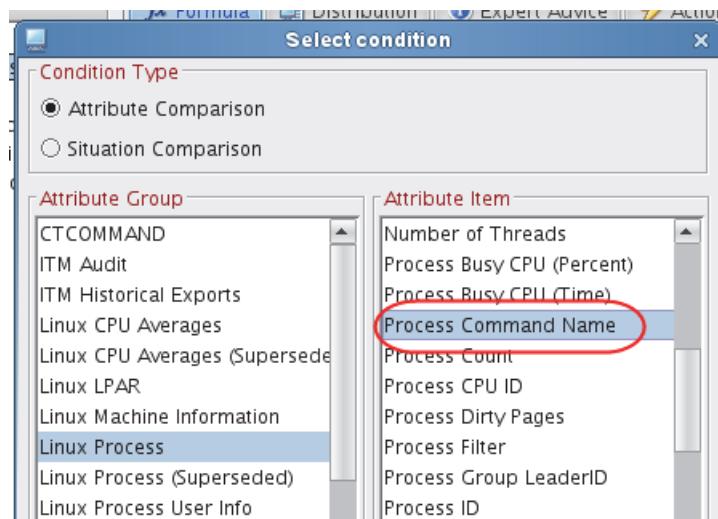
7. Click **OK**.

Selecting the attributes to monitor

Select which attribute group you want to start with. The left pane shows the Linux OS attribute groups.

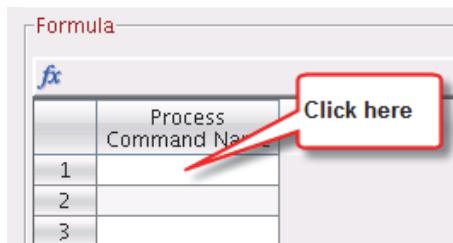
The **Linux Process** attribute group is already selected because you opened the Situation editor from the Linux Process Navigator item. The right pane shows attributes from Linux Process attribute group.

8. Click **Process Command Name** and click **OK**.



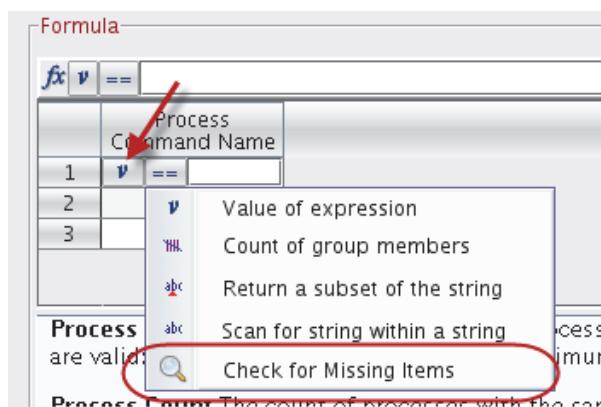
Building the formula

9. Click the blank field under the attribute heading.

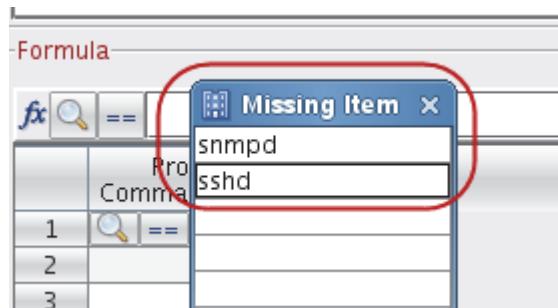


The Check for Missing Items function can monitor for a missing item in a list.

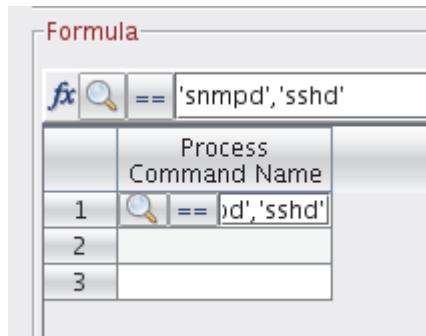
10. Click the **Function** field and select **Check for Missing Items**.



11. Leave the operator set to equal (==). Type the names of the processes you want to monitor for, **snmpd** and **sshd**, in the list box and click **OK**.



The Situation editor automatically adds the quotation marks.



Note: The spelling of process names is case-sensitive. If you are unsure how to spell the process name, verify its spelling in the appropriate workspace.

Selecting the situation sampling interval

The default sampling interval is 15 minutes.

12. Change the **Sampling Interval** to 30 seconds.



Note: A quick way to change the sampling interval is to highlight the **mm** (minute) field, which shows the default 15 minutes. Type **0**. Click the **ss** (seconds) field. The seconds field changes to 30.

Leave the **Run at startup** check box selected so that the situation automatically restarts if you recycle the agent.

Checking the situation event state

13. Click the down arrow by the **State** field to view the available states. Leave **Critical** selected.

Distributing the situation to a managed system

The situation is already distributed to a managed system as a result of accessing the Situation editor from a Navigator item.

14. Click the **Distribution** tab to verify that the situation is distributed to VM01.



Testing the situation

15. When you finish modifying your situation, close the Situation editor by clicking **OK**. Because you set the situation to run at startup, the situation starts immediately.



Hint: You can verify that the situation started by viewing the Agent Operations Log for the VM01:LZ managed system. You saw how to view an agent operations log on [page 38](#) in [Chapter 3, "Managing Tivoli Monitoring components exercises"](#).



Note: When the situation starts, you might see each Navigator item flash with the status it was configured with.

16. Find the terminal window on VM01 that was used to check the status of the SNMP and SSHD daemons. Enter these commands, one per line.

```
./snmpd stop  
./snmpd status
```

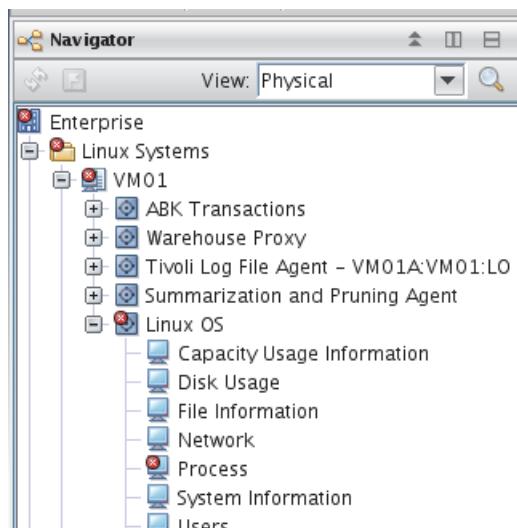
A screenshot of a terminal window titled "Terminal". The window shows the following command history:

```
VM01:~ # cd /etc/init.d  
VM01:/etc/init.d # ./snmpd status  
Checking for service snmpd:  
VM01:/etc/init.d # ./sshd status  
Checking for service sshd:  
VM01:/etc/init.d # ./snmpd stop  
Shutting down snmpd:  
VM01:/etc/init.d # ./snmpd status  
Checking for service snmpd:  
VM01:/etc/init.d #
```

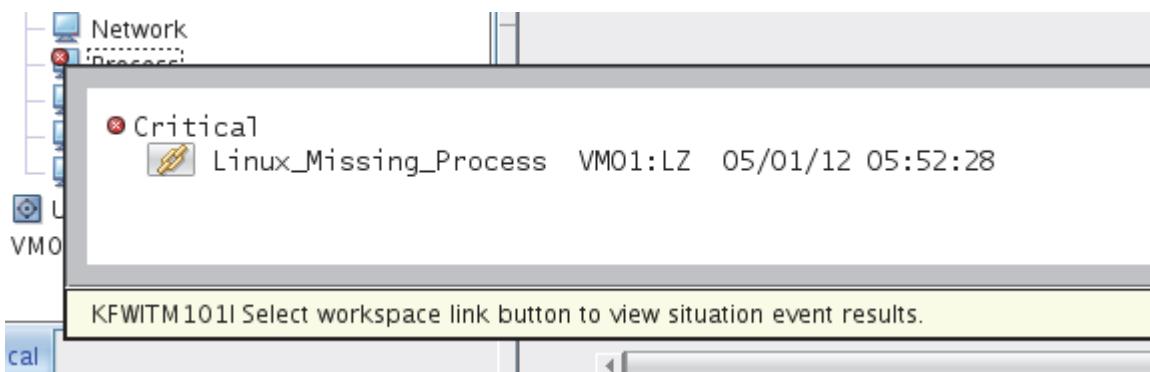
Annotations on the right side of the terminal window highlight specific lines of text:

- "running" is written next to the line "Checking for service snmpd:"
- "running" is written next to the line "Checking for service sshd:"
- "done" is written next to the line "Shutting down snmpd:"
- "unused" is written next to the line "Checking for service snmpd:"

17. Watch the Process Navigator item. Within 30 seconds, the critical event alert icon shows on the Navigator item.

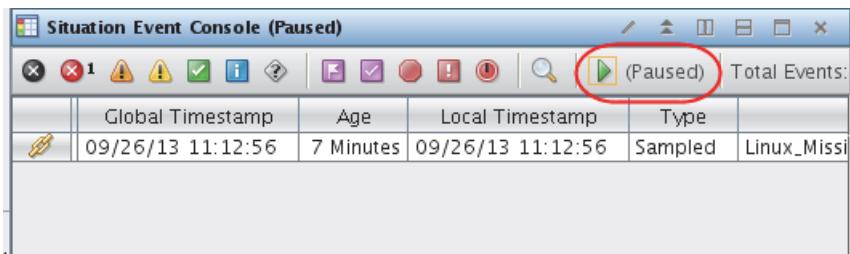


18. Hold the mouse pointer over the alert icon to see the event box.



19. Click the **Enterprise** Navigator item to see the Situation Event Console. Scroll the console to the right and observe the information that is available about the situation. Notice that you do not see the name of the missing process in the situation information.

Scrolling the console to the right puts it into Paused mode, and no more situation activity can be displayed. Scroll back to the left to return it to Active status, or click the green arrow icon next to (Paused).



20. Start the process so the situation closes. Return to the terminal window used for stopping the SNMP daemon on VM01 and enter the command.

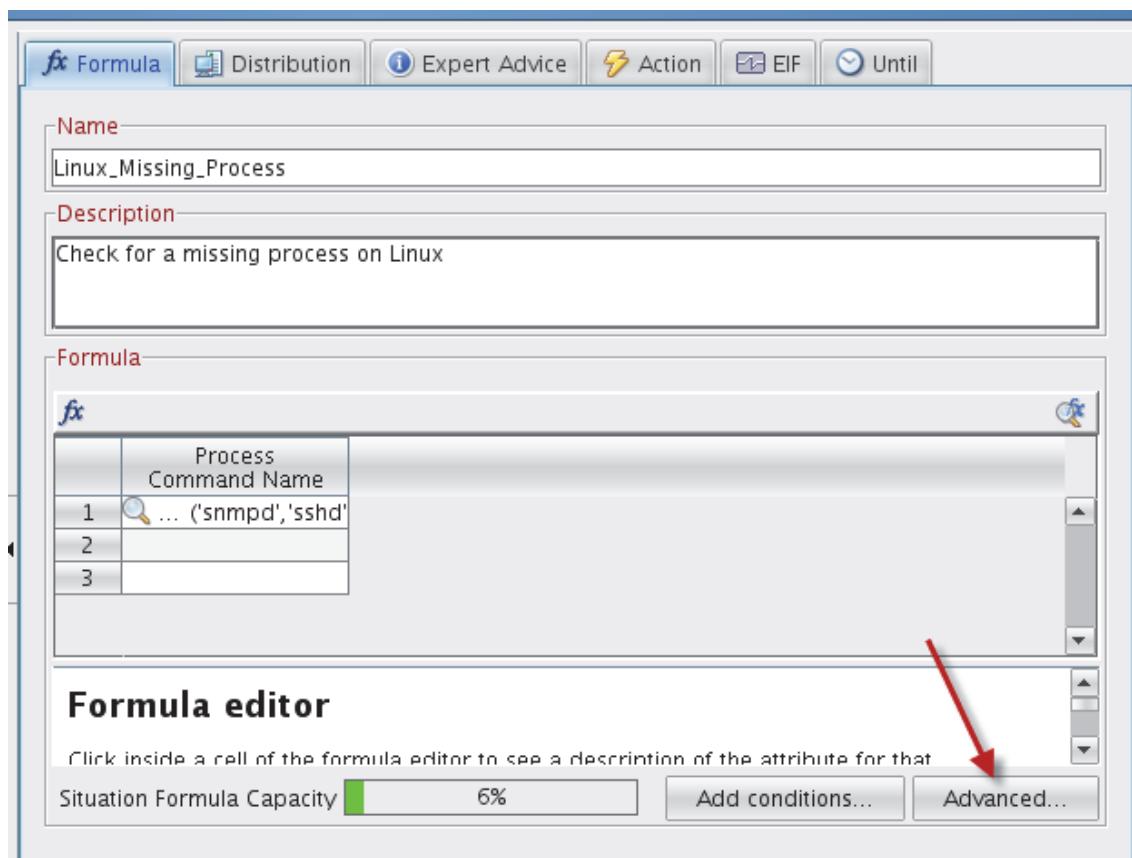
```
./snmpd start
```

Within 30 seconds, your situation monitors the processes and finds that **SNMP** daemon is running. That situation closes.

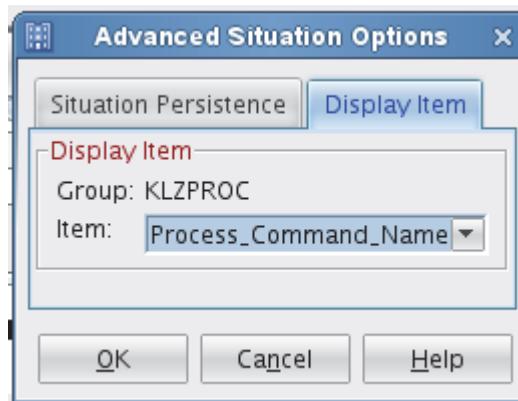
Using a display item

Your situation is monitoring for two processes, but it does not indicate which one caused the situation to open. Adding a display item provides that information.

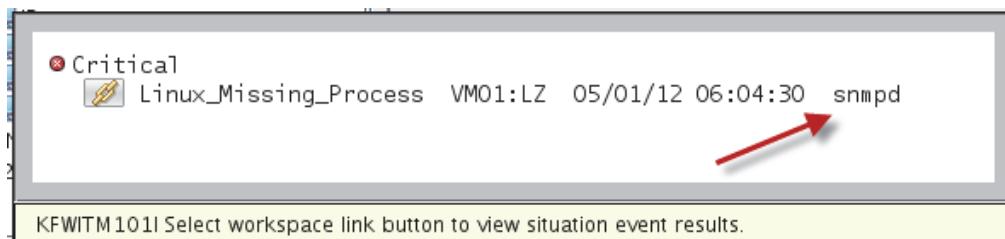
21. Open the Situation editor for your **Linux_Missing_Process** situation. On the **Formula** tab, click the **Advanced** button.



22. Click the **Display Item** tab, and select **Process_Command_Name** from the **Item** list. Click **OK**, and click **OK** again to close the Situation editor.



23. Stop one of the processes again. When the situation opens, hold the mouse pointer over the alert icon in the Navigator item. The process name is now listed on the situation.



24. Stop the other process and check the situation after 30 seconds.

```

File Edit View Terminal Help
Starting snmpd
VM01:/etc/init.d # ./snmpd stop
Shutting down snmpd:
VM01:/etc/init.d # ./sshd stop
Shutting down SSH daemon
VM01:/etc/init.d #

```

Two separate situation events show, one for each missing process.

Situation Event Console					
	Severity	Status	Owner	Name	Display Item
	Critical	Open		Linux_Missing_Process	sshd
	Critical	Open		Linux_Missing_Process	snmpd

25. Click the Enterprise Navigator item and look in the Situation Event Console. The process name also shows in the Display Item column.

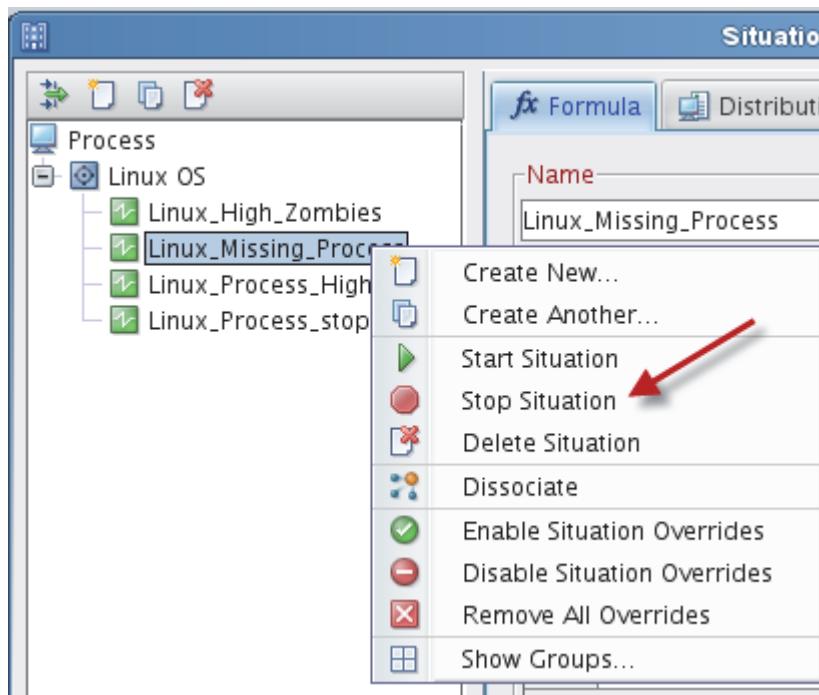
26. Restart both processes.

In many scenarios, you might want to see separate situation events for each missing process. Using the display item provides granularity. Also, you can see which items caused the situation event.

Starting and stopping situations

A situation automatically starts if you select the **Run at startup** check box. This setting activates the situation every time the agent starts and when you apply changes to the situation. You can also start situations manually.

27. Open the Situation editor from the **Process** Navigator item again. Click the **Linux_Missing_Process** situation to select it.
28. Right-click and click **Stop Situation** from the menu. Close the Situation editor.



The situation event alert is cleared in the Navigator view.

Note: A selected **Run at startup** option causes the situation to start automatically when the agent starts. Because you stopped the situation manually, the situation did not start when the monitoring agent recycles or starts. This condition persists until the monitoring server recycles.

29. Restart the situation from the Situation editor.

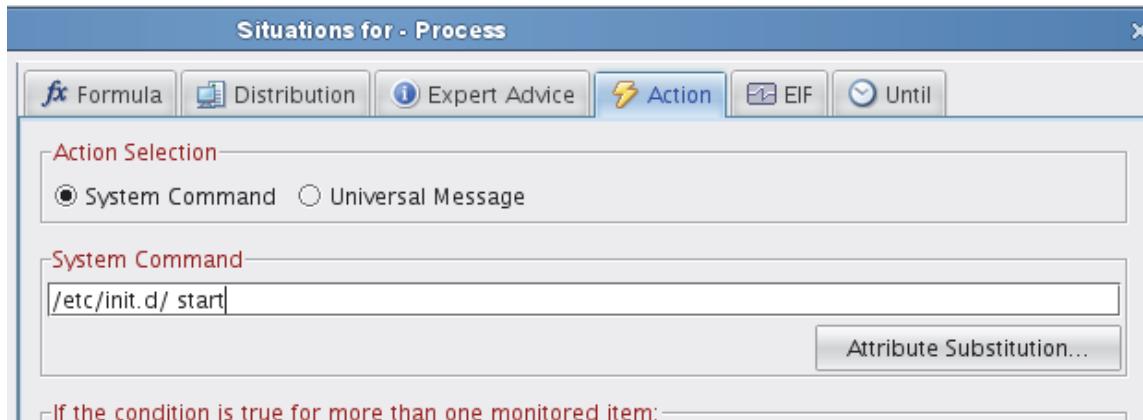
Adding reflex automation

Situations can submit commands to restart failed processes or write log messages. Use the **Action** tab to automatically start the processes you are monitoring. This process is **reflex automation**. Use a semicolon to separate multiple commands.

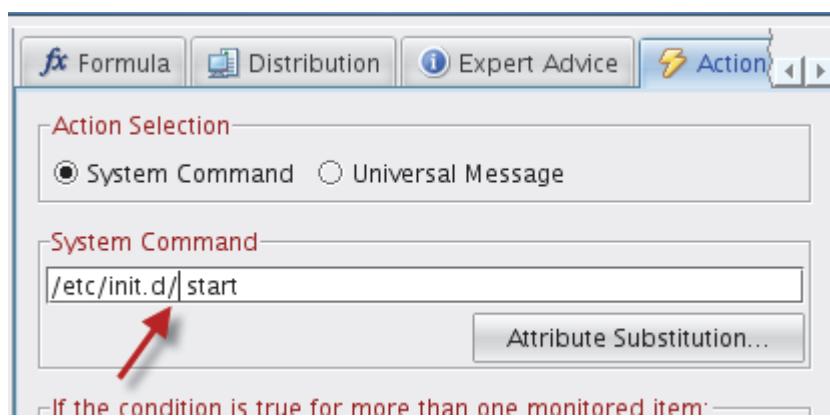
30. Open the Situation editor from the VM01 Linux OS **Process** Navigator item. Click the **Linux_Missing_Process** situation.

31. Click the **Action** tab. Click the **System Command** field. Type the command to start the daemon.

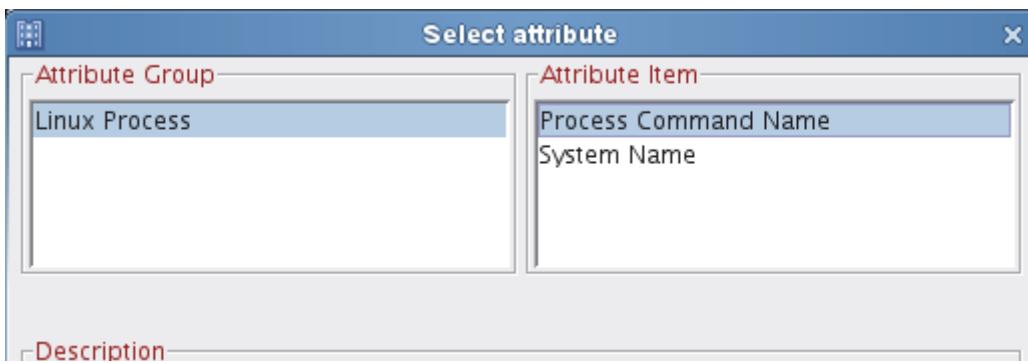
```
/etc/init.d/ start
```



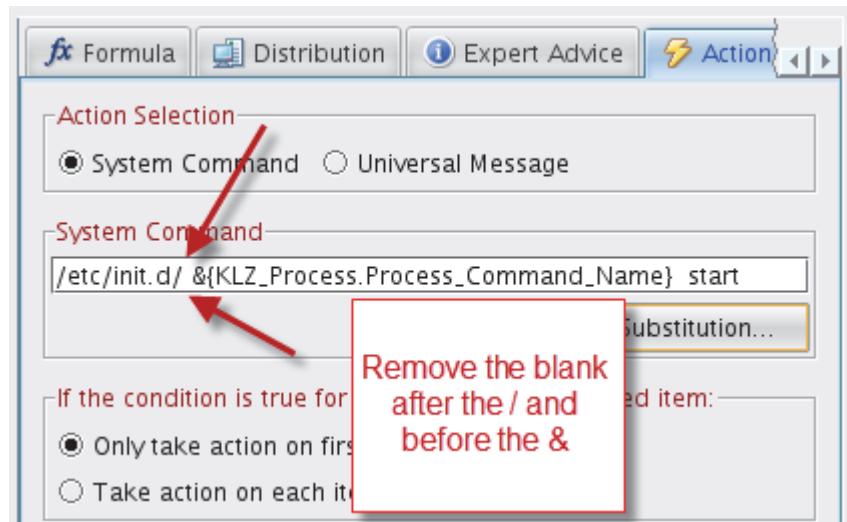
32. Use the Situation editor to substitute the name of the stopped process. Place the cursor between the last / and the letter s in **start**.



33. Click the **Attribute Substitution** button and select the **Process Command Name**. Click **OK**.

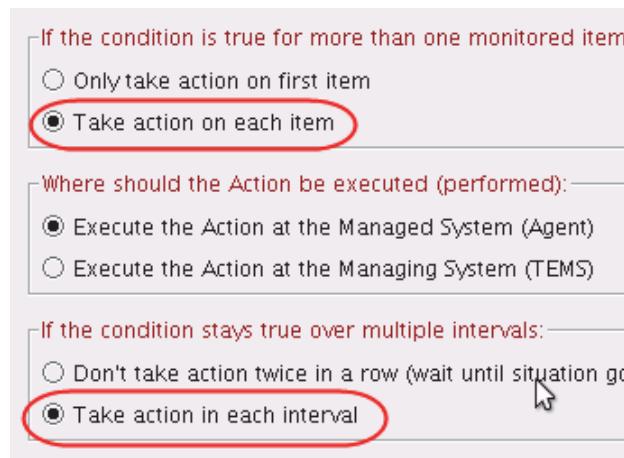


34. Look carefully at the command. Remove the extra space after the slash and before the ampersand.



The situation is monitoring for multiple processes.

35. Select actions for the situation to perform for each missing process it finds. Click **Take action on each item** and **Take action in each interval**.



36. Click **OK** to close the Situation editor and start the situation.

The situation restarts both **sshd** and **snmpd**.

37. Stop one of the monitored processes again and watch the Enterprise Navigator item in the Situation Event Console.

The situation opens when it detects the missing process name. It closes a few seconds later when the reflex action starts the process again.

38. View the Message Log view to see the situation operations.

39. Stop the situation from running. Open the Situation Editor from the Linux OS **Process** Navigator item again. Click the **Linux_Missing_Process** situation to select it.

40. Clear the **Run at startup** check box.
 41. Right-click the situation name and click **Stop Situation** from the menu. Click **OK** to apply the change and close the Situation editor.



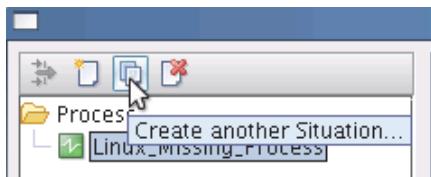
Hint: If the reflex automation does not work as expected, access the Linux OS Agent Operations Log to see if the agent is reporting any errors with the action. The log is found by selecting the Enterprise Navigator item, and then opening the Managed System Status (non-default) workspace. Click the link icon next to VM01:LZ to view the agent operations log.

Exercise 3. Monitoring the Apache web server

Create another situation to monitor the availability of the Apache web server. Although you can add the Apache process to the previous situation you created, different people can be assigned to respond to these events.

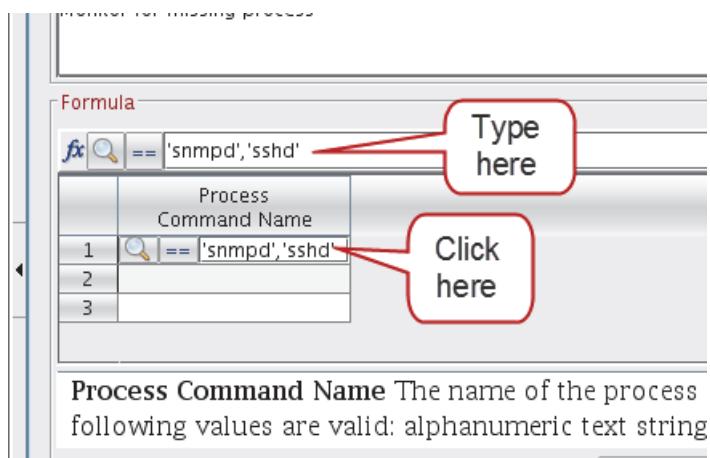
This exercise also shows you how to distribute a situation to a managed system group. You can save time by copying the situation that you created in the previous step.

1. Open the Situation editor from the VM01 Linux OS **Process** Navigator item.
 2. Click the **Linux_Missing_Process** situation to select it. Right-click, and click **Create Another**. Or click the **Create Another** icon in the toolbar.

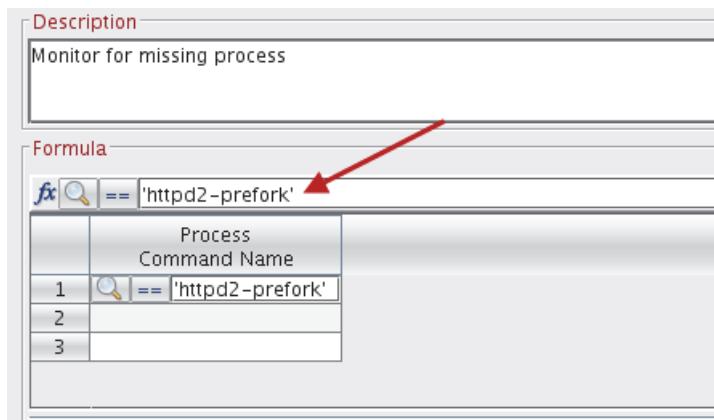


3. Name the new situation **Apache_Down_Linux** and enter a meaningful description. The Situation editor automatically adds Linux OS as the monitored application. Click **OK**.

4. Click the comparison value field under the Process Command Name heading. This action places the comparison value in the Formula section.



5. Delete the existing characters in the Formula section. Type the name of the Apache web server process on Linux, including leading and trailing single quotation marks
'httpd2-prefork'



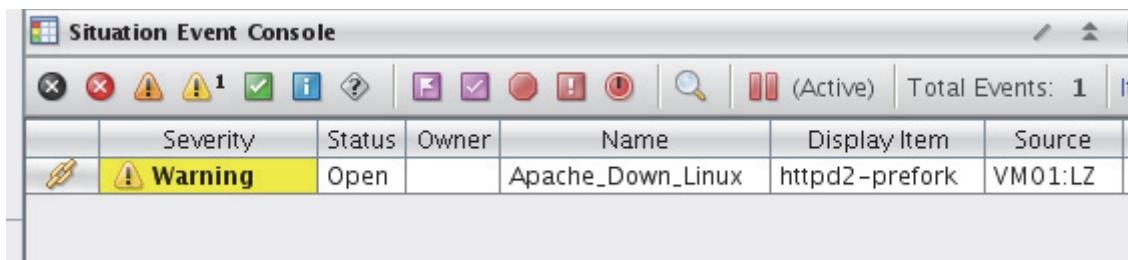
Note: If you use the Missing Items list, the quotation marks are automatically inserted. If you type the process name into the formula field, you must add single quotation marks around the string.

6. Leave the sampling interval set to 30 seconds, but change the **State** to **Warning** (yellow).
7. Select the **Run at startup** check box.
8. Click the **Action** tab and delete the reflex automation action. Click **OK** to close the Situation editor and start the situation.

9. Open a terminal window on VM01 and enter the following command to stop the Apache web server:

```
/etc/init.d/apache2 stop
```

The Apache web server might take a few minutes to stop. Watch the Situation Event Console to see the situation open. The **Source** column in the Situation Event Console view informs at which system the web server stopped.



10. Enter the start command on VM01 to restart the web server.

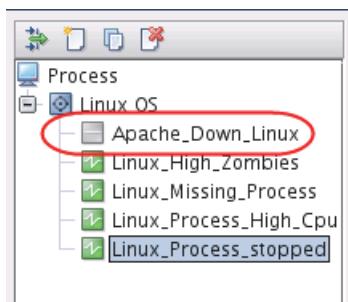
```
/etc/init.d/apache2 start
```

Distributing a situation to a managed system group.

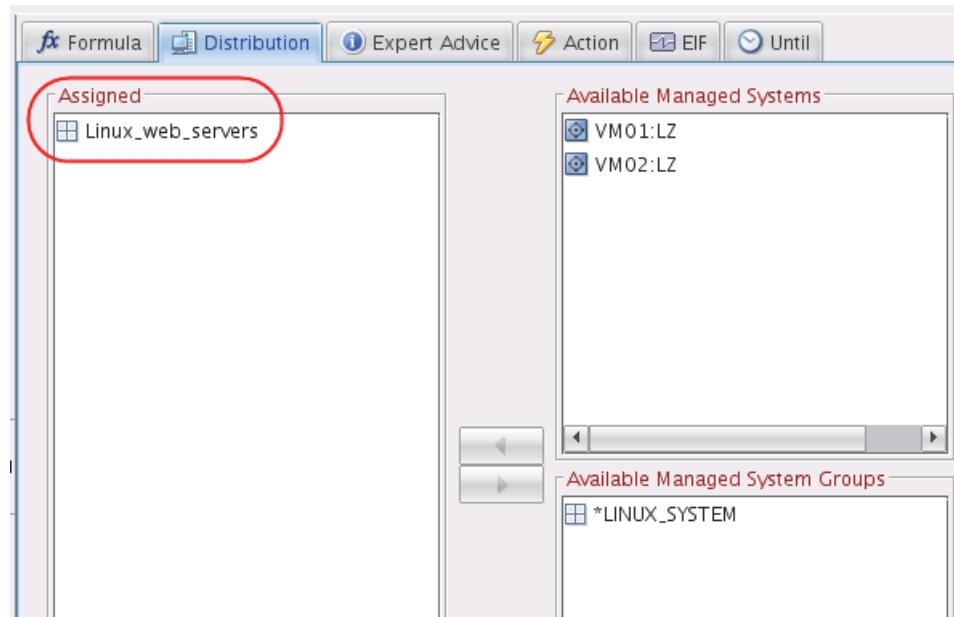
Using a managed system group at the target of a situation distribution can greatly reduce the management burden when you have hundreds or thousands of managed systems.

11. Open the Situation editor from the Linux OS Process Navigator item. Click the **Apache_down_Linux** situation.

12. Click the **Distribution** tab and move VM01 to the Available pane. Click **Apply**. This action stops the situation from running.



13. Click the **Linux_web_servers** managed system group that you created earlier and move it to the Assigned pane.



14. Click **Apply**. The situation is distributed to multiple images with a single action. This situation is used in the next exercise set.

15. Close the Situation editor.

Exercise 4. Generating a pure situation event

During the previous exercises, you created sampled situation events. Sampled situation events automatically close when the condition is no longer true and the situation is evaluated again during the next sample.

Now generate a pure situation event. Create a situation on the VM01A instance of Tivoli Log File agent. The Log File agent is configured to monitor the **/var/log/messages** file.



Important: Ensure that the **sshd** process is running on VM01 before you begin this exercise. You can open a terminal window on VM01, change directory to **/etc/init.d**, and enter the command **./sshd start** to be sure.

Defining the situation

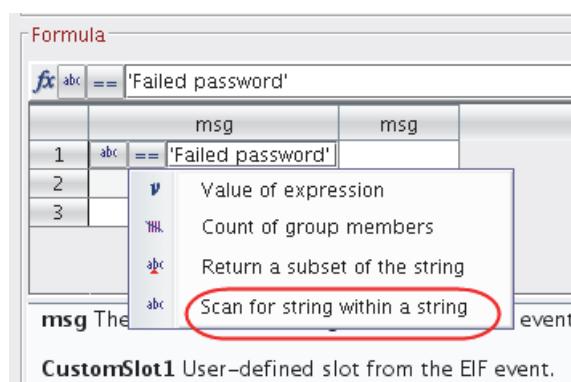
1. Click the VM01 > Tivoli Log File Agent - VM01A:VM01:LO > LogfileEvents Navigator item. Open the Situation editor and click **Create New**.
2. Name the situation **Invalid_ssh_attempt**. Leave **Standard Situation** selected and click **OK**.

The Tivoli Log File agent **KLO_LOGFILEEVENTS** attribute group contains events that match configured formats in monitored log files. The **msg** attribute contains the message slot from the event. You can monitor attribute **msg** for certain strings that indicate failed login attempts.

The agent generates two events; the event itself and a summary event. Monitor only for the actual event, where the Event Type attribute contains the word *Event*.

3. Click the **KLO_LOGFILEEVENTS** attribute group. Hold the **Ctrl** key and click the **msg** attribute and the **Event Type** attribute. Click **OK**.
4. For msg, set the function to **Scan for a string within a string**. Set the comparison value to:

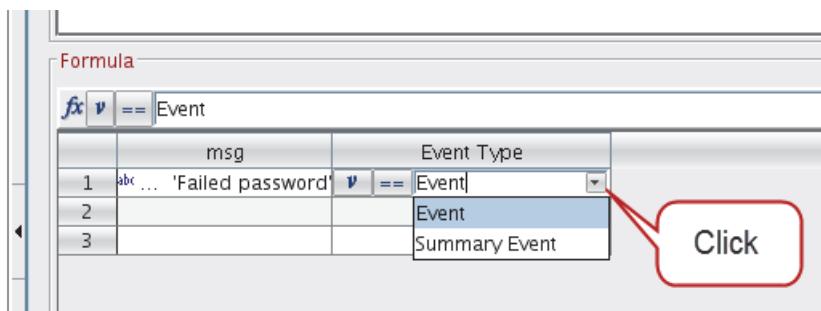
Failed password



The string must match exactly for spelling and case.

The Situation editor detects that there are predefined values for the Event Type attribute.

5. Click the down arrow and click **Event**.





Note: You cannot select the **Sampling interval** area. The Situation editor detected that the selected attributes create a pure, not sampled, situation.



6. Leave the **State** set to **Critical** and ensure that **Run at startup** is selected.
7. Click the **Distribution** tab and check that the situation distributes to VM01A:VM01:LO. Click **OK** to close the Situation editor and to start the situation.
8. Open a terminal window on VM02 and from a terminal window enter the following command:
`ssh vm01`
9. Type anything except **object00** at the password prompt. Linux gives you several chances to enter a valid password. Enter an invalid password for each try until **ssh** stops asking.

```

Terminal
File Edit View Terminal Help
VM02:/ # ssh vm01
Password:
Password:
Password:
root@vm01's password:
Permission denied, please try again.
root@vm01's password:
Permission denied, please try again.
root@vm01's password:
Received disconnect from 192.168.100.101: 2: Too many authentication failures for root
VM02:/ #

```

This action generates a pure situation event.

10. Open the Enterprise Navigator item on VM01 and observe the situation event in the Situation Event Console. The plus sign (+) indicates that the event is a pure situation event. Leave the event in place to use in a later exercise.

Situation Event Console							
	Severity	Status	Owner	Name	Display Item	Source	Impact
	Critical	Open		Invalid_ssh_attempt		VM01A:VM01:LO	LogfileEvents



Note: If you have multiple pure events from the same situation, they are hidden behind the first occurrence. Click the plus sign (+) and select **Expand Events** to see multiple occurrences.

A screenshot of the Tivoli Situation Editor interface. At the top, there's a toolbar with various icons. Below it is a header bar showing 'Total Events: 3' and an 'Item Filter' dropdown. The main area is a table with columns: Severity, Status, Owner, Name, Display Item, and Source. There are three rows, each representing an event. Each row has a small icon in the first column and a red 'X' icon in the 'Severity' column. A red speech bubble with the word 'Expanded' points to the first row. The table data is as follows:

	Severity	Status	Owner	Name	Display Item	Source
+	Critical	Open		Invalid_ssh_attempt		VM01A:VM01:LO
+	Critical	Open		Invalid_ssh_attempt		VM01A:VM01:LO
+	Critical	Open		Invalid_ssh_attempt		VM01A:VM01:LO

Exercise 5. Monitoring infrastructure components

Another situation example addresses a common scenario to see if whether the Tivoli Monitoring enterprise monitoring components are operational. You must distribute the situation to the hub monitoring server. After creating this example, you receive automatic alerts when agents or Tivoli Enterprise Monitoring Servers are offline.

Agents send a heartbeat to the hub monitoring server, which maintains the information on the health of all enterprise monitoring infrastructure components. If the server does not receive a heartbeat, the server marks the agents as being offline. Agents also send an offline notification to the hub monitoring server when they shut down properly.

Assume that you are monitoring critical log files on VM02 and that you need to know quickly if the Tivoli Log File agent is not online. A good location for viewing situation events for offline managed systems is the **Enterprise** Navigator item.

1. Open the Situation editor by right-clicking the **Enterprise** Navigator item in the Navigator Physical view.
2. Create a situation that is named **VM02_LFA_Offline**.

The system automatically designates **Tivoli Enterprise Monitoring Server** as the monitored application.

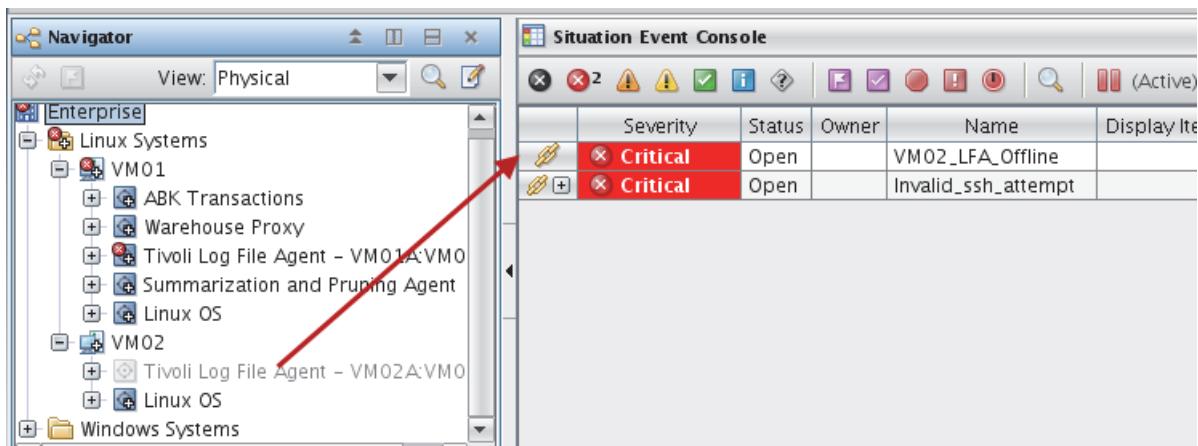
3. Select the **Managed System** attribute group, then hold the Ctrl key to select the **Name** and **Status** attribute items.

4. In the **Formula** tab, click the first empty field under **Name**. Enter the monitoring agent instance name **VM02A:VM02:LO**.
5. Click **Status** and select ***OFFLINE** from the list. Keeping both attributes on the same line creates a Boolean AND condition, where both must be true for the situation to be true.

	Name	Status
1	$= = \text{'VM02A:VM02:LO'}$	$= = \text{'*OFFLINE'}$
2		
3		

6. Change your sampling interval to **30** seconds, and keep the **Run at startup** option selected.
7. Click the **Distribution** tab. The ***HUB** managed system group is automatically assigned. Click **OK** to return to the Navigator.
8. With the Manage Tivoli Enterprise Monitoring Services on VM02, stop the **VM02A** instance of the Tivoli Log File agent. Monitor the Situation Event Console on the Enterprise Navigator item and watch for your situation to open.

Depending on the timing of the heartbeats, the situation event is displayed, and you see the event icon on Enterprise.



9. Start the VM02A instance of the Tivoli Log File agent on VM02. The situation closes on the next sampling interval.
10. Open the Situation editor for the **VM02_LFA_Offline**. Stop the situation and clear the **Run at Startup** check box to prevent the situation from running. Click **OK** to close the Situation editor and apply your changes.



5 Using event management options

After determining the cause of a problem, you want to solve it. The Tivoli Enterprise Portal provides several situation event management options to manage a problem. In these exercises, you access and use different event management options.



Note: For best performance, perform the exercises in this unit from a portal client on VM01.

Exercise 1. Using event management options

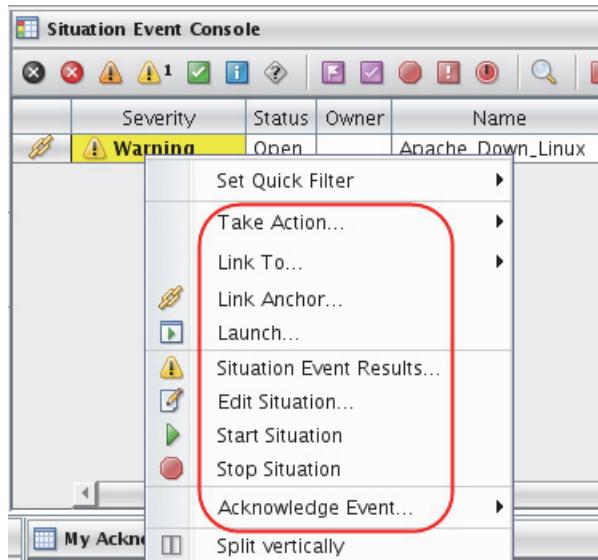
Create a sampled situation event on VM01 if none are still available from earlier exercises. Otherwise, go to step 2.

1. Open a terminal window and stop the Apache web server with the following command:

```
/etc/init.d/apache2 stop
```

It might take a minute or two for the web server to stop and the situation event to show on the Situation Event Console.

2. In the portal client on VM01, right-click the body (not the link icon) of the **Apache_Down_Linux** situation event in the Situation Event Console to see the options.



Depending on the type of situation event and its status, the options might differ. Some of the options that are provided are as follows:

- Accessing the Situation Event Results workspace
- Using Take Action
- Launching an application
- Editing the situation that triggered the situation event
- Starting the situation
- Stopping the situation
- Acknowledging the situation event
- Closing the situation event (for pure situation events only)

Options available and visible to you depend on the following conditions:

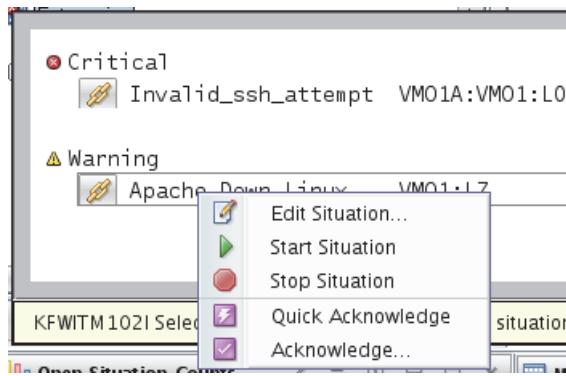
- Your permissions
- Where you access the options from
- The status of the event (for instance, whether it is already managed)
- Whether the event can be closed (pure situation events versus sampled situation events)

Access the situation event management options from different locations and see the available options.

5 Using event management options

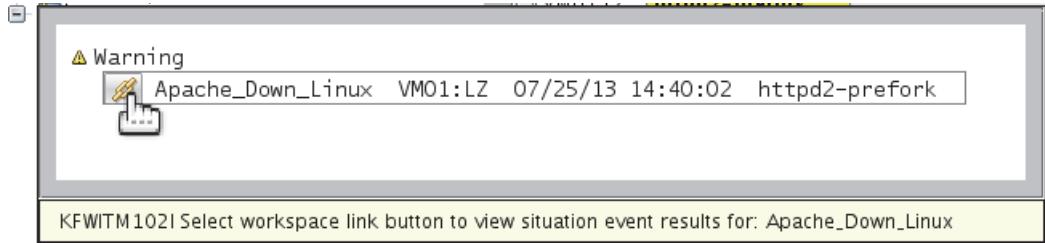
Exercise 1. Using event management options

3. Right-click the situation name in the event flyover. The Situation Event Results option is not available from this location

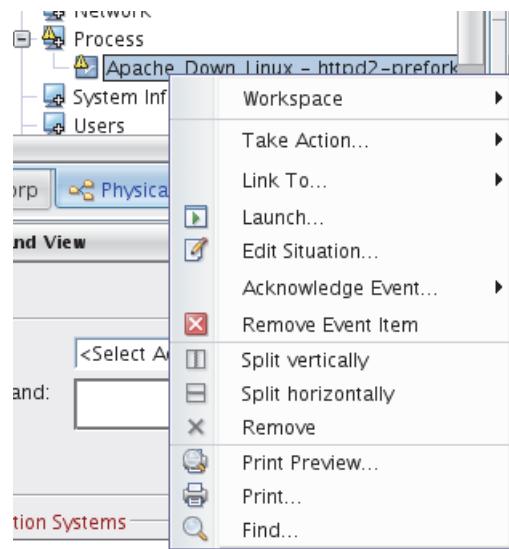


Note: Clicking the link icon takes you to the Situation Event Results workspace immediately. To see the menu, right-click to the right of the link symbol.

4. Hold the mouse pointer over the Apache_Down_Linux situation event icon in the Navigator Physical view. The event flyover window opens. Click the link icon to open the Situation Event Results workspace.



5. Right-click the Apache_Down_Linux Navigator item in the Navigator view that was added when you accessed the Situation Event Results workspace.



The next exercise explores the different situation event management options: when to use them, how to use them, and specifics about each of them.

Acknowledging situation events and taking ownership

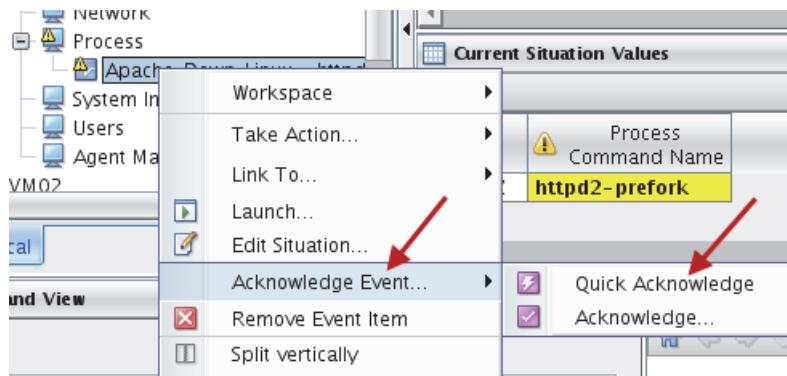
One of the most important event management options is **Acknowledge**. After acknowledging a situation event, you can respond to open situation events and track activities that concern the situation event. You can also take ownership of solving the problem and notify everyone else about the status of resolving the incident.

The two options available for acknowledging a situation event are **Quick Acknowledge** and **Acknowledge**:

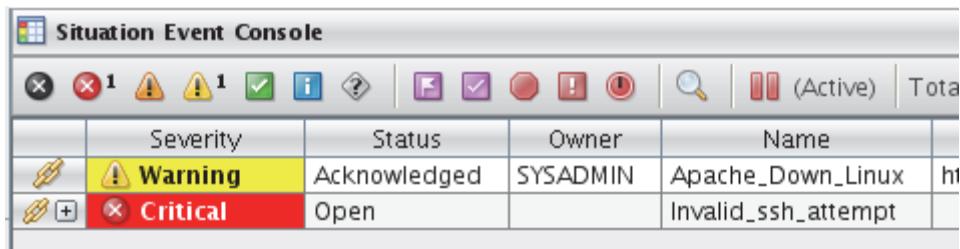
Using Quick Acknowledge

Use Quick Acknowledge to create an acknowledgment without adding custom event notes.

- To create a quick acknowledgment, access the **Quick Acknowledge** option from the situation event management options menu. Right-click the situation event in the Situation Event Console, and click **Acknowledge Event > Quick Acknowledge**.



- Return to the Situation Event Console on the Enterprise Navigator item. The situation event receives an **Acknowledged** status and your user ID automatically displays as the owner.



Working with acknowledgments

Manage acknowledgments by accessing the situation event management options.

Use available options as follows:

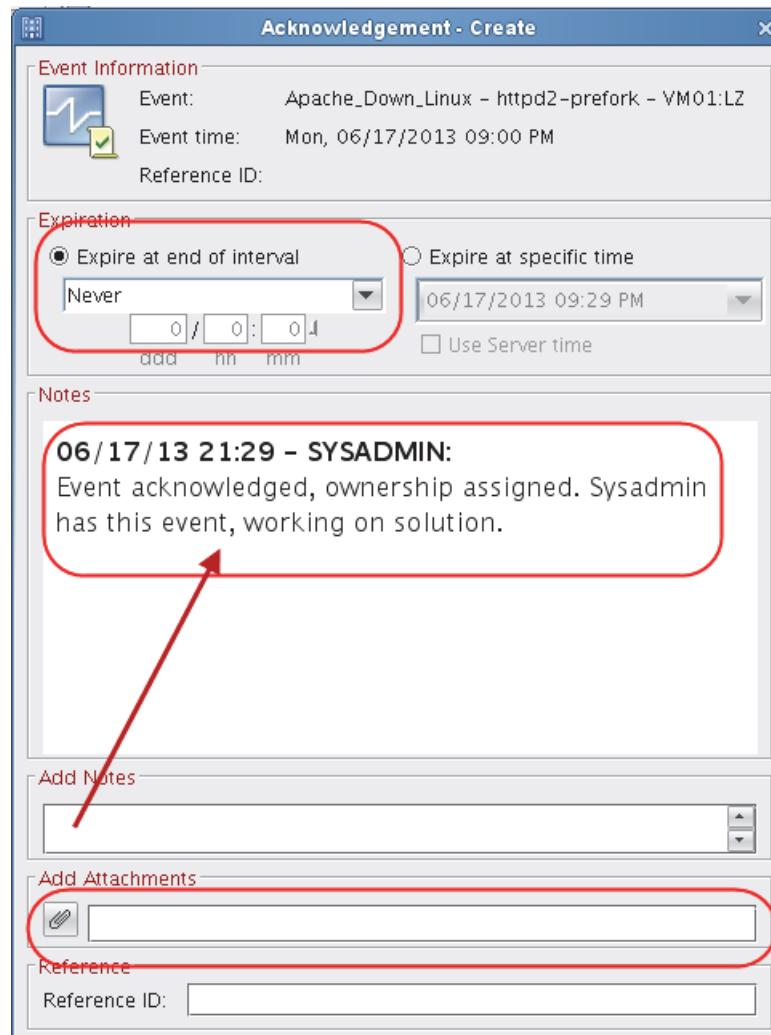
- Acknowledge** to edit an existing acknowledgment. You can also select this option to create an initial acknowledgment and add custom event notes right away.
- Remove Acknowledgment** to reopen a situation event with its original state.
- Event Notes** to access notes that users added to the event while they were managing it.

Editing an acknowledgment

- From your situation event, access the **Acknowledge Event > Acknowledge** option to add notes.

The Acknowledgment window opens, showing a note that the situation event was previously quick acknowledged. No expiration time for the acknowledgment was previously entered, nor were any attachments added.

You can add notes and attachments by editing the acknowledgment in the Acknowledgment window.



Add a log file to the acknowledgment as an attachment.

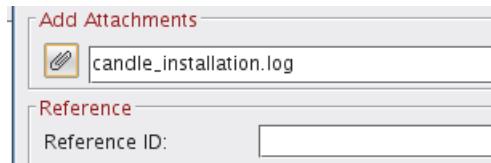
9. Click the **Add an Attachment** icon. Navigate to the **/opt/IBM/ITM/logs** folder and select a log file. Confirm your entry by clicking **Attach**.



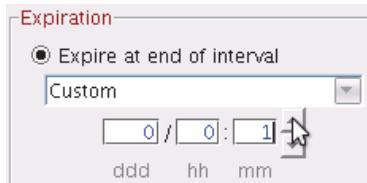
Note: This step assumes that you are working in the portal client on VM01. If not, your log files might be in a different location.

5 Using event management options
Exercise 1. Using event management options

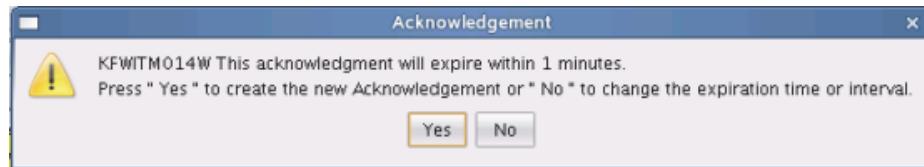
10. Click **Apply** to add the attachment to the **Notes** pane.



11. Use the Custom option to change the expiration interval to 1 minute and click **OK** to save the acknowledgment.



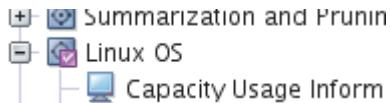
12. Click **Yes** to create the acknowledgment.



13. Wait for 1 minute and view your changes in the Situation Event Console.

Situation Event Console						
	Severity	Status	Owner	Name	Display Item	Source
!	Warning	Expired		Apache_Down_Linux	httpd2-prefork	VM01:LZ
!	Critical	Open		Invalid_ssh_attempt		VM01:KUL

14. Acknowledge the event again and set the expiration back to **Never**. Notice the icon on the Navigator icon.

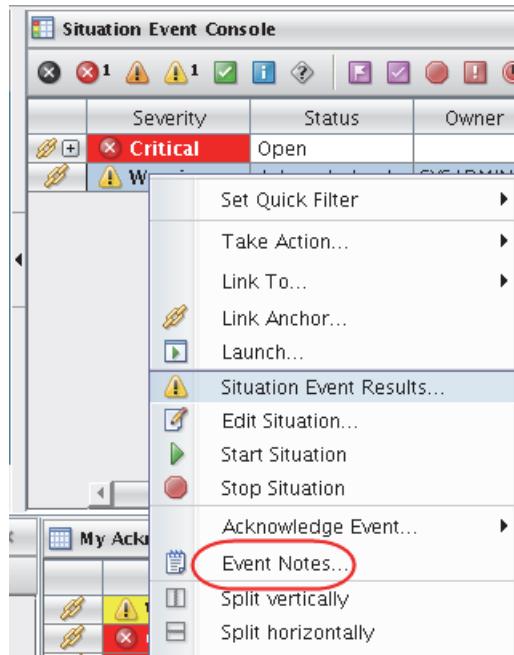


After all situation events are acknowledged for one Navigator item, the icon displays an Acknowledged symbol.

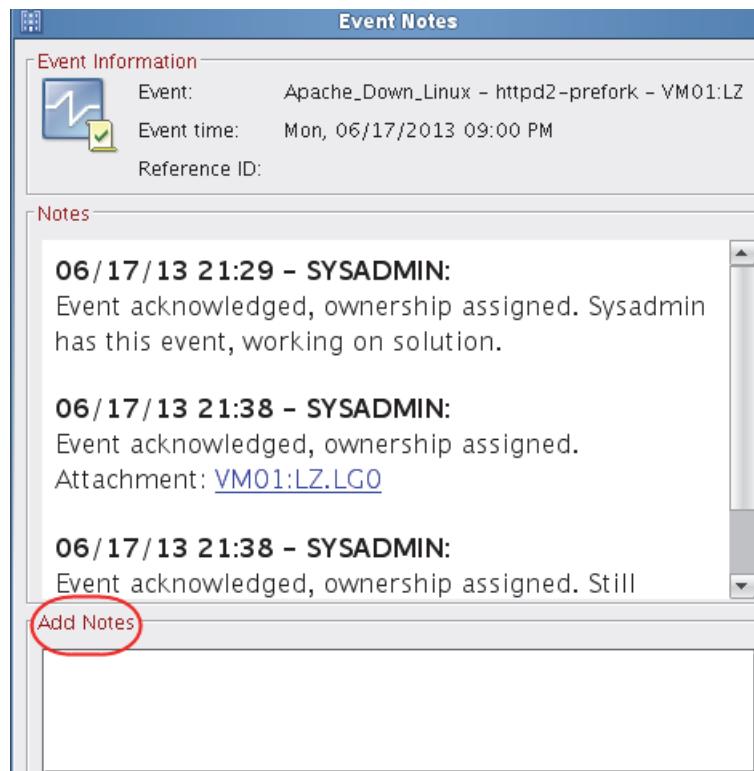
Viewing event notes

You can open event notes in locations besides the Acknowledgment editor.

15. Right-click the situation event in the Situation Event Console. Click **Event Notes** to see the notes that were added to the acknowledgment.



You can add notes or attach files directly in the Event Notes Editor.



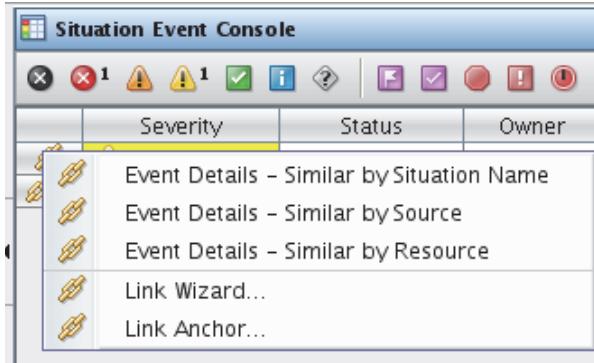
Users can document changes that they make to the situation event without having to access the Acknowledgment editor.

16. Click **Cancel** to close the Event Notes window.

Another place to view event notes is the Situation Event Details workspace.

17. If necessary, click the **Backward** arrow in the toolbar to return to the Enterprise Status workspace.

18. Access any of the **Event Details - Similar by** options by right-clicking the link icon for the **Apache_Down_Linux** situation event in the Situation Event Console.



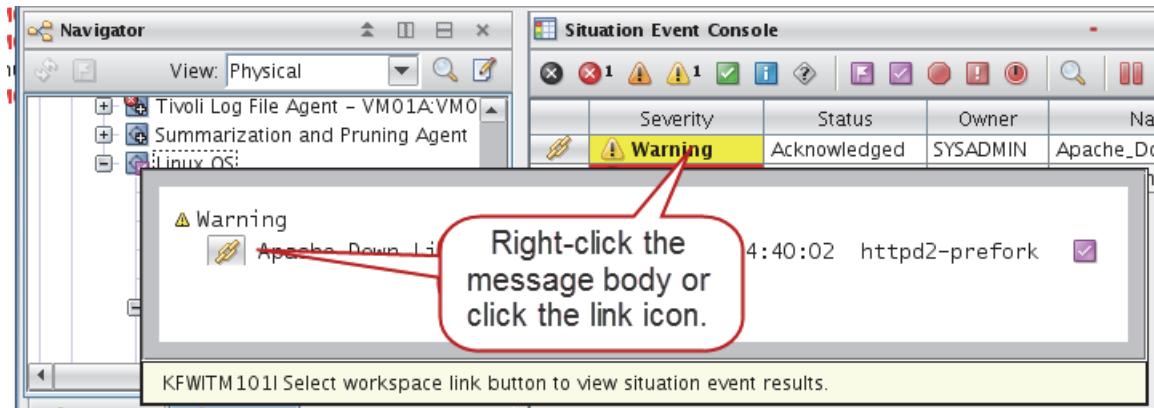
Event notes show in the lower left view of the workspace.

A screenshot of the "Event Details - Similar by Situation Name - VM01 - SYSADMIN" workspace. The interface includes a Navigator pane showing a tree structure of enterprise resources, a Selected Event pane displaying a single event with severity "Warning" and status "Expired", a Similar Events by Situation Name pane listing two events with severity "Warning" and status "Expired" or "Closed", and an Event Notes pane at the bottom containing two event notes. The second note, dated 06/28/13 15:19, is highlighted with a red box. The notes read:
06/28/13 15:14 - SYSADMIN:
Event quick acknowledged, ownership assigned.
06/28/13 15:19 - SYSADMIN:
Event acknowledged, ownership assigned. test note

Viewing event results

After taking ownership of a situation event, determine what triggered it.

19. Return to the Enterprise Status workspace and access the Situation Event Results workspace from the Situation Event Console or from the event flyover.



20. Hold your mouse pointer over a highlighted field in the **Initial Situation Values** view to determine the situation event cause.
21. Compare the entries for the highlighted areas in the **Initial Situation and Current Situation Values** views.

The screenshot displays two views side-by-side. The top view is titled 'Initial Situation Values' and the bottom view is titled 'Current Situation Values'. Both views have columns for 'System Name' and 'Process Command Name'. In both views, the 'Process Command Name' column for the entry 'VM01:LZ' is highlighted in yellow. A red arrow points from the text 'MISSING(Process Command Name) == ('httpd2-prefork')' located below the 'Current Situation Values' table towards the highlighted cell in the 'Current Situation Values' table.

When you access the Situation Event Results workspace or when you refresh it, you collect current situation values.

Determining impact

When creating application views, it can be helpful to determine the impact a specific situation event has on the application or business component.

22. To determine the affected application or business component, access the Situation Event Console.

The Impact column provides feedback about effects on applications or other business-critical components in a higher level of the Navigator because of the situation event.

23. Find the **Apache_Down_Linux** line and find the **Impact** column. (You might need to scroll to find it. Notice that when you scroll to the right the Situation Event Console gets paused temporarily.) Click the arrow in the Impact column for the event to see the expanded list of components that are this situation effects.

The screenshot shows the Situation Event Console interface. At the top, there's a toolbar with various icons for filtering and managing events. Below the toolbar, a message bar indicates 'Total Events: 2' and 'Item Filter: Enterprise'. The main area is a table with columns: Severity, Status, Owner, Name, Display Item, Source, and Impact. There are two rows of data:

	Severity	Status	Owner	Name	Display Item	Source	Impact
	Warning	Acknowledged	SYSADMIN	Apache_Down_Linux	httpd2-pre...	VM01:LZ	Process
	Critical	Open		Invalid_ssh_attempt			Process Linux OS VM01 Linux Systems Enterprise

A red arrow points to the downward-pointing arrowhead in the 'Impact' column for the second row, which is expanded to show a hierarchical list of components: Process, Linux OS, VM01, Linux Systems, and Enterprise.

Note: This feature is also available if you do not have permissions to access those Navigator levels in the Navigator itself.

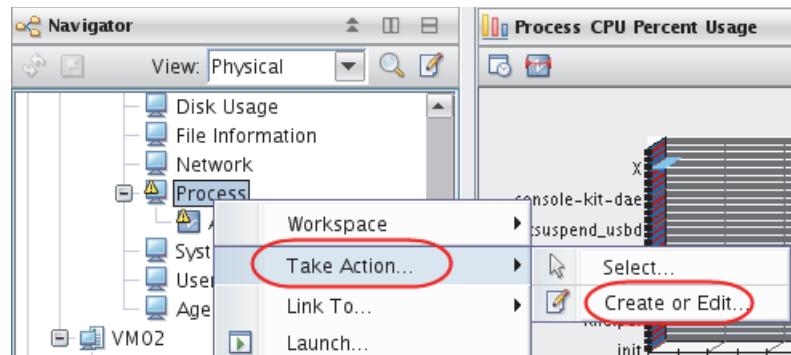
Manually issuing system commands: Take Action

With Take Action, you can provide a way for users to issue predefined system commands from the portal client. Issue the command directly from the right-click menu of the **Initial** or **Current Situation Values** views in the Situation Event Results workspace.

You need a command to restart the Apache web server. No predefined commands restart the server. The next steps create one. If you do not have the proper permissions, some of the following options are unavailable to you. In that case, your Tivoli Enterprise Portal administrator must create the command.

24. Click the **Process** Navigator item in the **Linux OS** Navigator.

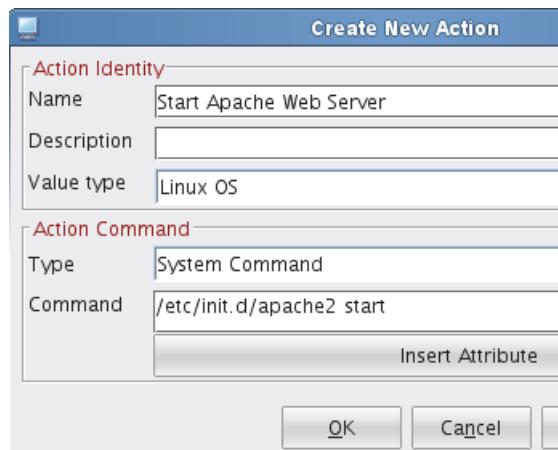
25. Right-click the **Process** Navigator item, and click **Take Action > Create or Edit**.



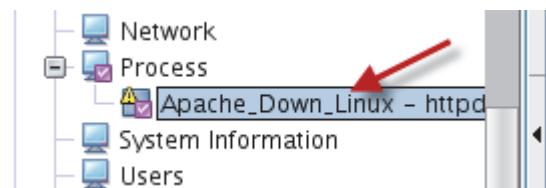
The Edit Action window opens.

26. Click **Create new action** in the top of the Select Action list and click **OK**.

27. Complete the fields as shown in this screen capture and click **OK**.

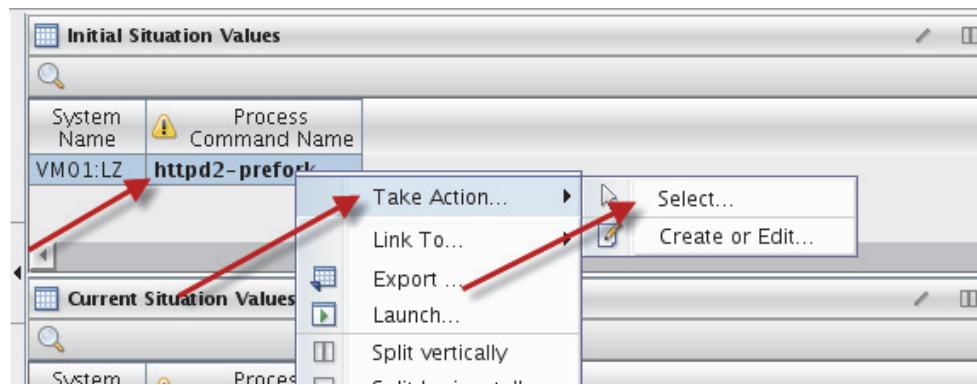


28. Return to the Situation Event Results workspace for the **Apache_Down_Linux** event.

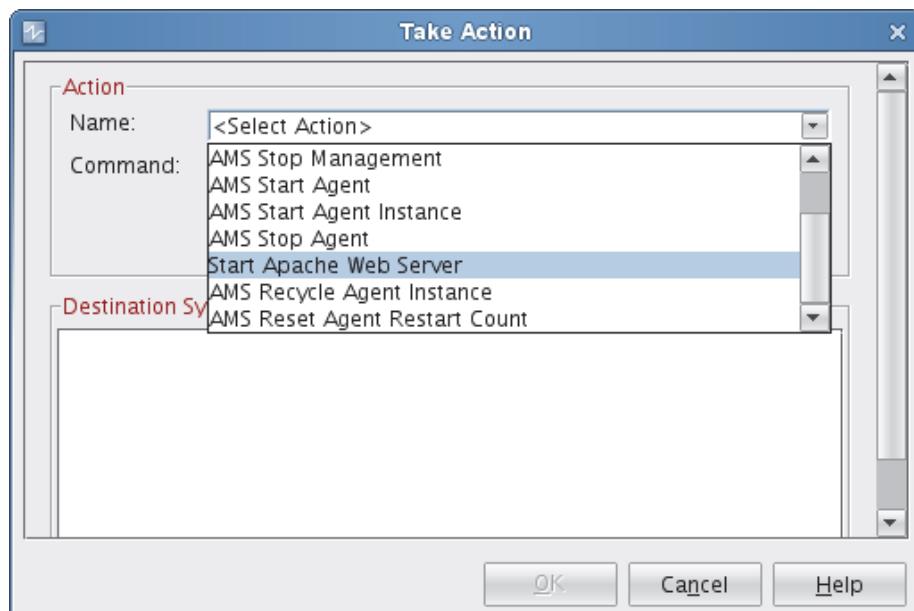


5 Using event management options
Exercise 1. Using event management options

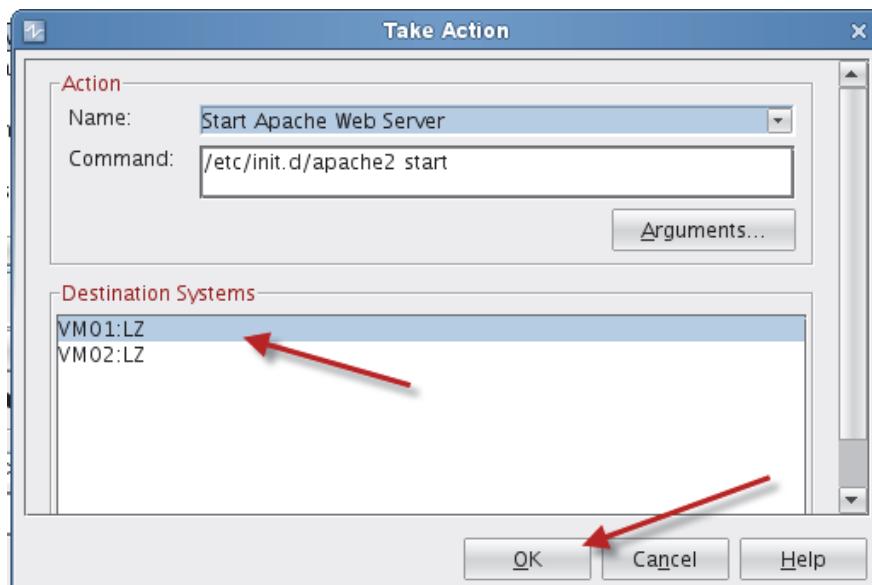
29. Right-click the entry in **Initial Situation Values**, click **Take Action**, and click **Select**.



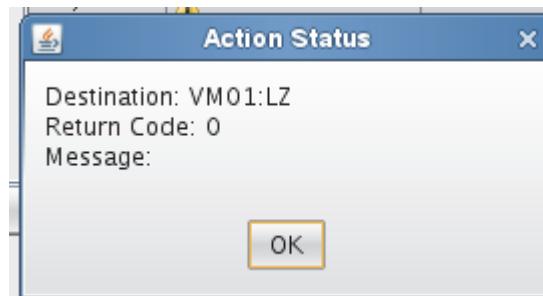
30. Click the command that you created.



31. To issue the command, click the destination system **VM01:LZ** and click **OK**.



A return code is displayed, which indicated the success or failure of the issued command. If the command succeeds, the return code shows **0**. Any other return code indicates that there was a problem.



If the command was successful, and the Apache web server was started, the Situation Event Results shows the results. When the next sampling interval defined in the situation passes, the situation event closes.

32. Refresh the **Situation Results workspace** until the situation event is closed, as shown in the following screen capture.

A screenshot of the "Situation Results" workspace. It displays two tables: "Initial Situation Values" and "Current Situation Values".

Initial Situation Values

System Name	Process Command Name
VM01:LZ	httpd2-prefork

Current Situation Values

System Name	Process Command Name

Exercise 2. Closing situation events

During the previous exercise, you saw how the situation event closed automatically after the problem solving. The event closed because of the situation sampling and the short duration of the sampling interval.

In some cases, the situation event does not close immediately or at all. Either the situation event is a pure situation event, or it has a long situation sampling interval.

Closing sampled situation events

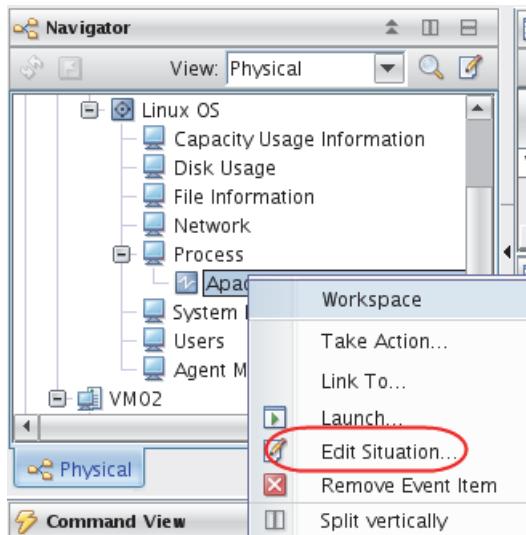
Sampled situation events close automatically when the situation condition is evaluated as false. After you solved a problem, for example, the Current Situation Values table is empty, indicate that before reevaluating the situation. Perform this task in the next exercise.

Determining the situation sampling interval

Before doing anything else, try to determine why the situation event is still displayed.

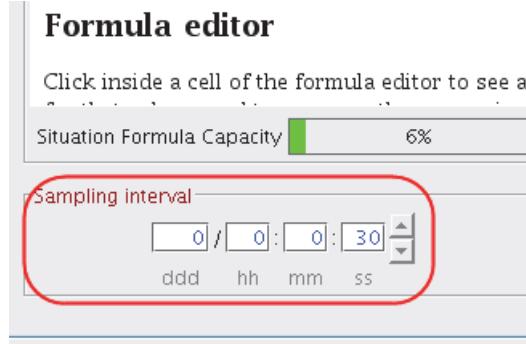
If the sampling interval is long, it means that the situation is not yet reevaluated the condition.

1. To determine the sampling interval for a situation, open the Situation editor from the situation event management options by using the **Edit Situation** option.



The Situation editor opens. The sampling interval is on the **Formula** tab.

Note: The **Sampling interval** field is also an indicator for pure situation events. For pure situation events, it cannot be modified and is unavailable.



In the **Apache_Down_Linux** situation, the sampling interval setting is 30 seconds. By now that time has passed, and the situation event is likely closed.

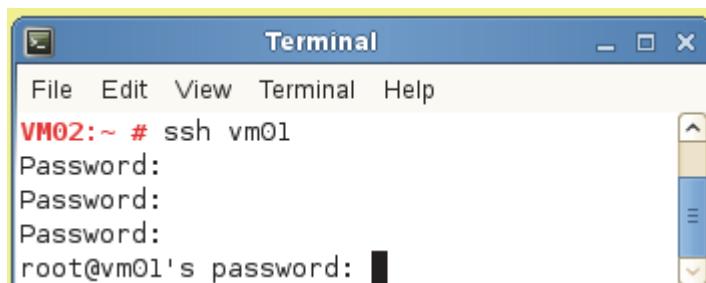
2. Close the Situation editor by clicking the **Cancel** button to prevent restarting the situation.

Closing pure situation events

You built the situation to generate a pure event in [Exercise 4, "Generating a pure situation event,"](#) on page 69 in the previous unit.

The situation **Invalid_ssh_attempt** monitors for invalid logon attempts to the **root** user account.

3. If the pure situation event **Invalid_ssh_attempt** is not in your Situation Event Console, you must generate one. To trigger this event, open a Gnome terminal on **VM02** and attempt to open an ssh session to VM01. When prompted, enter an invalid password until the program stops asking.



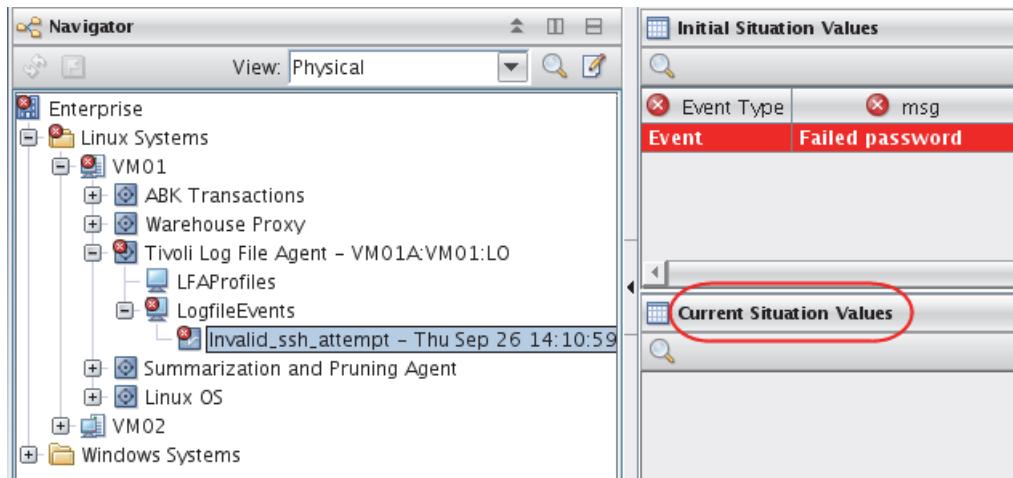
The **Invalid_ssh_attempt** situation becomes true, triggering a pure situation event because you failed to connect to VM01.

Situation Event Console						
	Severity	Status	Owner	Name	Display Item	Source
	Critical	Open		Invalid_ssh_attempt		VM01:KUL

In the first column of the Situation Event Console, a plus sign (+) indicates a pure situation event.

The **Type** column of the Situation Event Console also describes the situation event as pure. Scroll the display if it is not visible.

4. Open the Situation Results Workspace and observe the **Current Situation Values**.



The **Current Situation Values** is empty. If the event is sampled, it would show the current value if the situation was still true. For pure situation events, this view is empty.

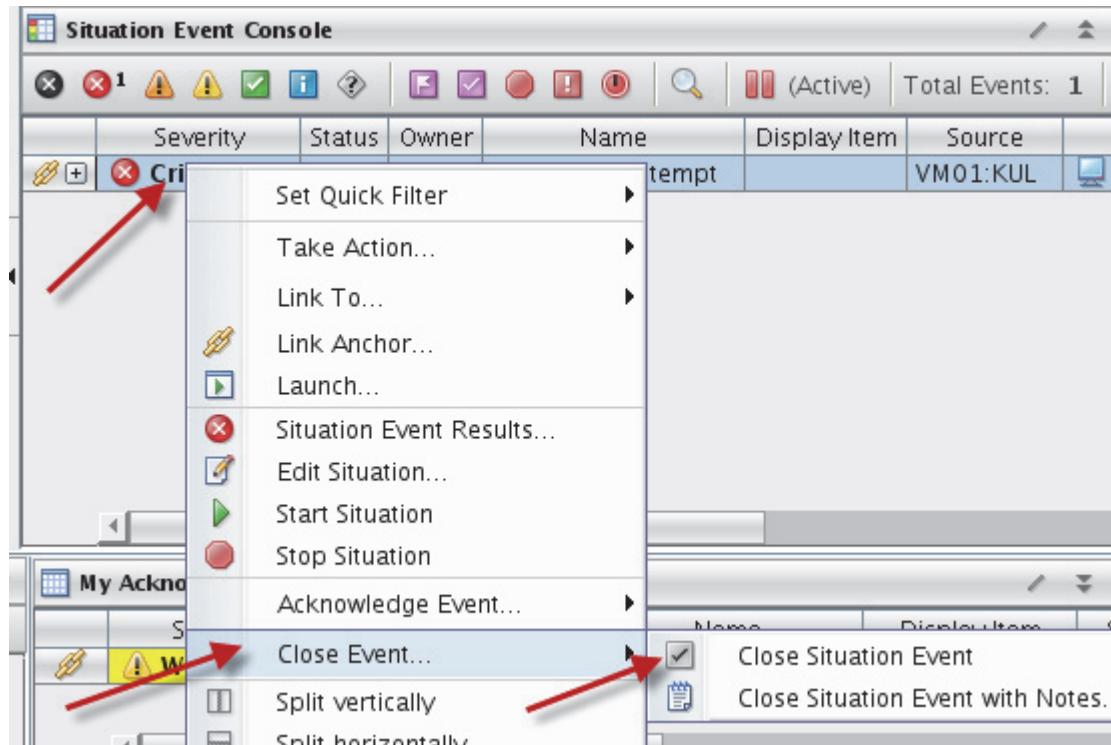
Closing pure situation events manually

A pure situation event is a one-time event, and cannot be sampled. An example might be an entry in a log file that remains even if the incident was resolved. This characteristic requires many pure situation events to be closed manually.

Before manually closing the **Invalid_ssh_attempt** situation event, ensure that the problem no longer exists.

5. Open the Situation Event Console.
6. To close the situation event, right-click it to access the situation event management options.

- Click Close Event > Close Situation Event to close the situation event.



You can close the situation event with or without adding notes.

If you add event notes when closing the situation event, your notes are only accessible from the **My Acknowledged Events** view in the **Enterprise** workspace. The situation event is no longer visible in any other view.

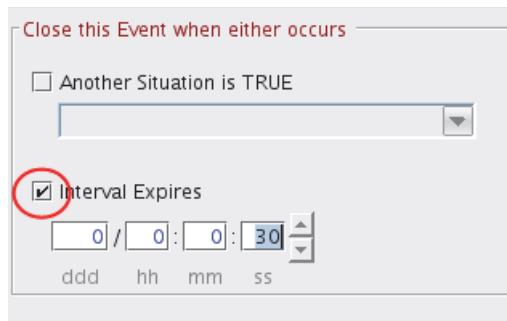
Automatically closing pure situation events

There are multiple ways to close out pure situation events automatically. The easiest way is to use the **Until** tab to set a timer for how long to make the situation true.

- Open the Situation Editor for the situation **Invalid_ssh_attempt**, and select the **Until** tab.



9. Select **Interval Expires**, and set the timer to be 30 seconds.

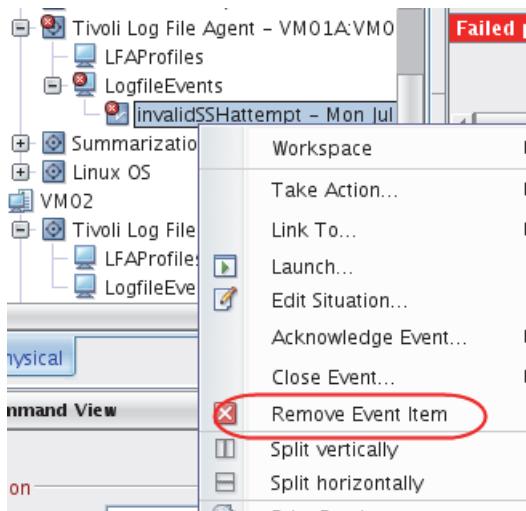


10. To trigger this situation event again, return to VM02 and open a Gnome terminal and attempt to open an ssh session to VM01. When prompted, enter an invalid password three times.
11. Observe the results in the Situation Event Console and on the Navigator Physical view.

Removing situation event items

Remove the situation event item, added when you accessed the Situation Event Results workspace. This item remains in the Navigator after the situation event closed, unless you restart the portal client.

12. Remove the item by right-clicking the Navigator item and clicking **Remove Event Item**.





6 Visualizing monitoring data exercises

An important step when creating an enterprise monitoring solution is to specify where and how users can access the information.

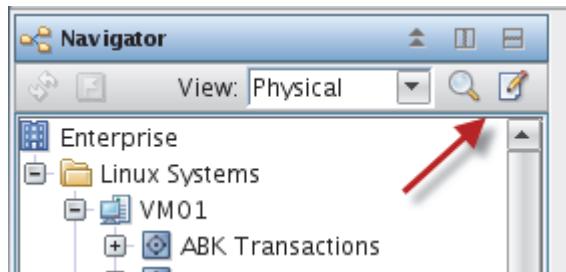
In this unit, you define the parts of the enterprise each user can access, and how the information is presented. You also set up user navigation through workspaces. Then you define Navigator Logical views, which represent dashboards, applications, and system-specific views. You also create workspaces that present the required data in a meaningful way for each user.

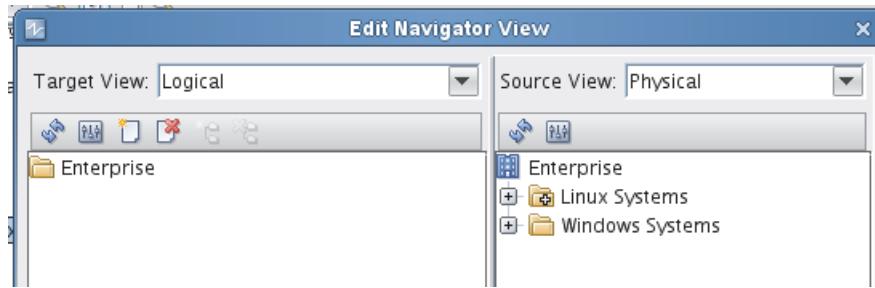
Exercise 1. Structuring enterprise resources in Navigator Logical views

In this exercise, create Navigator views. Start by creating a Navigator view for your business executives to see the health of the company. Create a second Navigator view having data for your operators to manage situation events effectively.

Managing Navigators

1. Open the Navigator editor by clicking the Edit Navigator View icon on the top of the Navigator view.





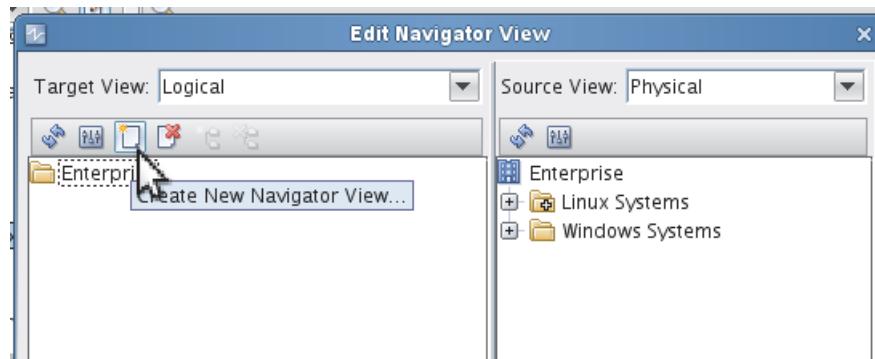
The Navigator Logical view displays on the left as a target Navigator that is modifiable. The Navigator Physical view displays on the right as the source Navigator. The source view can share Navigator items with the target view.

The Navigator Physical view contains Navigator items for all agents that are successfully connected to the hub monitoring server. The structure of this Navigator is predefined and cannot be edited.

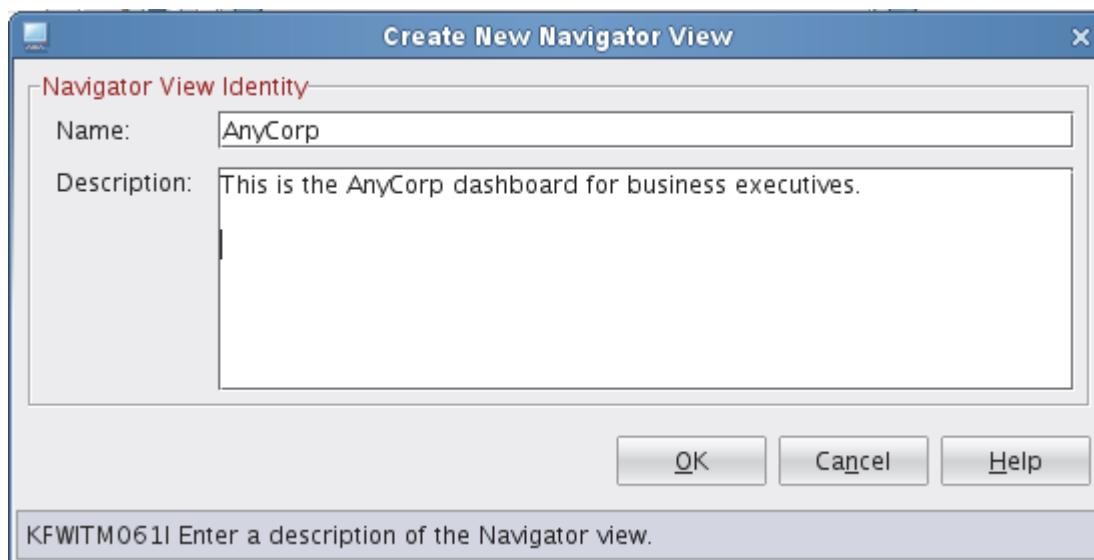
Adding a Navigator

Create a Navigator view that represents your business executive dashboard.

2. Click the **Create New Navigator View** icon.



- Type the Navigator name **AnyCorp** and a description. Navigator names are case-sensitive.
Click **OK** to save the Navigator view.



Managing Navigator items

Now, specify the structure of the AnyCorp Navigator view. Because this Navigator view is a logical view that represents business areas, include the six AnyCorp business areas: AnyBank, AnyLogistics, AnyInsurance, AnyManufacturing, AnyOperations, and AnyOnline.

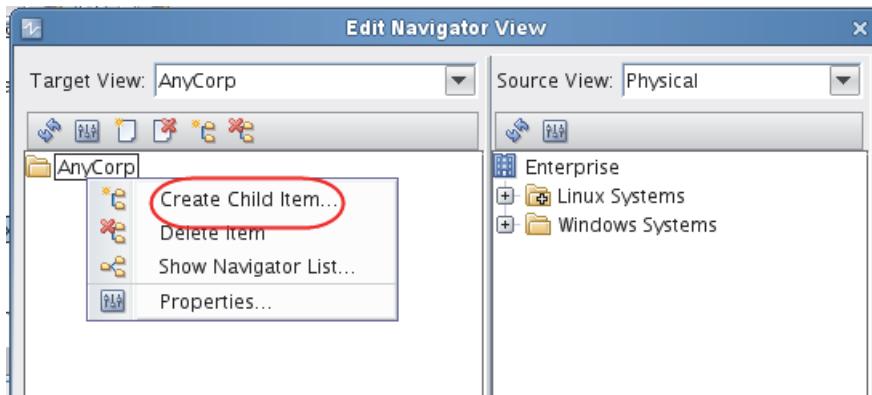
Define five regions under the AnyBank Navigator item for branch offices and automatic teller machines in different regions of the United States. Name the regions East, MidWest, North, South, and West.



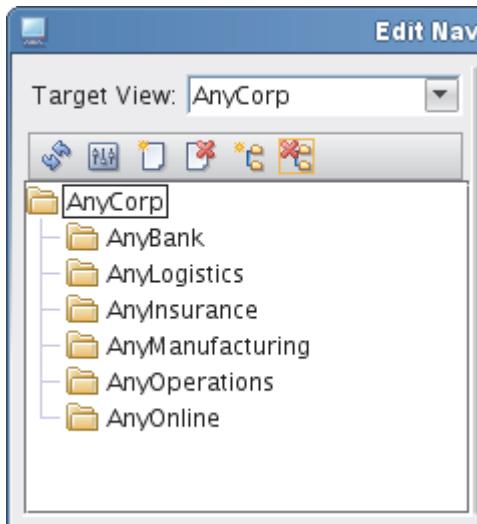
Note: When adding the Navigator items, type the names exactly as spelled in this document. Names are case-sensitive when modifying graphic view icons, which you do later in [Exercise 7, "Providing user navigation," on page 139](#).

Adding Navigator items

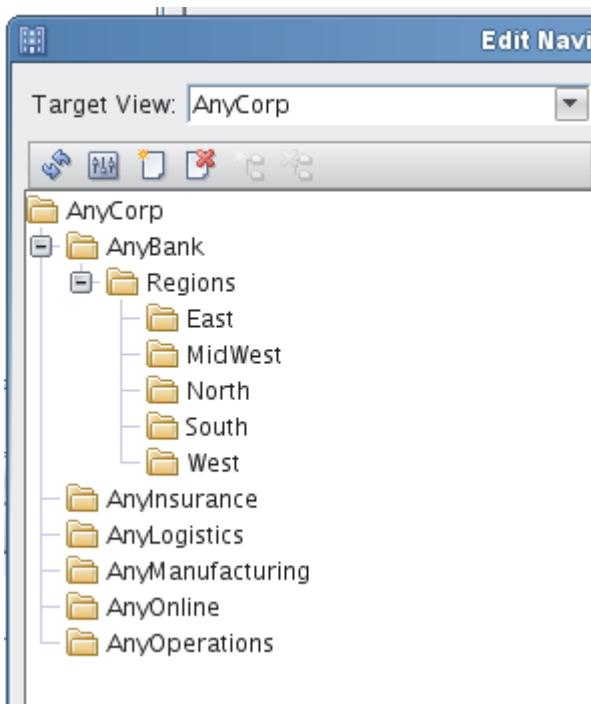
- In the Navigator editor, highlight the AnyCorp Navigator item. Either right-click and click **Create Child Item**, or click the **Create Child Item** icon.



- Create a child item for each of the six AnyBank business areas, ensuring that spelling and case are correct:
 - AnyBank
 - AnyLogistics
 - AnyInsurance
 - AnyManufacturing
 - AnyOperations
 - AnyOnline



- Add the **Regions** item under AnyBank; then add the five geographical items under Regions, ensuring correct spelling and case.

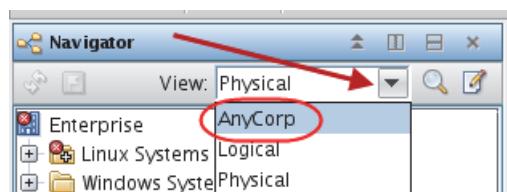


- Close the Navigator editor.



Note: Because all changes are immediate, you do not need to save Navigators. You cannot cancel changes; you must undo all changes in the editor.

- Switch to the new Navigator by selecting it from the Navigator selection menu.



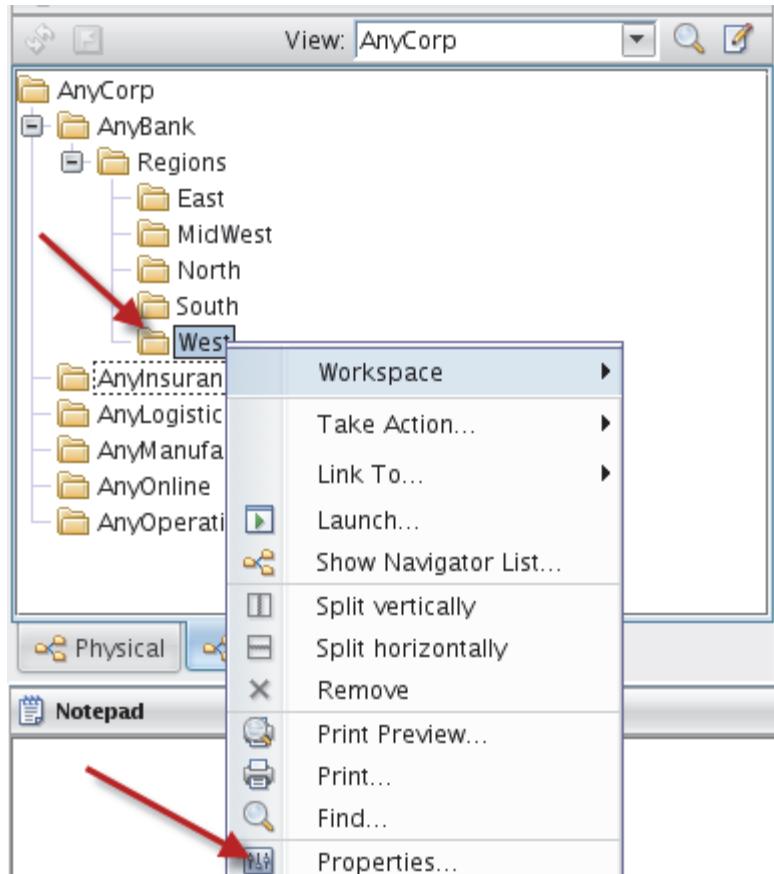
Assigning managed systems

Build a logical structure of your enterprise components by using Navigator items.

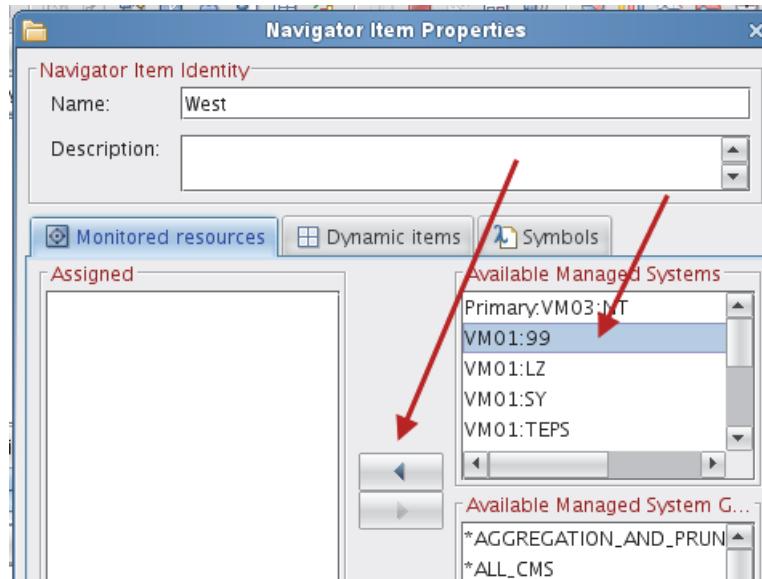
To view data from managed systems that generate situation events, assign managed systems to at least the lowest level of Navigator items. The custom application generates data with the **abk.sh** script that you started in the Unit 1 exercises. The script generates random data to simulate

business transactions. The data is written to a DB2 UDB database every 10 seconds. The managed system name for this application is **VM01:99**.

9. To assign your application data to a region, click the **West** Navigator item. Right-click the **West** Navigator item and click **Properties**.

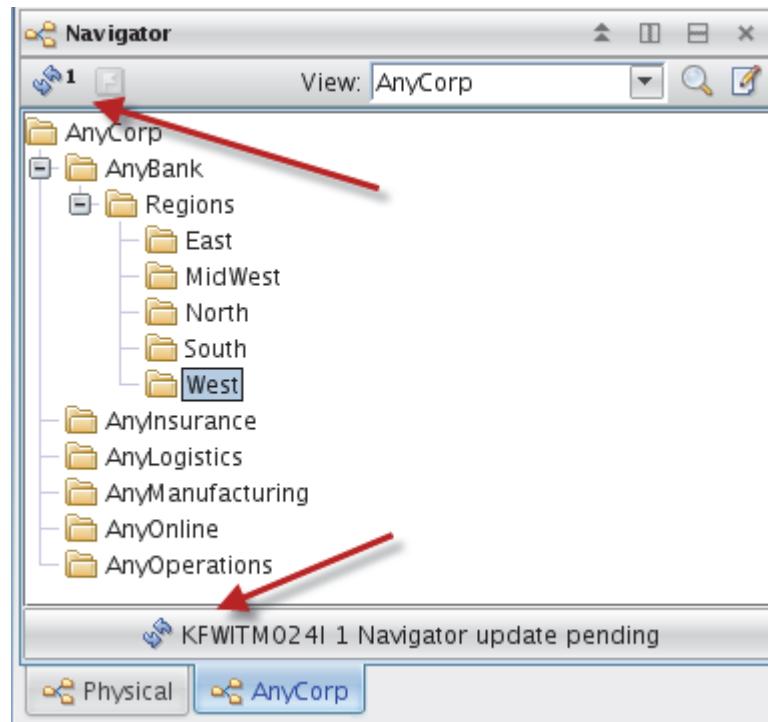


10. In the properties, assign the **VM01:99** managed system to the Navigator item by adding the managed system to the **Assigned** pane. Click **OK** to close the Properties window.



In [Exercise 4, "Creating the Regions workspace,"](#) on page 126, you build workspaces that display data from the **VM01:99** application.

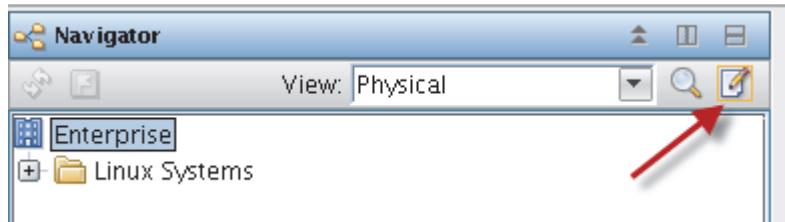
11. Look for the message that reads **Navigator update pending**. Accept the update by clicking the message area or the update icon.



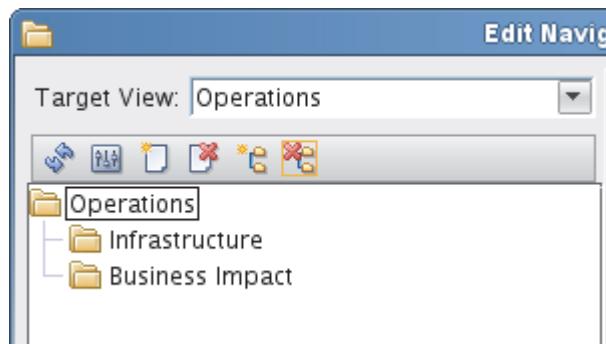
Creating an operator console

Create a second custom Navigator view for your operators to monitor the enterprise and isolate problems. Operators require access to detailed system and business data to evaluate the impact of system situation events on applications.

12. Open the Navigator editor.



13. Create a Navigator view called **Operations** and two Navigator items under **Operations** that is named **Infrastructure** and **Business Impact**.



Note: These items aggregate other items and do not need managed systems assigned to them.

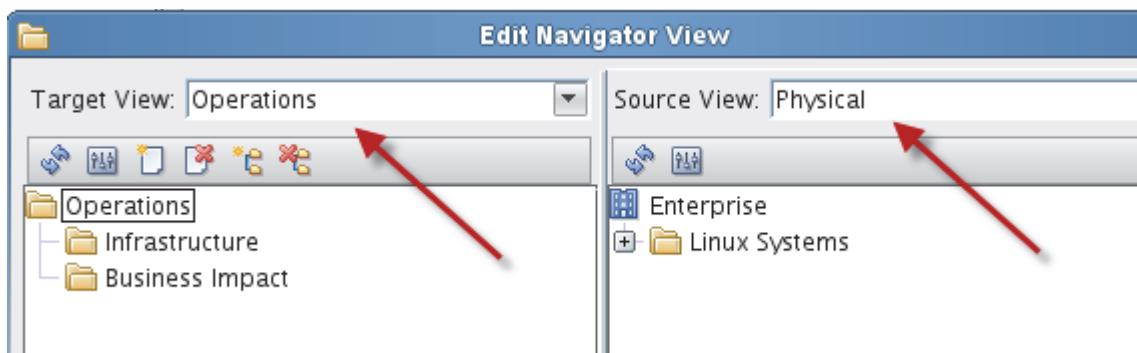
Sharing Navigator items

The easiest way to add items to the new Navigator is to share them with other Navigators.

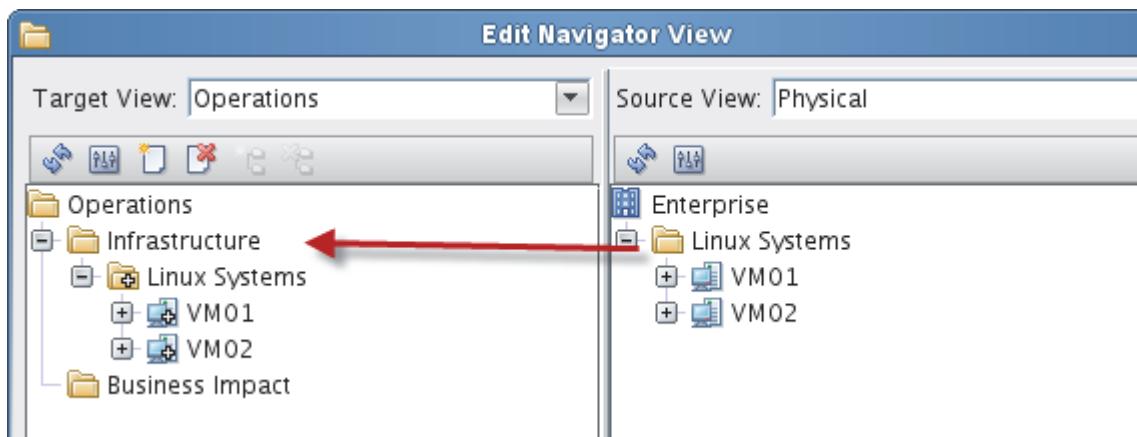
Create the content for your operator console by sharing Navigator items from the Navigator Physical view and the **AnyCorp** Navigator. You avoid duplicating efforts and can share information, such as the following items:

- Workspaces and views
- Links
- Assigned situations and queries

You can drag Navigator items from the right pane to the left, including entire substructures.



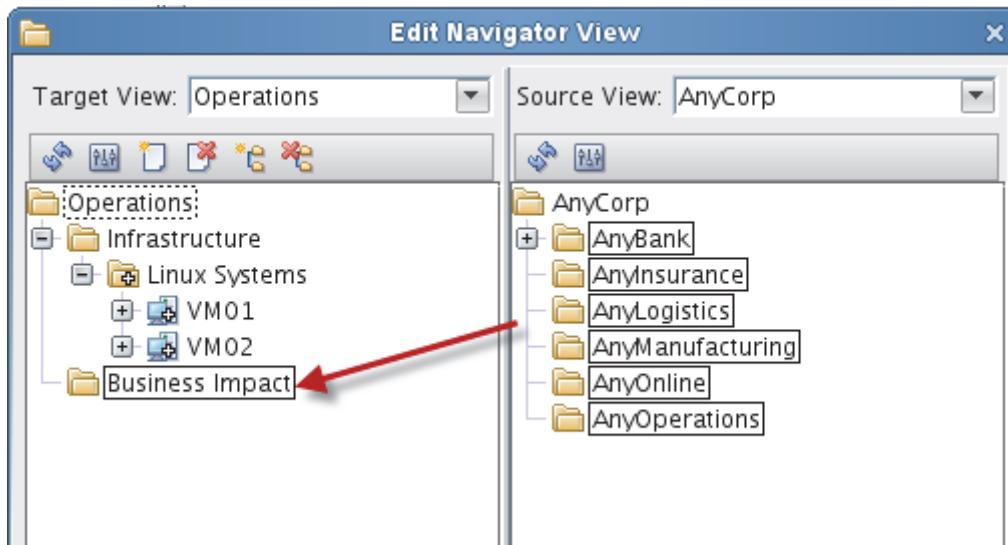
14. Select the Navigator **Operations** view for the left pane and the Navigator **Physical** view for the right pane of the editor.
15. Build the Navigator view that reflects the physical infrastructure.
 - a. Click the **Linux Systems** Navigator item in the **Source View**.
 - b. Drag it to the **Infrastructure** item in the **Target View**.



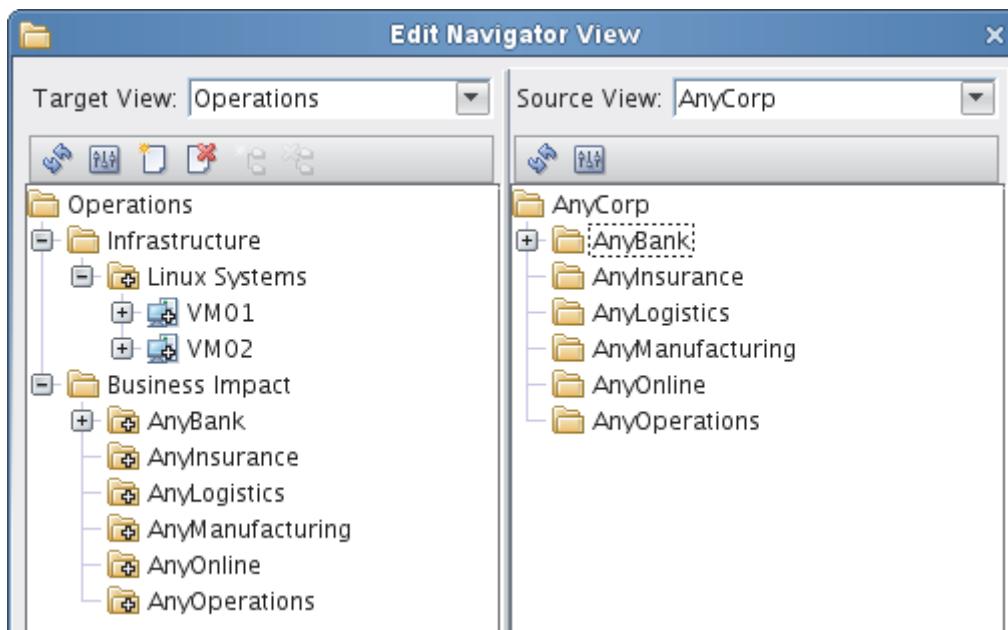
16. Build the **Business Impact** Navigator item.
 - a. Change to the **AnyCorp** Navigator in the **Source View**.
 - b. Highlight each of the Navigator items under AnyCorp.
 - c. Drag them to the **Business Impact** Navigator item.



Note: To copy all items at once, hold down the Shift key while you drag.

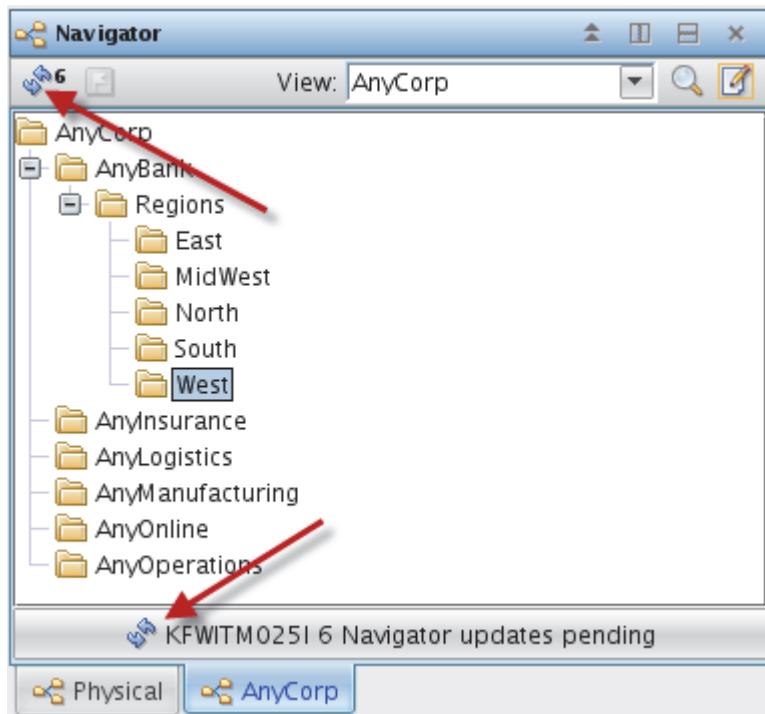


After you copy and drag several items at once, the Edit Navigator View window resembles the following screen capture.



17. Close the Navigator editor.

18. To update your Navigator view with the pending changes, click the update icon in the Navigator view or click the message area.



Note: When Navigator views share Navigator items, each shared item has a plus sign (+) indicating that the item exists in another Navigator. Any changes that you make to one of the items (workspace, views, links, and so on) apply to all other instances.

Assigning users

When you create Navigators, the ID that you used to sign on to the portal client is automatically assigned to them. To make them accessible for other users, you must explicitly assign them in the Administer Users editor.

This topic is covered in more detail later in this course in [Chapter 9, "Managing user security and publishing workspaces exercises"](#), [Exercise 1, "Managing users"](#). That unit shows you how to generate user IDs and groups for your operators and business executives.



Attention: You completed Exercise 1. Stop here and return to the lecture.

Exercise 2. Create the AnyCorp workspace

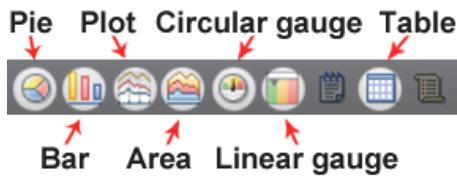
Organizing the presentation

After creating your Navigator views, you create workspaces that display meaningful information that reflects the purpose of each new Navigator item. Keep in mind that Navigator items in a higher level of the Navigator summarize data from Navigator items in a lower level.

In this exercise scenario, you create workspaces that meet the requirements of your users.

Building workspaces

To display data in your new workspaces, use any of the seven data views from the portal client toolbar.



You can use the other views or special purposes such as situation events, access to websites, graphic backgrounds, and terminal emulators.

You already know some of the product-provided workspaces from within the Navigator Physical view. You can use them as examples of what custom workspaces might look like.

In this unit, you become familiar with different view types and investigate some options that are provided with each of them. Before you customize any views, define the layout of your workspace. Although there are no product limitations, the size of your screen determines how many views can be included in one workspace. Create multiple workspaces to display all the information you want accessible from one Navigator item.

Arranging views

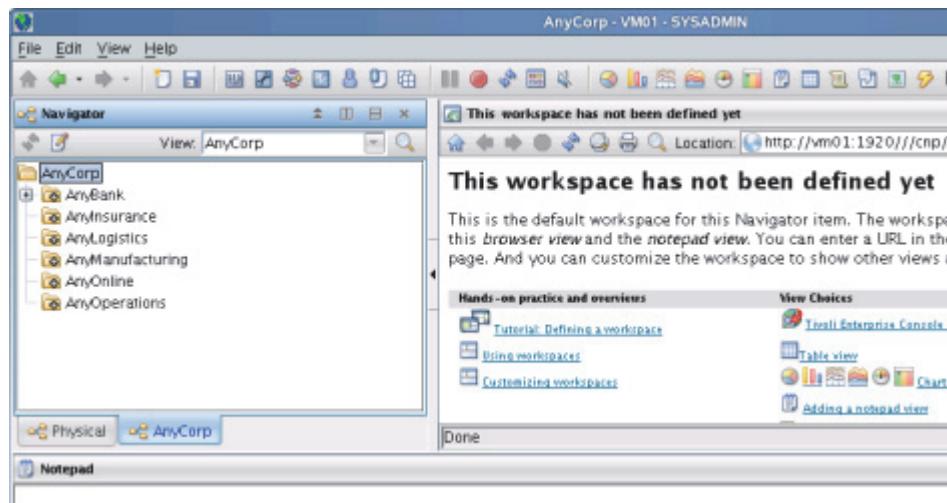
You can add, remove, and resize the panes for different views in your workspace. Your executive dashboard workspace needs only one view. It contains a background that displays the **AnyCorp** logo, and six Navigator items that represent the six business areas.

Creating the graphic view

From the graphic view, include a canvas in your workspace and place Navigator items as icons on it. Use this type of view to represent geographical overviews, application architectures, or systems infrastructures.

1. Click the **AnyCorp** Navigator item.

Because you just created the Navigator item, the workspace contains two empty panes. The pane on the right displays a portion of the online help, describing how to build custom workspaces.



Adding a graphic view to the workspace

2. Delete the view pane on the bottom of the **AnyCorp** workspace by clicking the close icon (X) on the right of the view header. When prompted, respond **Yes**.
3. Click the Graphic View icon.



Your mouse pointer changes as shown here.

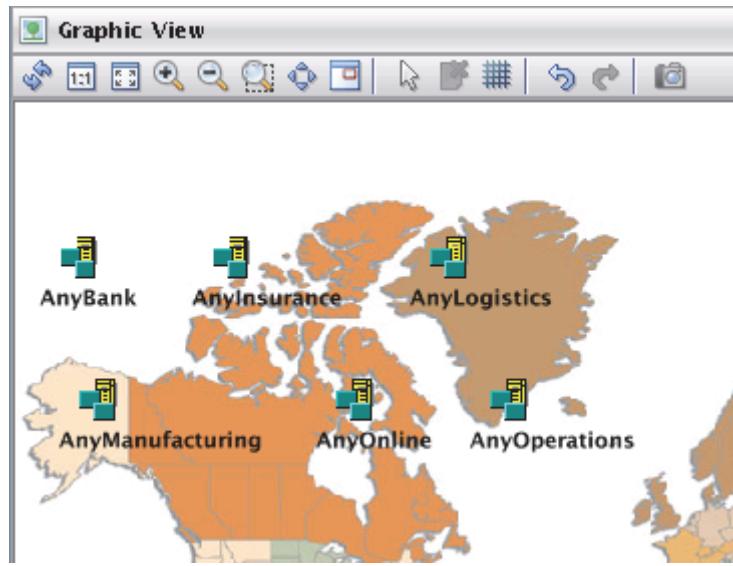


4. Click anywhere in the view pane. If a prompt opens asking if you want to modify the view, click **Yes**.

The world map is the automatic default background. You create workspace for the active item. The canvas displays Navigator items that are children of the active item. In the following screen

Exercise 2. Create the AnyCorp workspace

capture, you included a graphic view in a workspace that belongs to the AnyCorp Navigator item. The six business areas automatically display on the canvas.



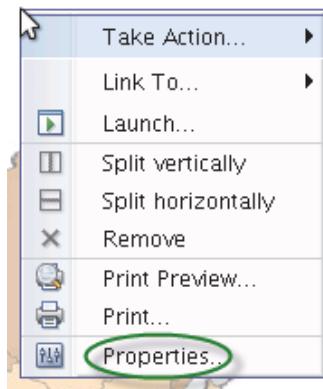
Because the world map does not really reflect the purpose of your workspace, replace it with a logo of the AnyCorp company.

Modifying the background graphic

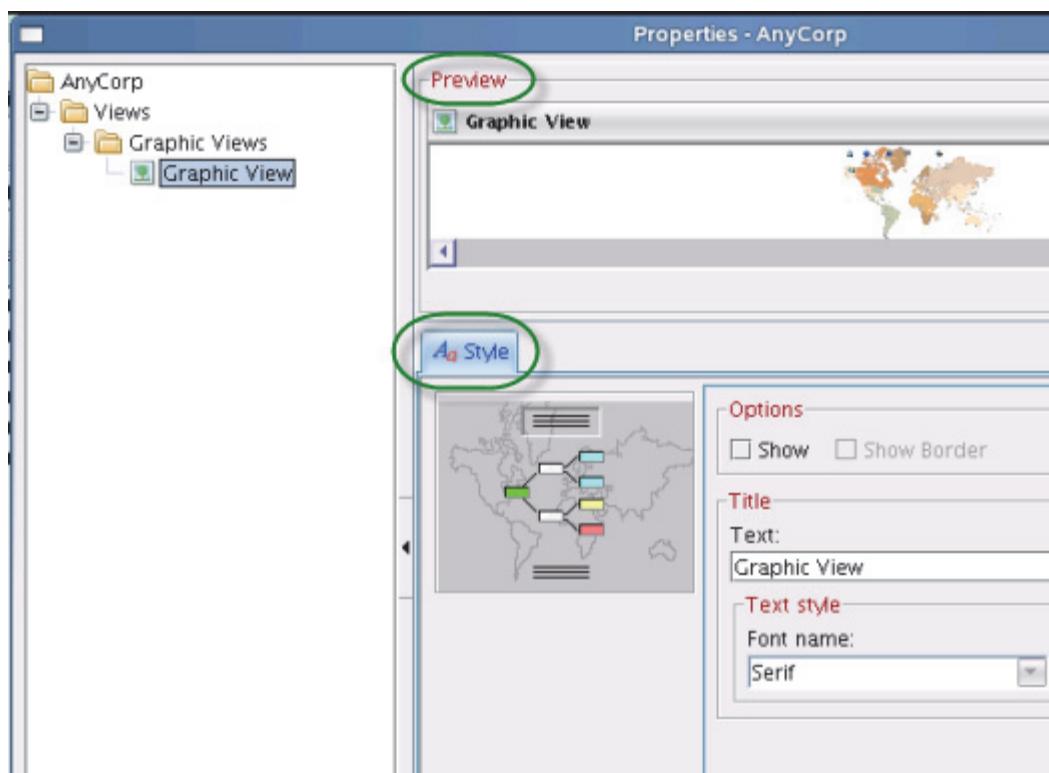
- Click the View Properties tool, which is the pencil icon in the view toolbar.



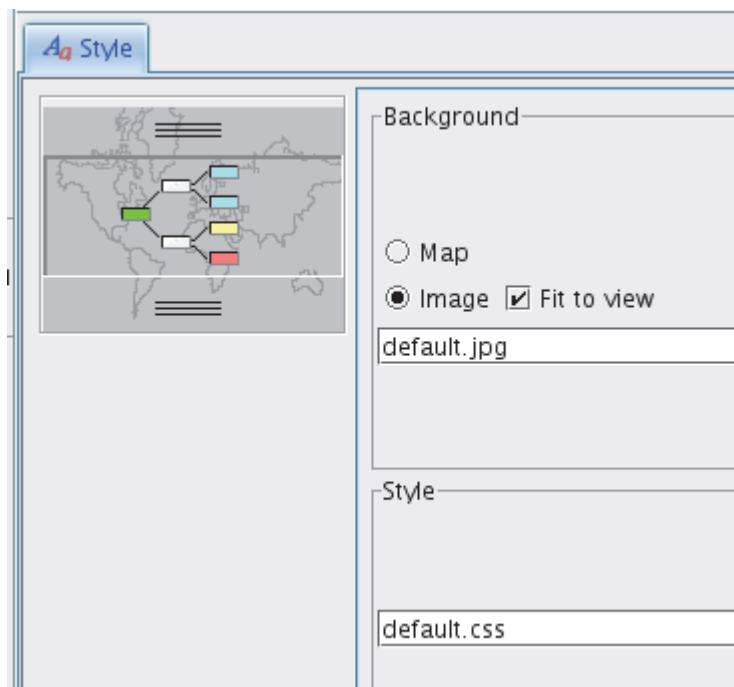
You can also right-click anywhere in the graphic view (but not on an icon) and click **Properties**.



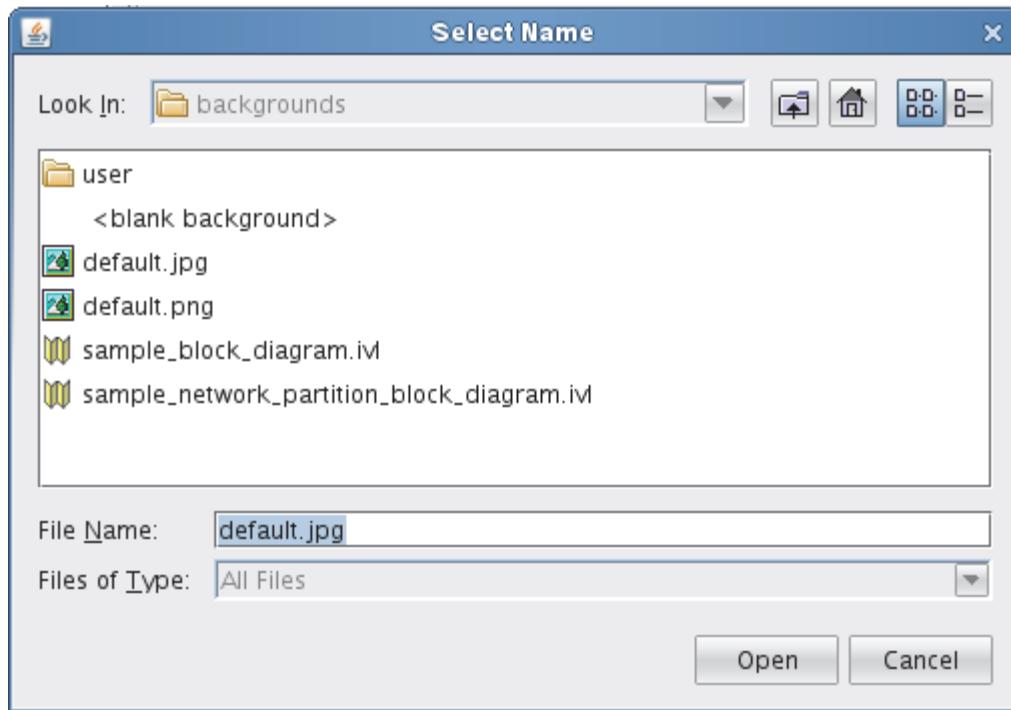
The View Properties editor opens and contains a **Style** tab and a **Preview** pane.



6. Change the title to **AnyCorp**.
7. To change the graphic background, click the **Plot Area** button.

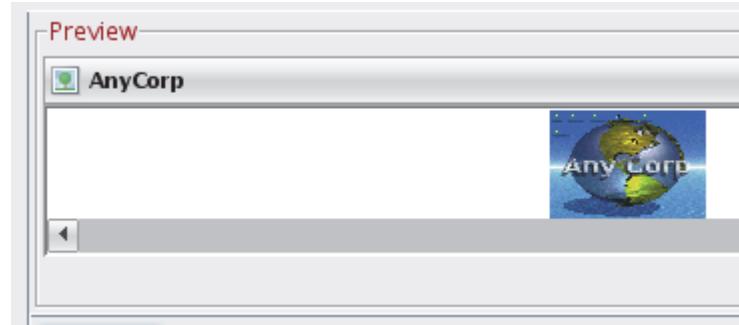


- At the Background pane, click the **Browse** button and double-click the **user** directory.



You can use .wmf, .png, .jpg, .ivl, and .gif graphic files.

- Click the **AnyCorpLogo.gif** file and click the **Open** button. The AnyCorp logo replaces the default background, centered in the Preview pane.



Customizing the icons

The files for these exercises include background graphics, icons, and a style sheet that maps those icon images to Navigator item names.

- To customize the graphic view icons, click the **Browse** button in the **Style** section.
- Double-click the **user** directory and click the **AnyCorp.css** style sheet. Click **Open** and **OK** to save your changes.
- Spread the icons evenly around the canvas. Use the **Select** tool (the arrow pointer in the graphic tools bar) to drag the icons where you want them.

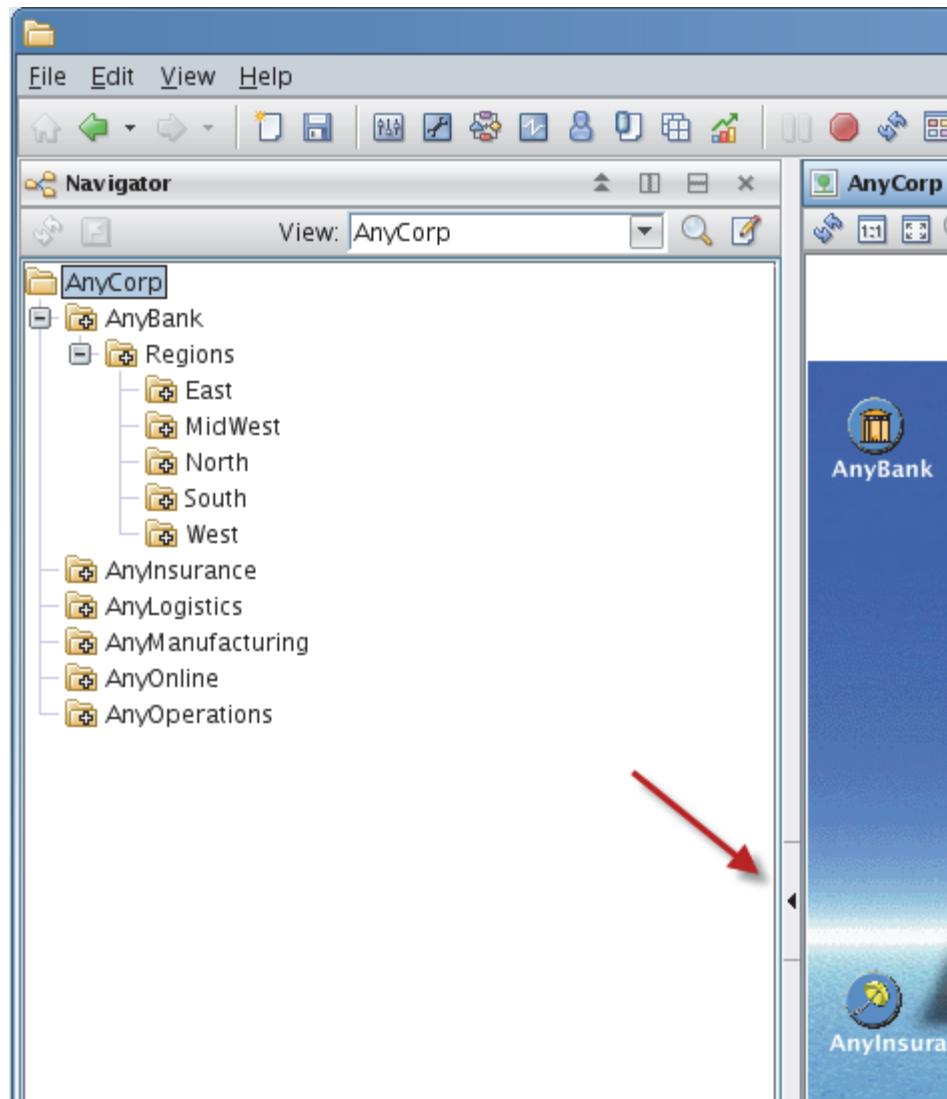
The workspace resembles the following screen capture.



Exercise 2. Create the AnyCorp workspace

To enlarge the display area, click the Hide View Bars tool (the double up-arrow in the view toolbar).

To retrieve the graphic view tools, click the Hide View Bars tool again.



13. Save the workspace by clicking **File > Save Workspace** or by pressing **Ctrl+S**.

14. Expand the Navigator by clicking the same button you used to collapse it, and continue with the next exercise.

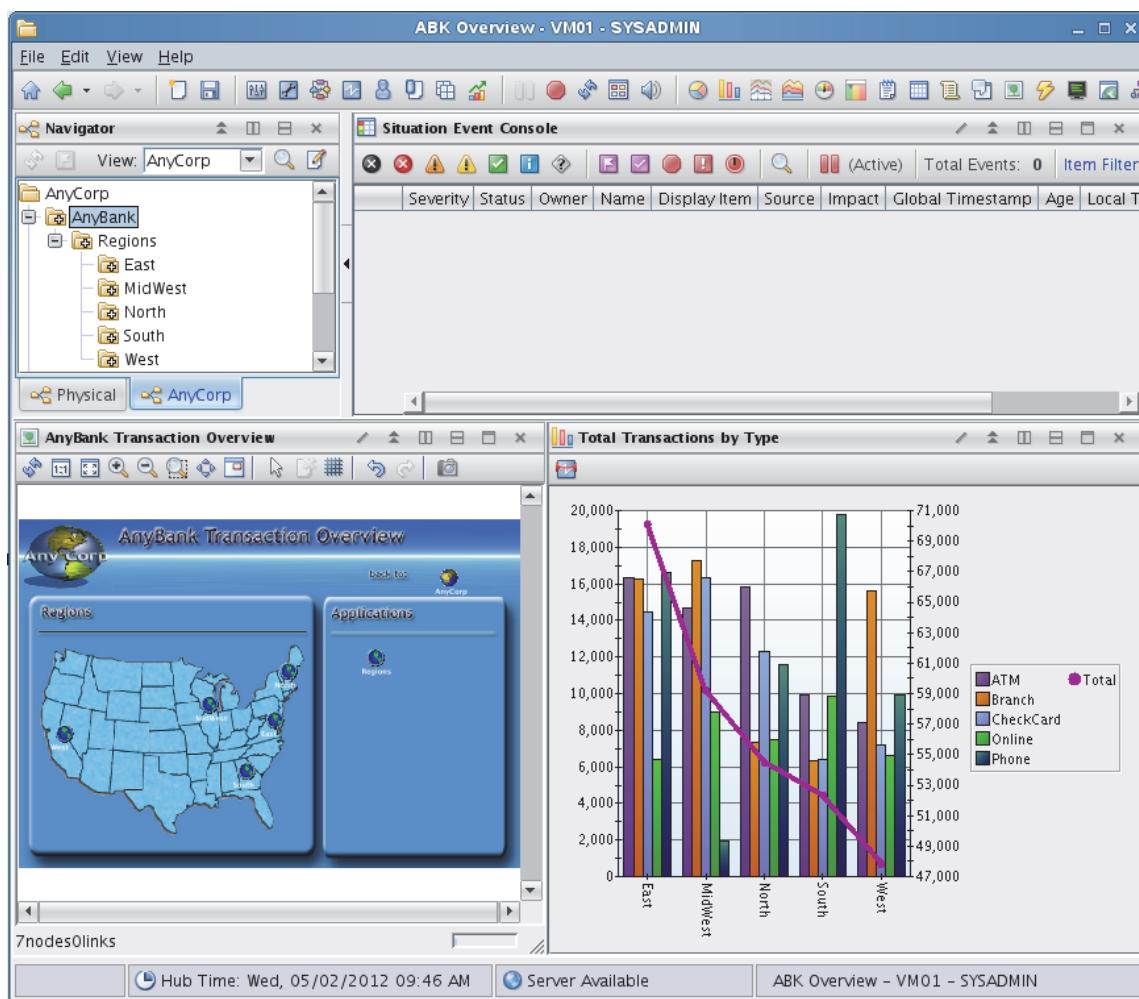
Exercise 3. Creating the AnyBank workspace

1. Click the **AnyBank** Navigator item.

The next workspace represents the highest level of the **AnyBank** application. This level provides an overview of where a potential problem occurred, the impact of the problem and the application that caused the problem. This exercise guides you through creating this workspace by performing the following steps.

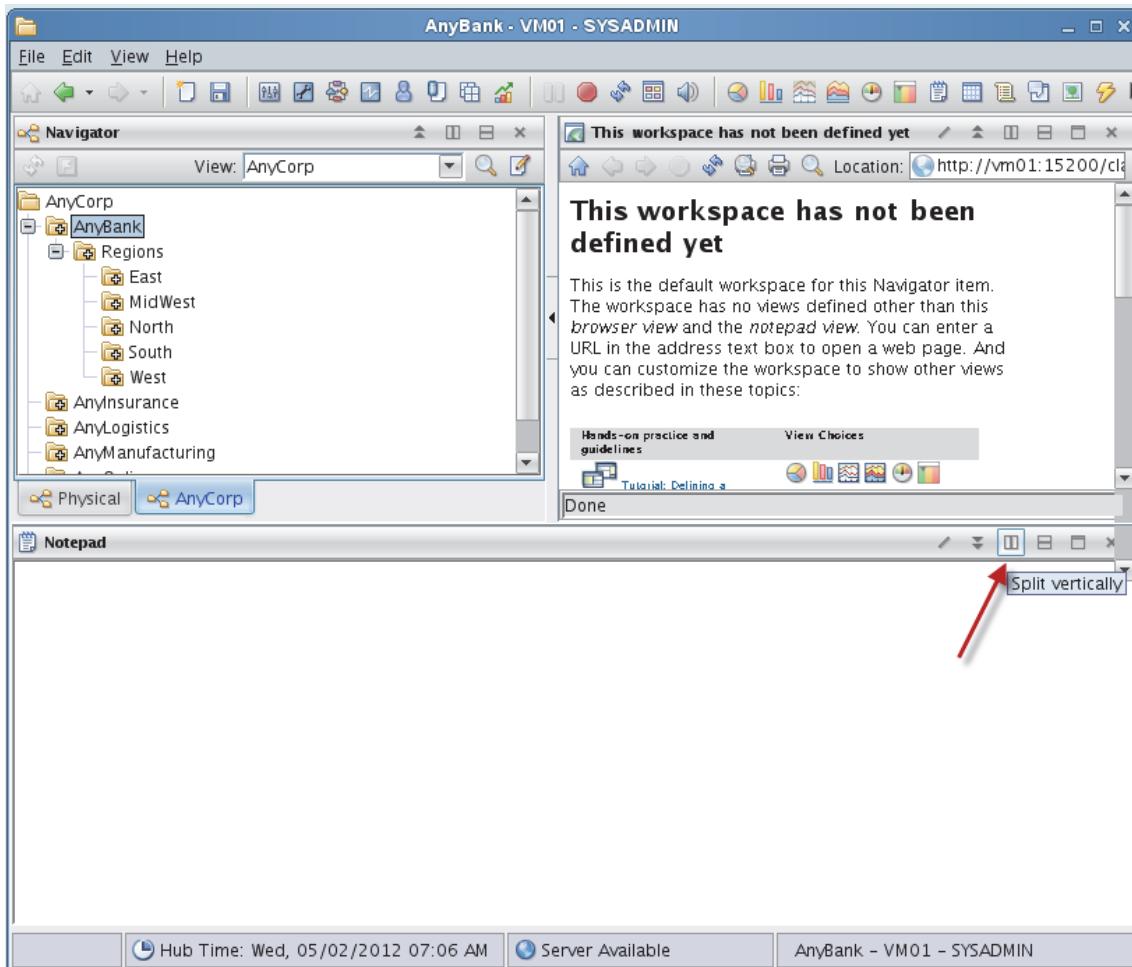


Hint: This screen capture shows the finished workspace. Use this picture as a guide to build the AnyBank workspace.

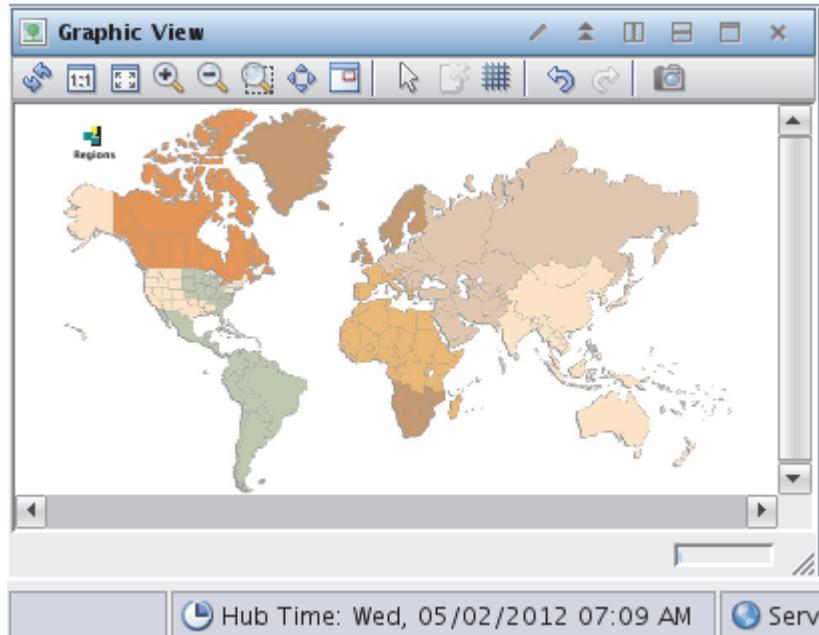


You need a graphic view, a Situation Event Console, and a bar chart on the workspace.

2. Be sure that the **AnyBank** workspace is selected. Split the lower view by selecting **Split Vertically** in the Notepad view.



3. Include the views that are needed for this workspace, starting with the graphic view in the lower left pane of the workspace. The **Regions** Navigator item automatically displays on the canvas.



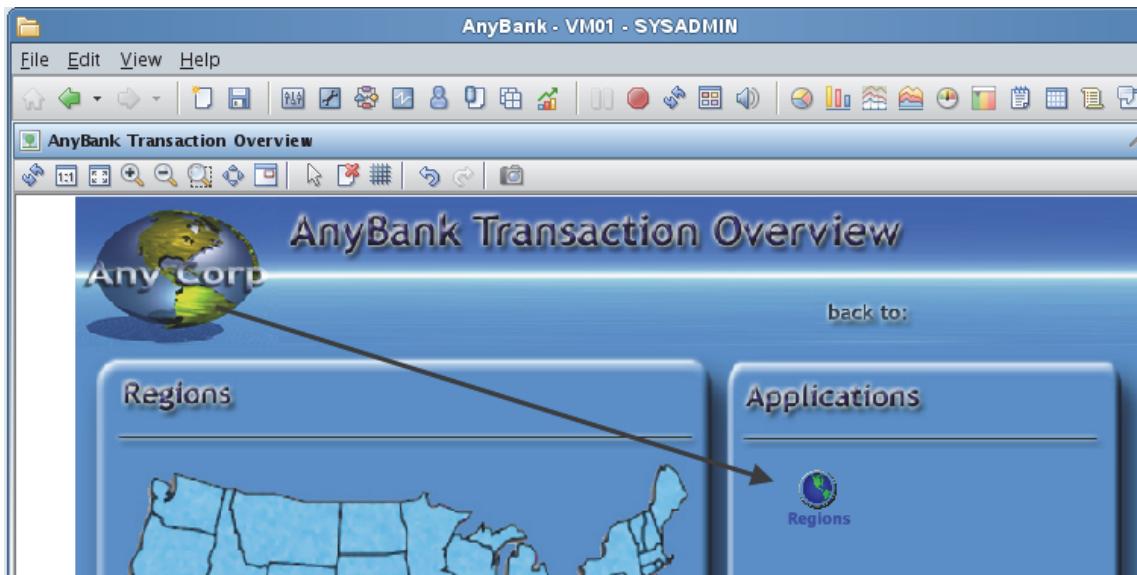
4. Set the background of the graphic view by using the view properties and the **Style** tab. Change the background to **ABK.jpg**, in the **user** directory.
5. Modify the appearance of the icons by using the **AnyCorp.css** style sheet, in the **user** directory.
6. Name the graphic view **AnyBank Transaction Overview**.

7. Rearrange the items on the canvas.

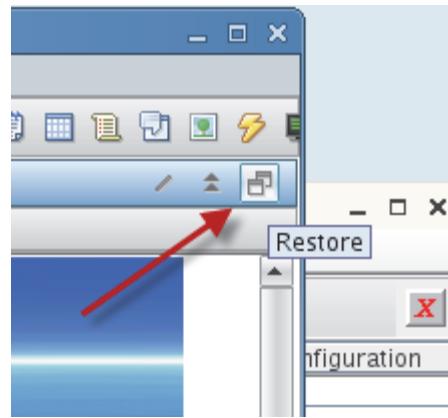
- Temporarily maximize the view by selecting the maximize icon.



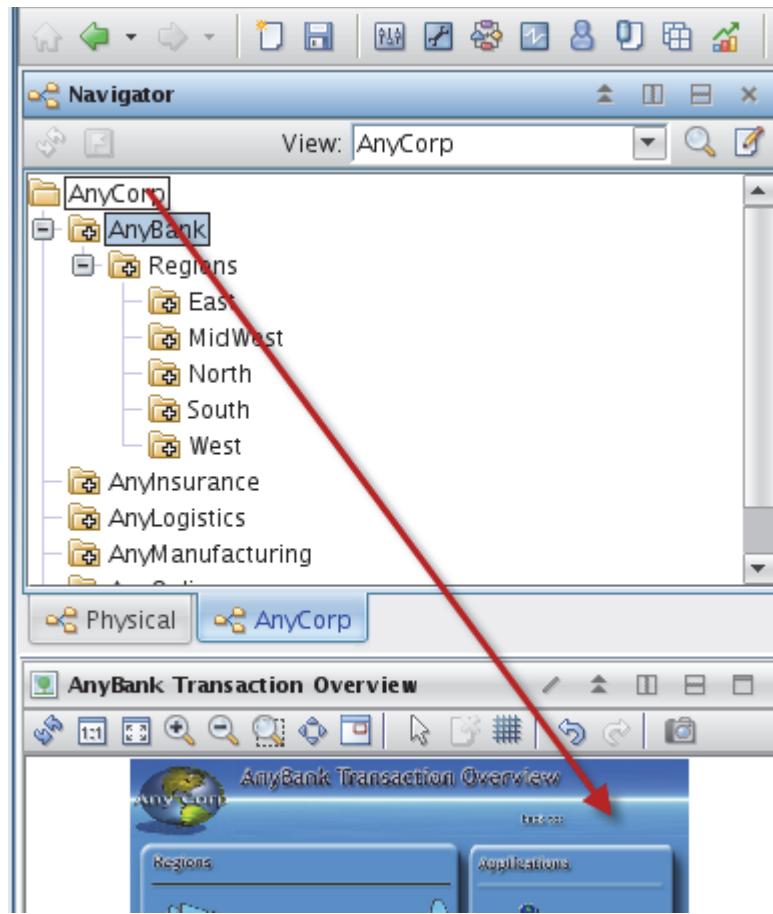
- Use the **Select** tool to move the **Regions** Navigator item into the **Applications** pane. The **Regions** Navigator item is in the extreme upper left of the canvas.



- c. Restore the graphic view to the original size.



- d. Drag **AnyCorp** from the Navigator view and drop it next to the **back to:** section, above the **Applications** area.



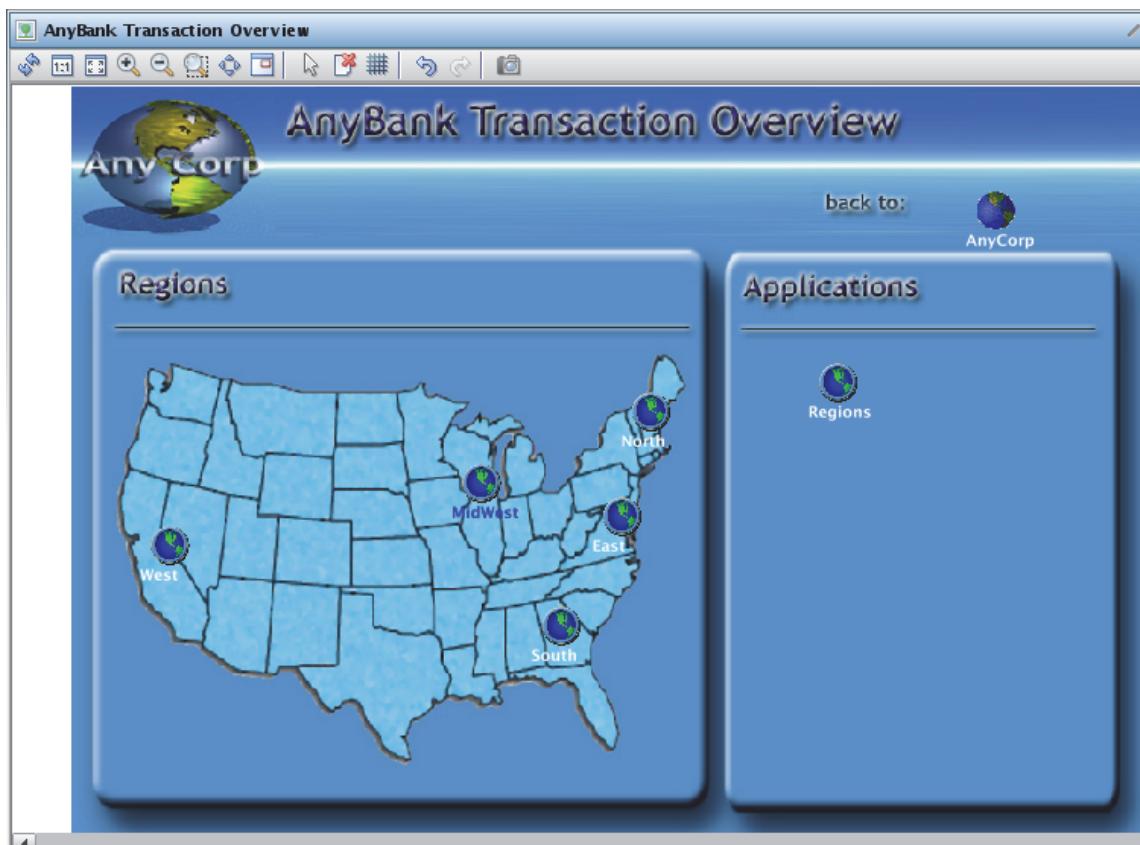
8. Arrange the geographical areas.

- Drag the five geographical areas under the **Regions** Navigator item onto the graphic view map area.



Note: You can add multiple new items from the Navigator by holding down the **Ctrl** key and clicking each item.

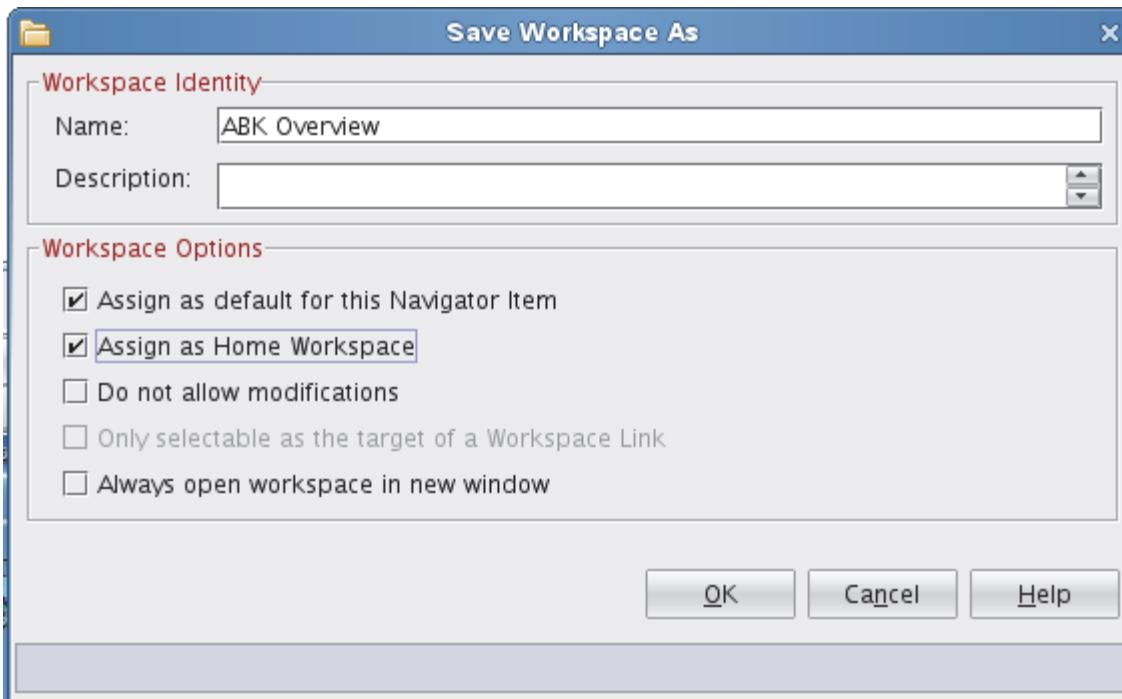
- Drag the five regional icons to their respective geographical locations, as seen in the following screen capture. If they do not go where you intended, enlarge the view to move them more easily.



9. Save your workspace and assign your final specifications to it.

- Restore the view to the normal size if you maximized it.
- At the main menu, click **File > Save Workspace As**. Or press **F12** on your keyboard.
- At **Name**, type **ABK Overview**.
- Click the **Assign as default for this Navigator Item** check box.
- Select the **Assign as Home Workspace** check box.

- f. Click **OK** to close the Save window.

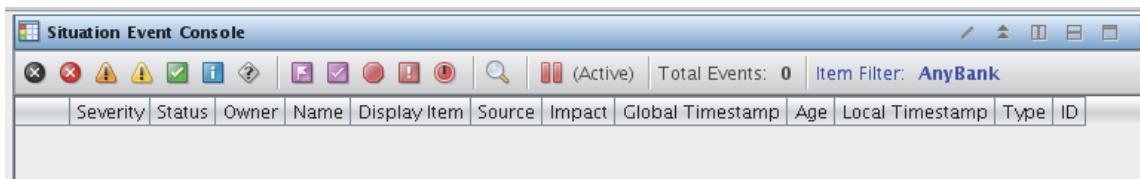


Adding a situation event console in the workspace

10. Click the **Situation Event Console** toolbar icon and add a situation event console in the view on the top of your workspace.



The filter of the situation event console is automatically set to the level in the Navigator for which you include the console. In this case, it is **AnyBank**.



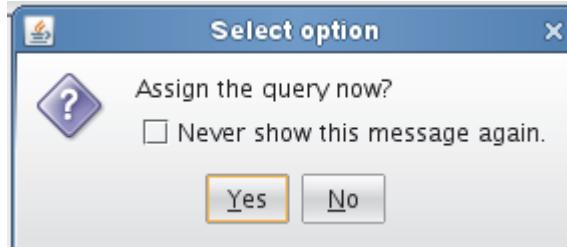
Creating a pie chart view

Now generate the first view that contains the business data that the Tivoli Agent Builder agent collected. A meaningful view type is the pie chart.

11. Click the Pie Chart icon from the toolbar and click into the lower right view of your workspace.



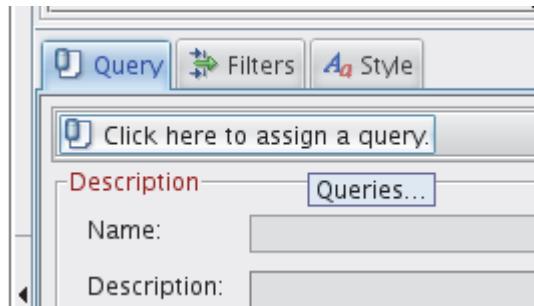
With the following option, assign a query now. You can elect to see that message in the future or not.



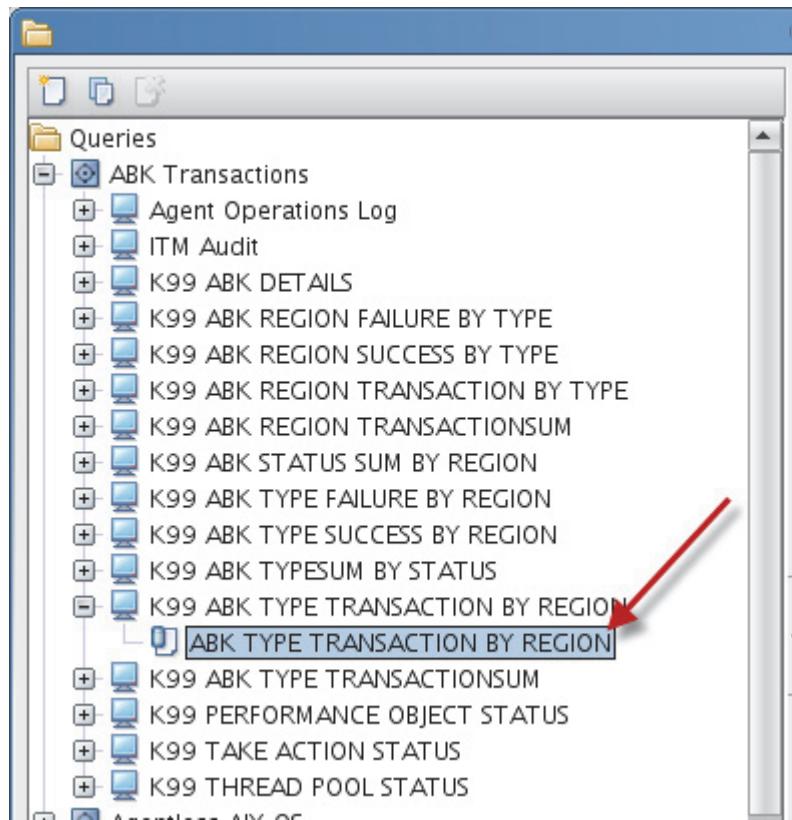
12. Click **Yes** to assign the query now.

The View Properties editor opens. The pie chart does not display any data because you did not yet assigned a query to the view.

13. Click the **Click here to assign a query** button.



14. In the Query editor, click **Queries > ABK_Transactions > K99 ABK TYPE TRANSACTION BY REGION >ABK TYPE TRANSACTION BY REGION.**



Note: The names of the ABK queries are long and some are similar. Drag the border that separates the Navigator from the view so that you can see the entire query name.

15. Click **OK** to accept the query specifications.

After accepting the settings, specify the attributes that you want to see in the view.

16. Click the **Filters** tab. Click the attributes as shown in the following screen capture. Click **Apply**.

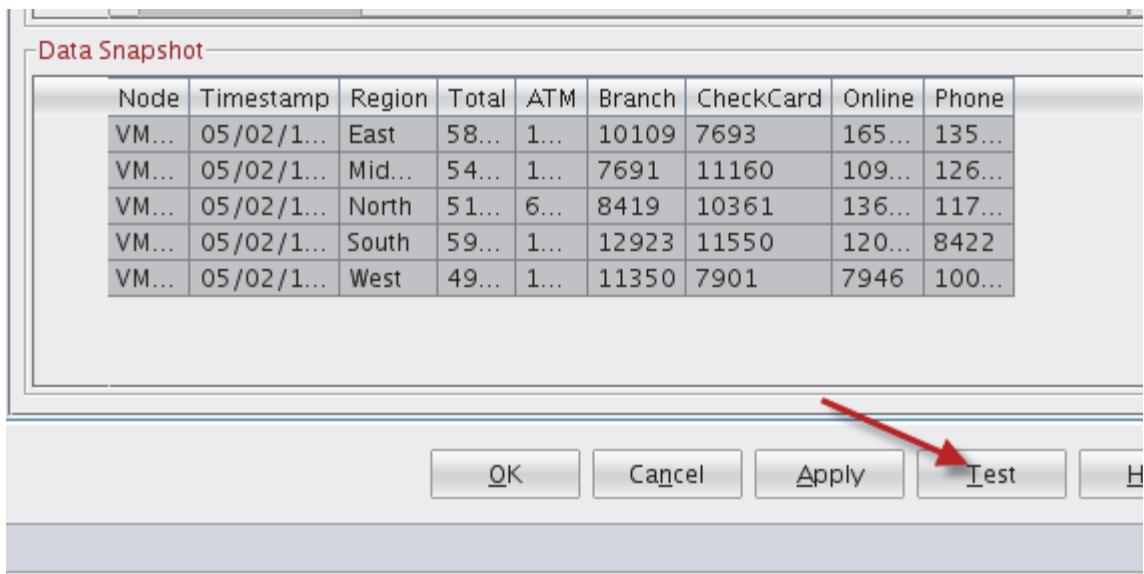
Region	Total	ATM	Branch	CheckCard	Online	Phone
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				

17. A sample application generates data to populate your views. To see updates of your data, ensure that the **abk.sh** script is running in a Linux terminal prompt window on **VM01**. If the script is not running, start it (and leave it running for the remainder of the course) by running these commands:

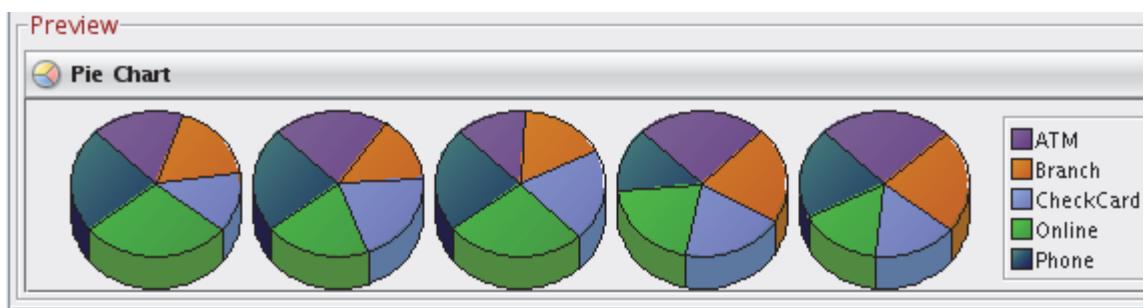
```
cd /labfiles/ABK
./abk.sh
```

```
North Branch 6464 6406 58
North CheckCard 11936 11504 432
North Phone 10726 10723 3
South ATM 11744 11427 317
South Online 6592 6399 193
South Branch 7599 7257 342
South CheckCard 11894 11198 696
South Phone 12040 11726 314
West ATM 14067 13323 744
West Online 13589 12480 1109
West Branch 9537 9423 114
West CheckCard 8458 7914 544
West Phone 9336 9201 135
East ATM 11039 10936 103
East Online 9460 9035 425
East Branch 13251 13122 129
East CheckCard 7874 7495 379
East Phone 8946 8781 165
MidWest ATM 6243 6153 90
MidWest Online 11258 10463 795
MidWest Branch 8353 7644 709
MidWest CheckCard 13109 12489 620
MidWest Phone 7494 6956 538
VM01:/labfiles/ABK #
```

18. To view the changes, click the **Test** button at the bottom of the properties menu.



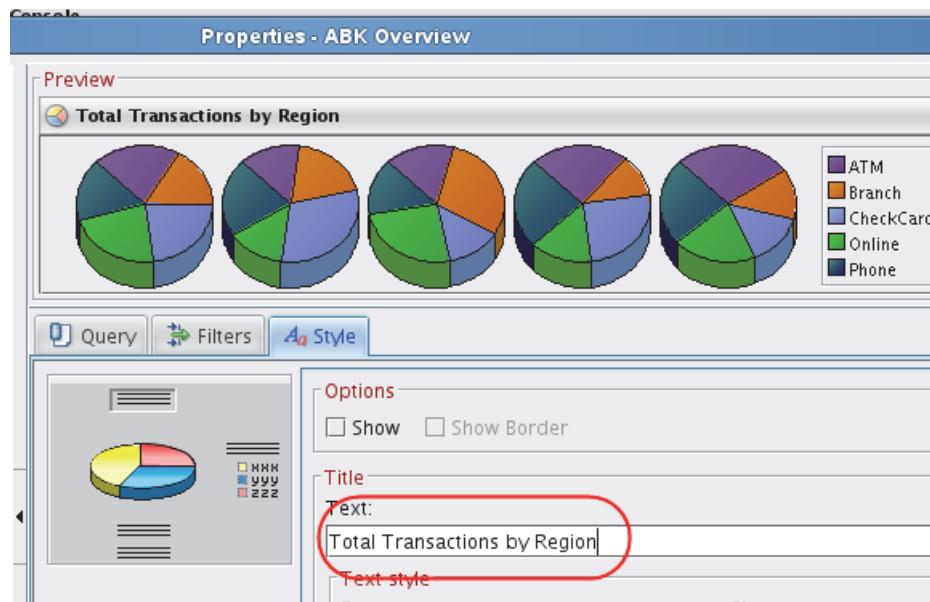
Your **Preview** pane looks like the following screen capture.



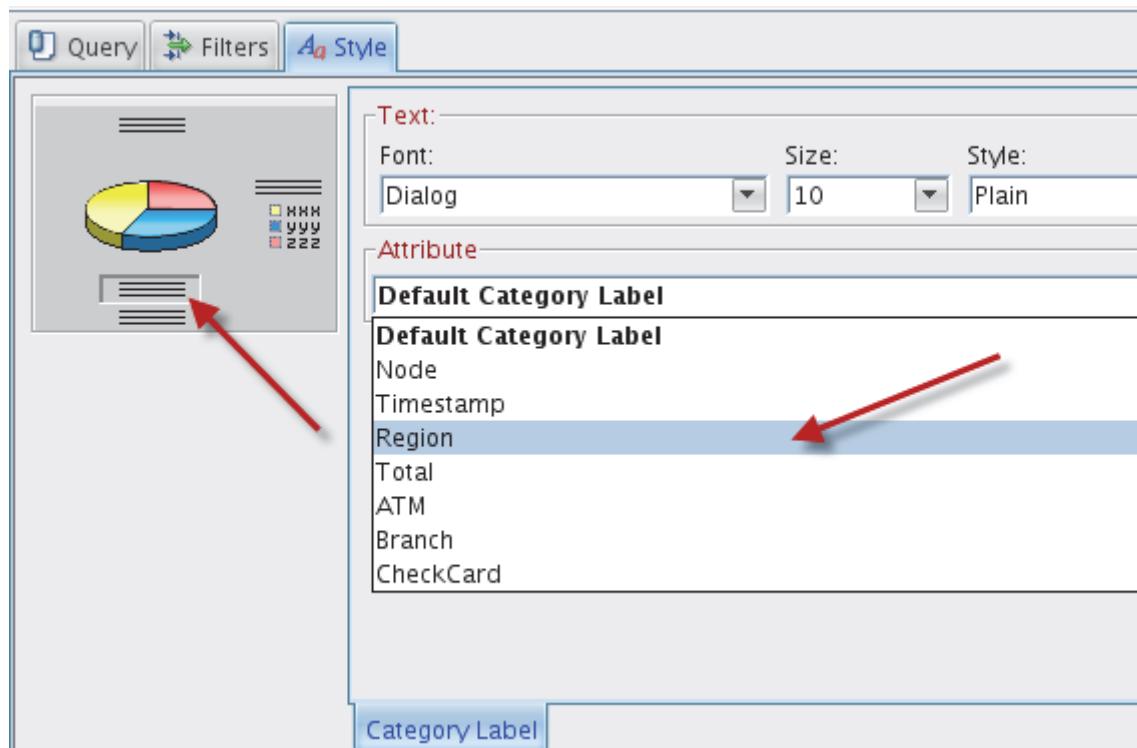
Changing the pie chart style

19. Click the **Style** tab.

20. Change the title text to **Total Transactions by Region**.



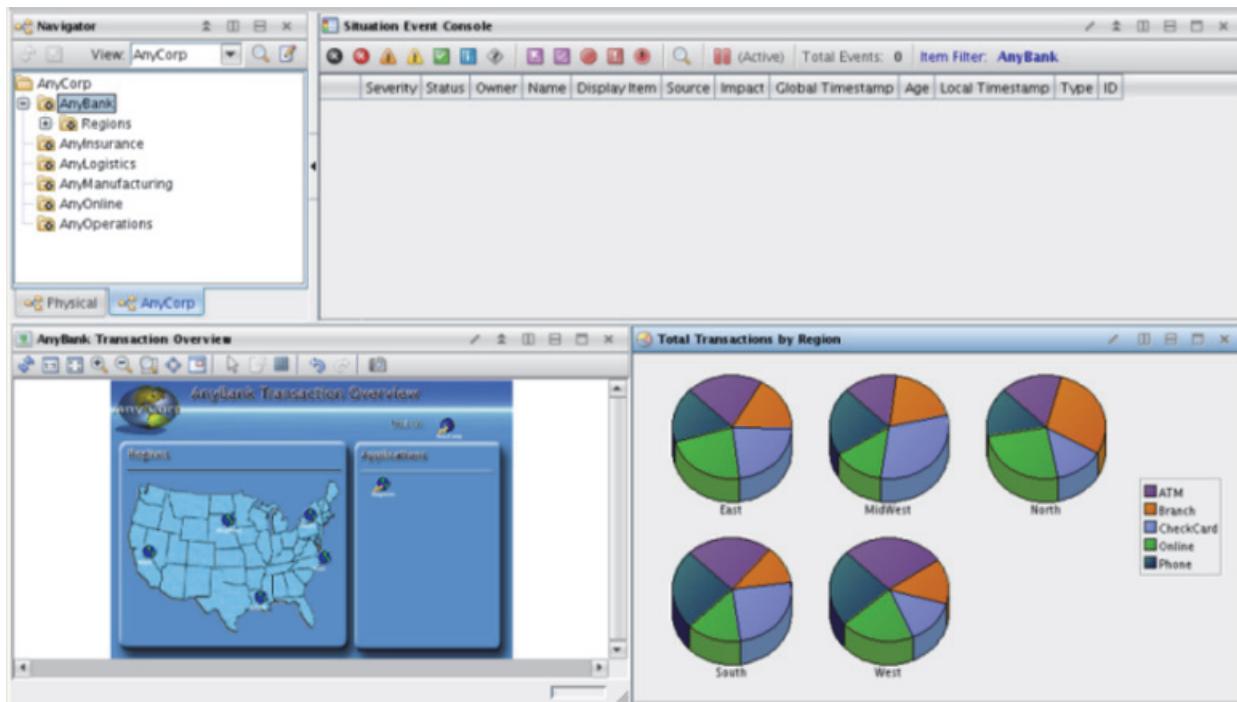
21. Click the **Category** label, which is the first field under the plot area, and choose **Region** as the attribute label.



22. Change the text size to **12**, the text style to **Bold**, and click **OK**.

23. Save the workspace by clicking **File > Save Workspace** or pressing **Ctrl+S**.

Your workspace looks like the following screen capture.

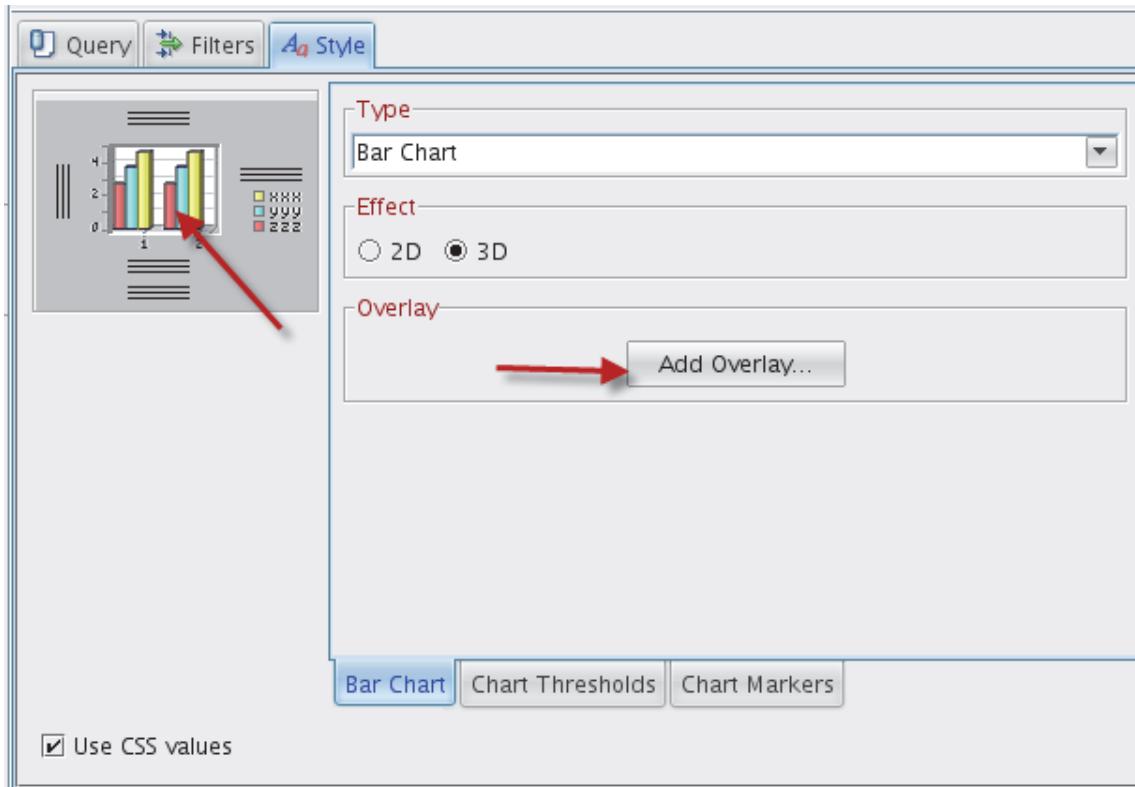


Adding an Overlay

You can use overlays to add other attributes from the query on a bar or plot chart.

24. Change the pie chart to a bar chart format.
 - a. Click the bar chart icon from the view type choices.
 - b. Click the pie chart view.
 - c. Click the same five attributes that you had for the pie chart and click **OK**.
25. Open the View Properties editor. Click the **Style** tab and set the view title to **Total Transactions by Type**.

26. In the plot area of the **Style** tab, click **Add Overlay**.

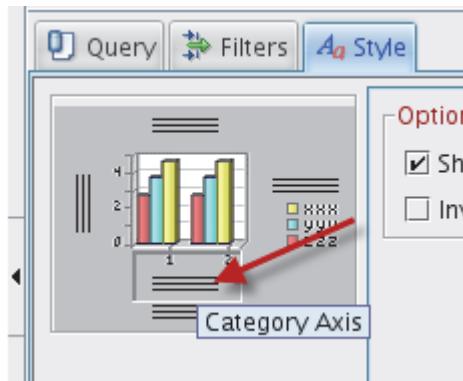


27. Design the appearance of your Total attribute.

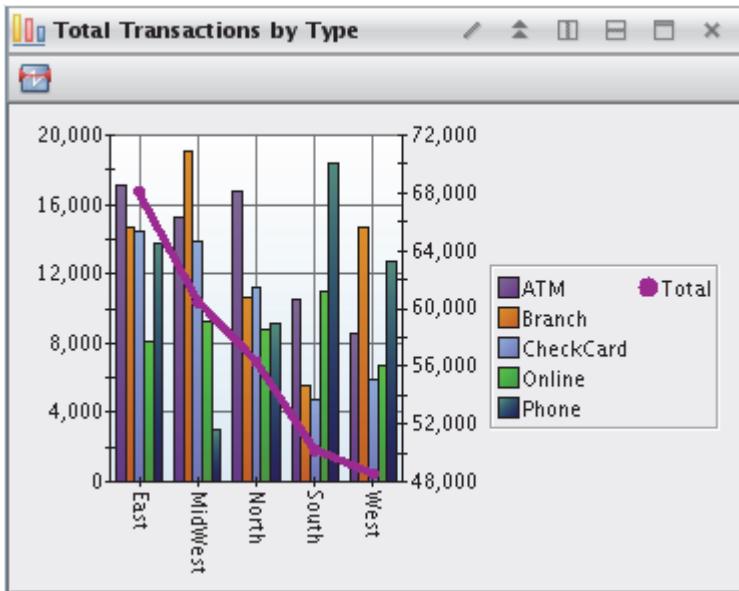
- Click **Total** from the list of **Available** attributes and move it to the **Assigned** column with the left arrow.
- Highlight the **Total** attribute in the **Assigned** column and set a line style, width, color, and symbol style of your choice. Use a color that is not already assigned to one of the existing attributes.
- Click **OK**.

28. Continue defining the Total attribute with adjustments to the Category.

- Click the **Category Axis** (directly under the plot area).



- b. On the **Category Axis - General** tab, ensure that the **Invert Category Axis and Value Axis** check box is cleared.
- c. On the **Category Axis** tab, assign **Region** as the attribute so you can identify which bars belong to which region.
- d. Click **OK** to return to the workspace. Your new view looks like the following screen capture.

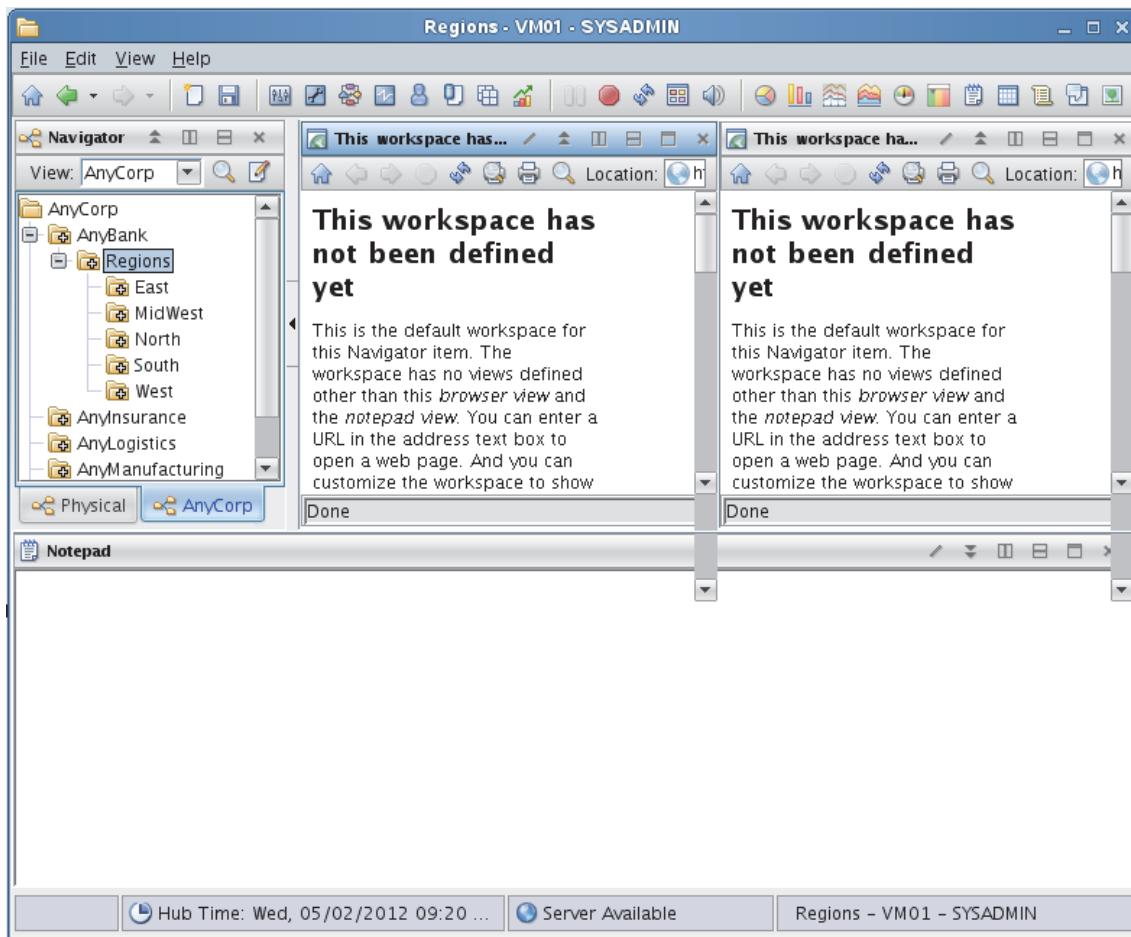


Another scale on the right side of the chart represents the range of the Total attribute. If you did not assign a separate scale for Total, the line would display high above the other values.

Exercise 4. Creating the Regions workspace

This workspace shows current and historical data for transactions. It contains a plot chart, a bar chart, and a table.

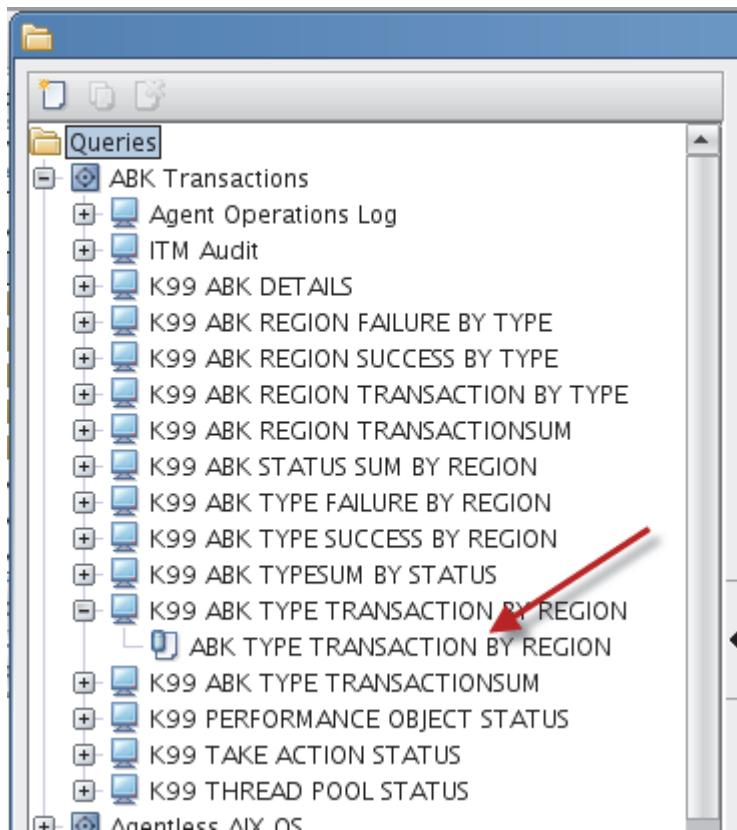
1. Click the **Regions** Navigator item. If prompted to save the modified workspace, click **Yes**.
2. Vertically split the view on the top of your workspace into two views. Use one for a table view, the other one for a bar chart.



Creating a Table view

3. Click the Table View icon, and click the left of the two upper panes in your workspace. Click **Yes** when prompted to assign the query now. If you suppressed this message previously, open the view properties to assign a query.

4. Click the **Click here to assign a query** button and click **Queries > ABK_Transactions > K99 ABK TYPE TRANSACTION BY REGION > ABK TYPE TRANSACTION BY REGION.**



5. Click **OK** to save your changes.

The **Preview** pane displays the table.

Node	Timestamp	Region	Total	ATM	Branch	CheckCard	Online
VM01:99	05/02/12 09:25:06	East	68387	16489	14735	15279	8054
VM01:99	05/02/12 09:25:06	MidWest	62387	15347	20115	14989	8301
VM01:99	05/02/12 09:25:06	North	56981	17169	10339	11164	9577

Below the table are buttons for 'Query', 'Filters', 'Thresholds', and 'Style'.

Using the Filters tab

6. To hide columns, click the **Filters** tab.

7. Clear all check marks except the ones under **Region** and **Total**.

The screenshot shows the 'Filters' tab of a Tivoli Monitoring workspace. At the top, there are tabs for 'Query', 'Filters' (which is selected), 'Thresholds', and 'Style'. Below the tabs is a table titled 'fx' with columns: Node, Timestamp, Region, Total, ATM, and Branch. Rows 1 and 2 have checked boxes in the 'Region' and 'Total' columns, while rows 3 and 4 do not. A red box highlights the 'Region' and 'Total' columns. At the bottom of the table is a 'Data Snapshot' button.

Using the Style tab

8. In the **Style** tab, change the title to **Transaction Totals**. Click **OK** to close the View Properties. Your new view looks like the following screen capture.

The screenshot shows a view titled 'Transaction Totals'. The table has two columns: 'Region' and 'Total'. The data is as follows:

Region	Total
East	68387
MidWest	62387
North	56981
South	52739
West	51089

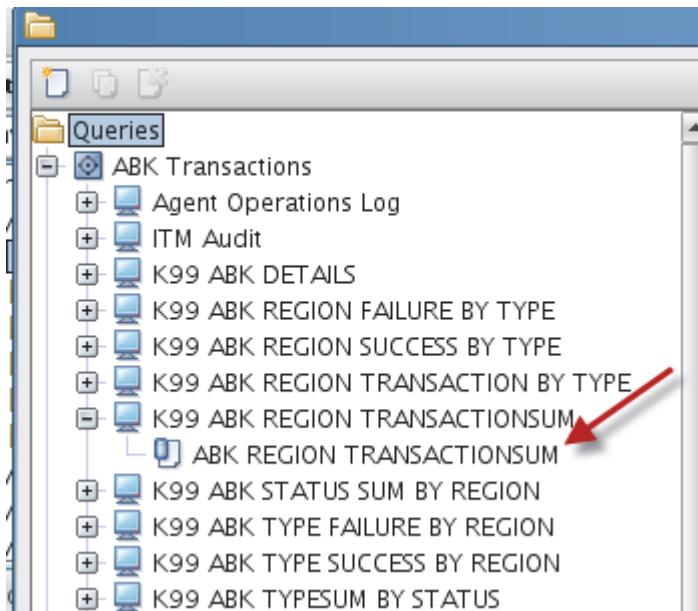
Creating a bar chart view

The bar chart view type has many style options. Familiarize yourself with the effect each option has on the appearance of the view.

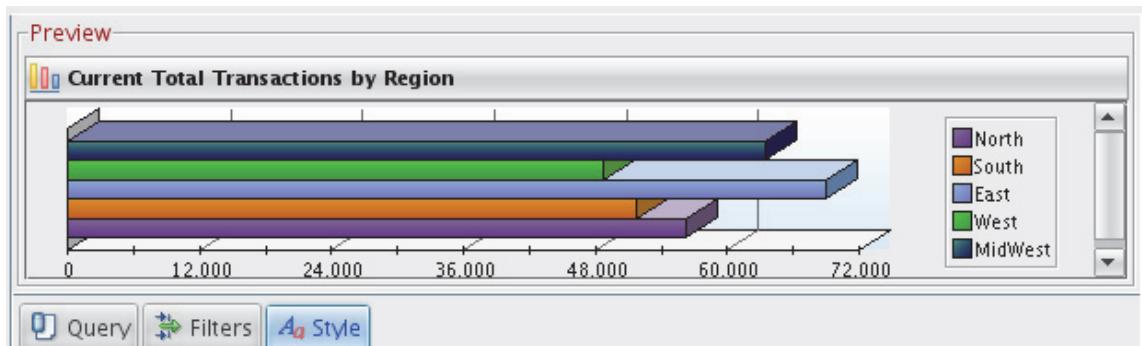
Place a bar chart in your upper right view.

9. Click the Bar Chart icon from the toolbar and click in the empty view in the upper right area of your workspace.

10. Click **Yes** to assign the query. Assign the query **Queries > ABK_Transactions > K99 ABK REGION TRANSACTIONSUM > ABK REGION TRANSACTIONSUM.**

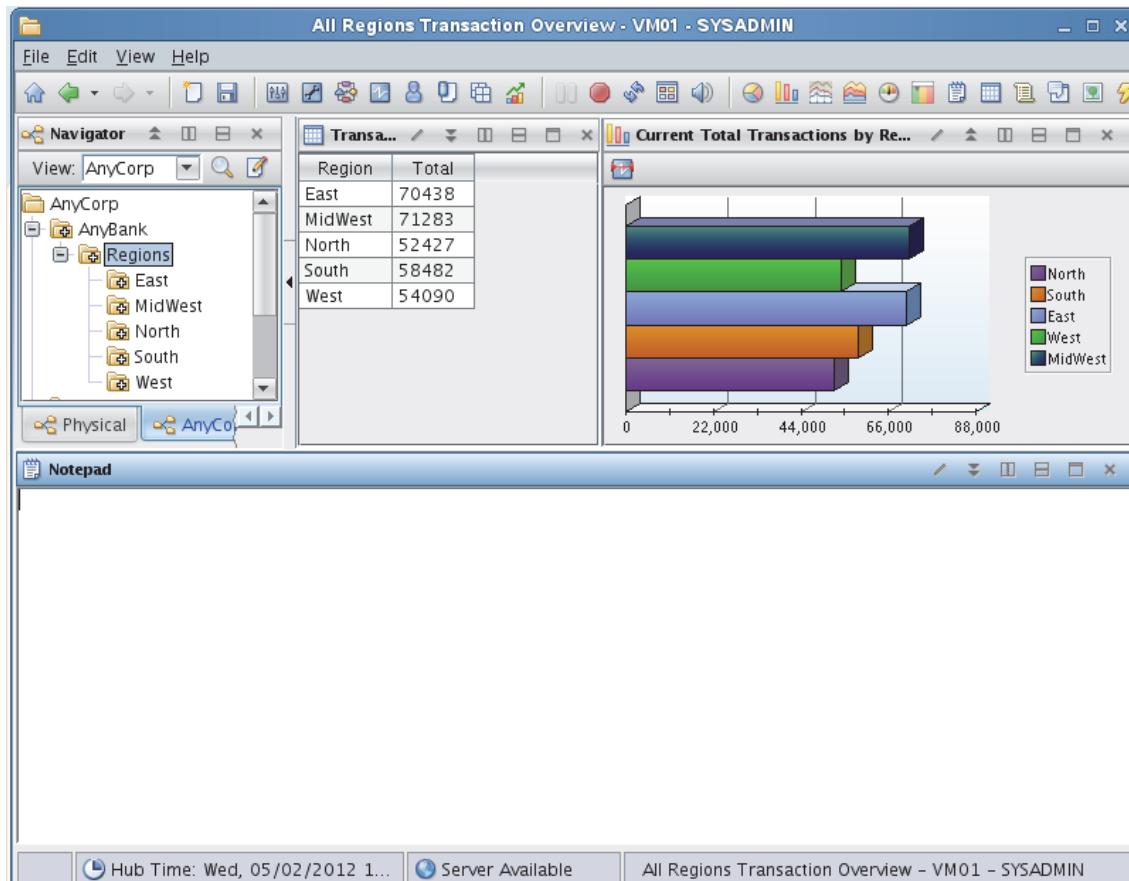


11. In the **Filters** tab, click the **North, South, East, West**, and **MidWest** columns. Click **Apply**.
12. In the **Style** tab, change the view title to **Current Total Transactions by Region**.
13. Click the **Category Axis** field (directly under the plot area), and click **Invert Category Axis and Value Axis**.
14. Click **Test**. The result looks like the following screen capture.



15. Click **OK**.
16. Although your workspace is not complete, save it now to avoid losing your changes. Save your workspace as **All Regions Transaction Overview** by pressing F12.
17. Click **Assign as default for this Navigator Item** to make this workspace the default for the **Region Navigator** item.

Your workspace now resembles the following screen capture.



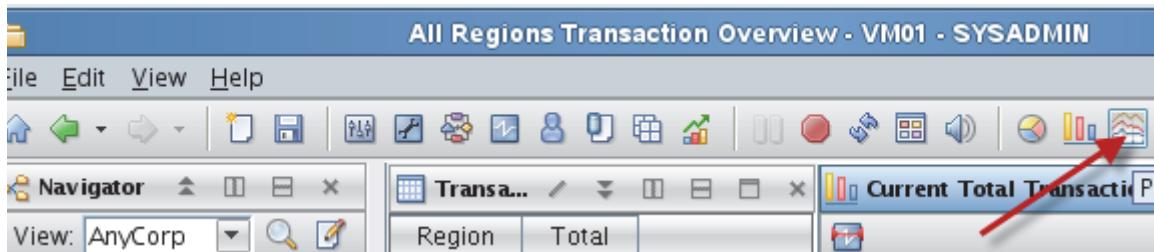
Creating a plot chart view

The best use of a plot chart is to show values that are tracked over time. This chart type is useful when displaying historical data for trend analysis.

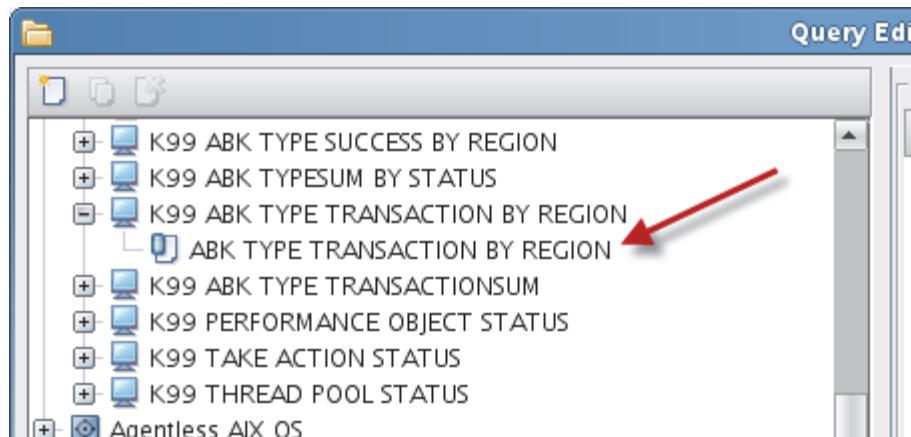
In your scenario, the view displays the current performance values of each region and compares them over half an hour.

You are not yet collecting historical data. Therefore, you must continuously refresh the workspace to see a trend.

18. Include a plot chart in the bottom pane of your workspace.

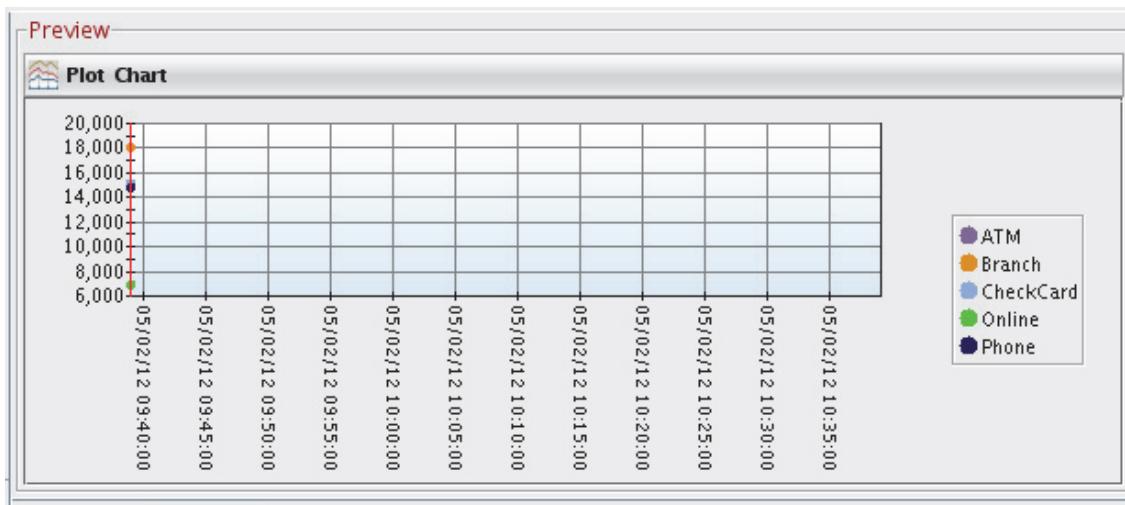


19. Click the query **ABK_TYPE_TRANSACTION_BY_REGION**.



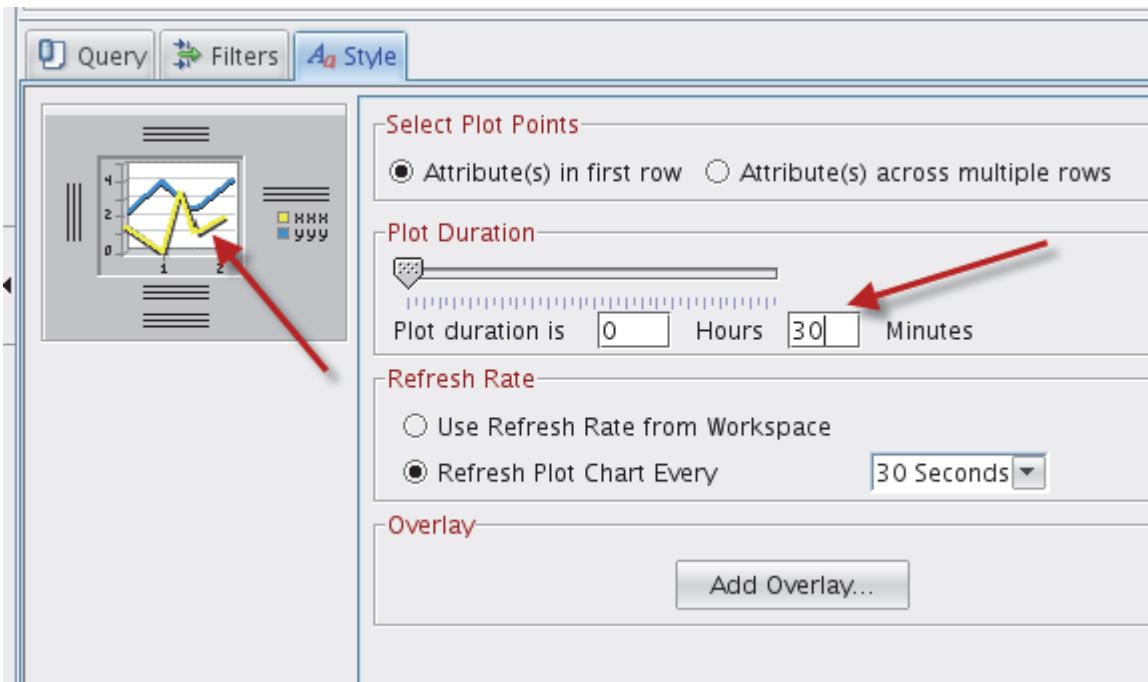
20. Click the **ATM**, **Branch**, **CheckCard**, **Online**, and **Phone** columns in the **Filters** tab.

21. Click the **Apply** button. Your Preview pane now looks like the following screen capture.



22. Change the view title to **Total Transactions by Type (last 1/2 hour)**.

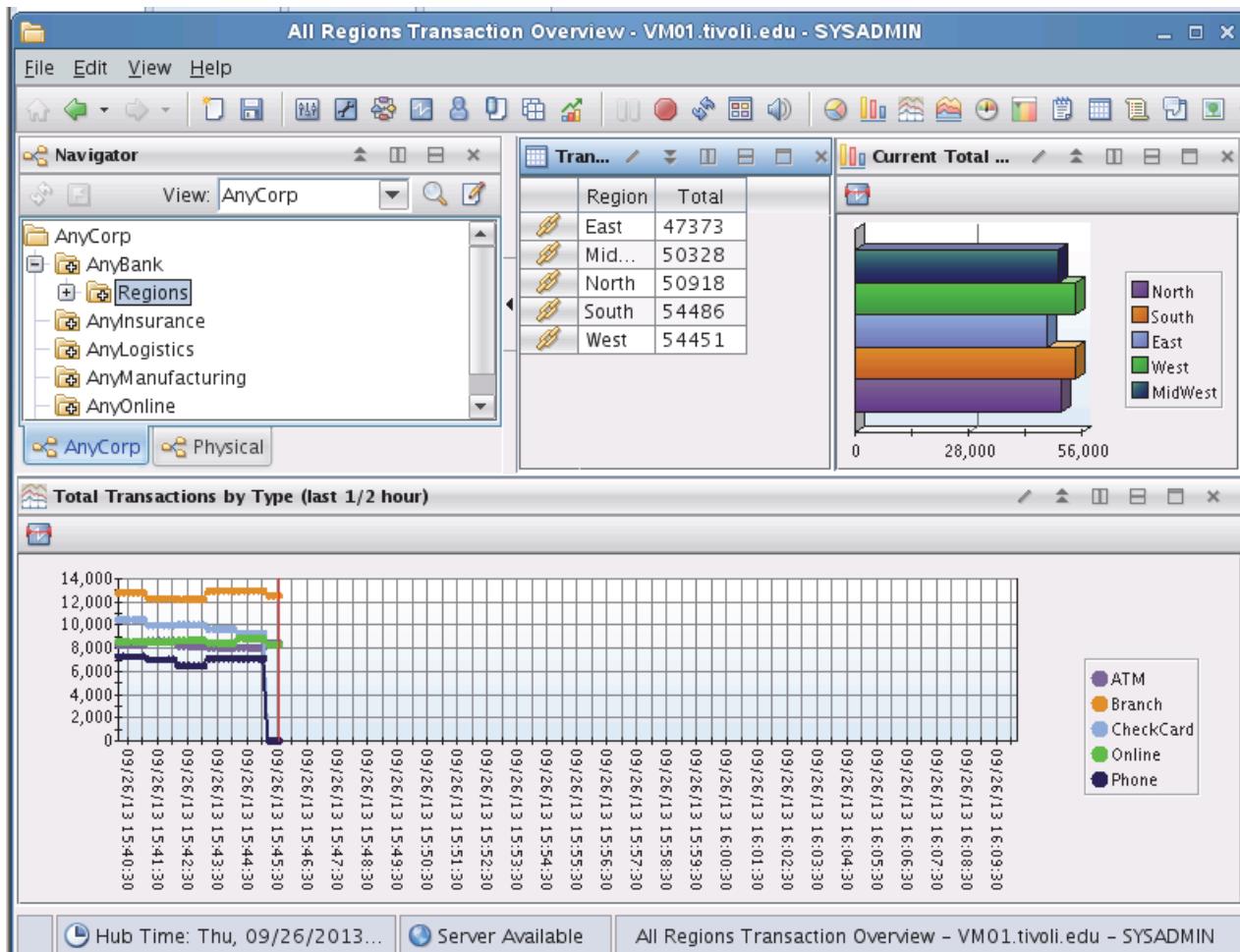
23. Click the Plot area to change the **Plot Duration** to 30 minutes. Use the slider in the **Style** tab or enter the **0** in the Hours field and **30** in the Minutes field.



Setting the plot chart refresh interval

Most views are refreshed according to the workspace refresh interval. You can refresh plot charts independently of the workspace refresh policy.

24. To have your plot chart quickly display a trend, click the **Refresh Plot Chart Every** button and set the rate to **30 seconds**. Click **OK** to close the properties view and return to the workspace. Wait for 2 or 3 minutes and view the effect.



25. Save your workspace.

Exercise 5. Creating the Operations workspace

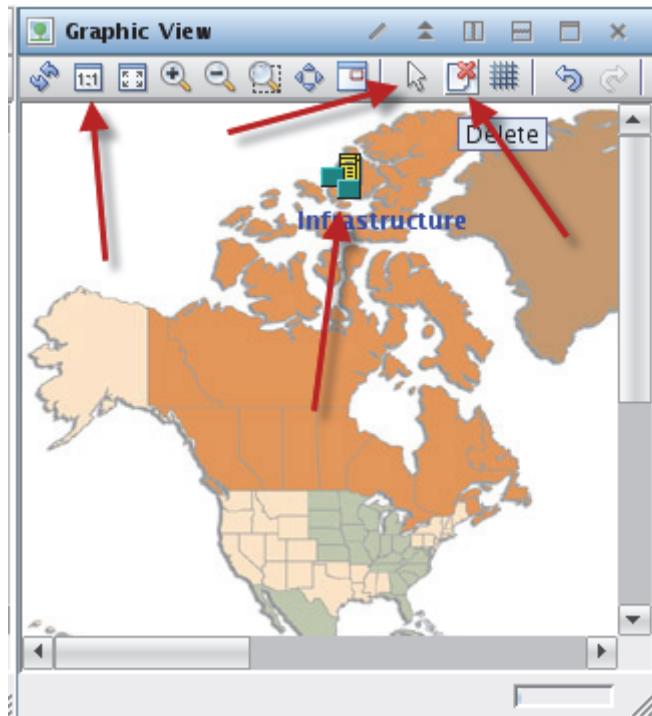
Create the operator console and include two graphic views on the top and two situation event consoles on the bottom.

Adding graphic views

1. Open the **Operations** Navigator view. Split the view in the top vertically. Change both view types to **Graphic** views.
2. Remove the **Infrastructure** and **Business Impact** Navigator items from the two graphic views. Use the **Select** and **Delete** tools to remove the items.



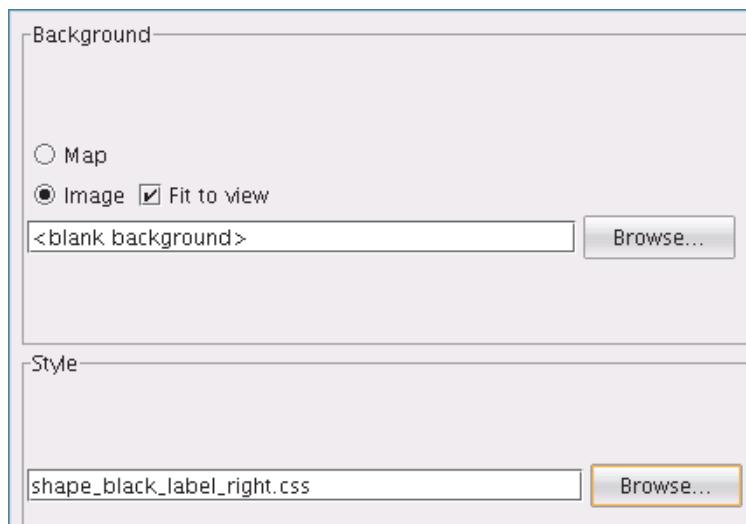
Note: If the icons are too small, use the Show Actual Size tool, located to the left of the Refresh button, to find them. Hold your mouse over the tools to find the correct ones.



Application Impact view

3. Drag the six business area icons from the Business Impact Navigator view onto the graphic view on the left.
4. Change the view name to **Application Impact**.

5. Assign the background <blank background> and the style **shape_black_label_right.css** to the Application Impact view.

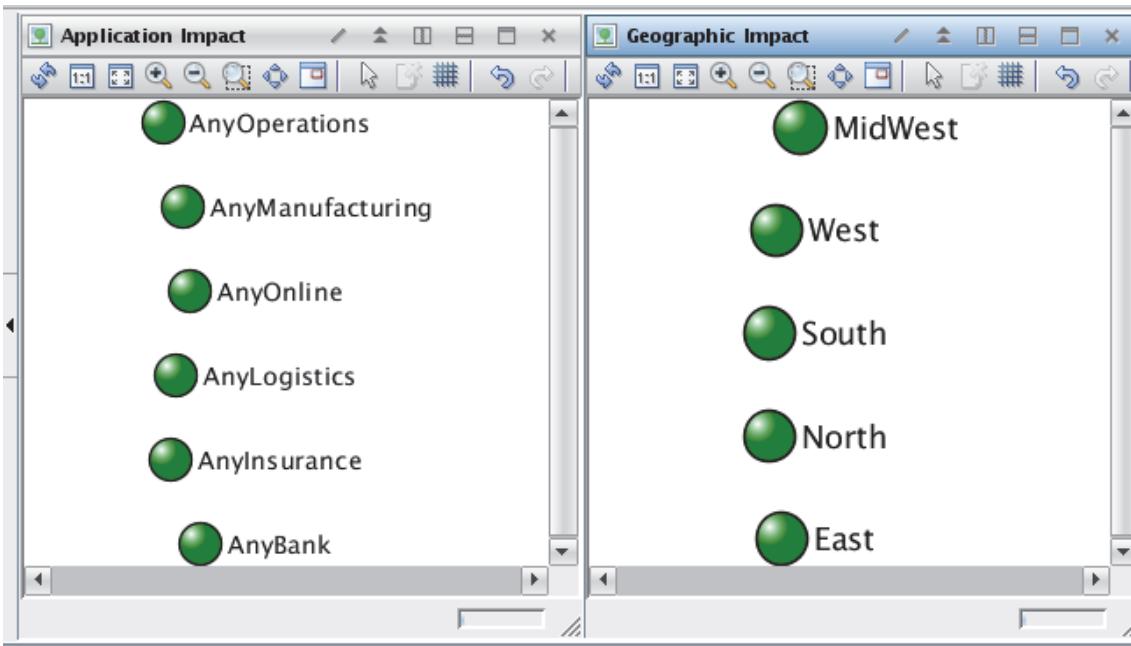


6. Arrange the Navigator items in an even pattern. Click the Grid tool before moving the items so that you can space them evenly. Click the Grid tool again to turn it off after placing the items.

Geographical Impact view

7. Drag the five geographical area icons from the Regions Navigator view onto the graphic view on the right. Change the view name to **Geographical Impact**.
8. Assign the background <blank background> and the style **shape_black_label_right.css** to the Geographical Impact view.
9. Arrange the Navigator items in an even pattern.

Your workspace now looks like the following screen capture.



Hint: If you resize the graphic views, the image does not automatically change to fit. Click the **Show Entire Diagram** button so the graphic image fills the view.

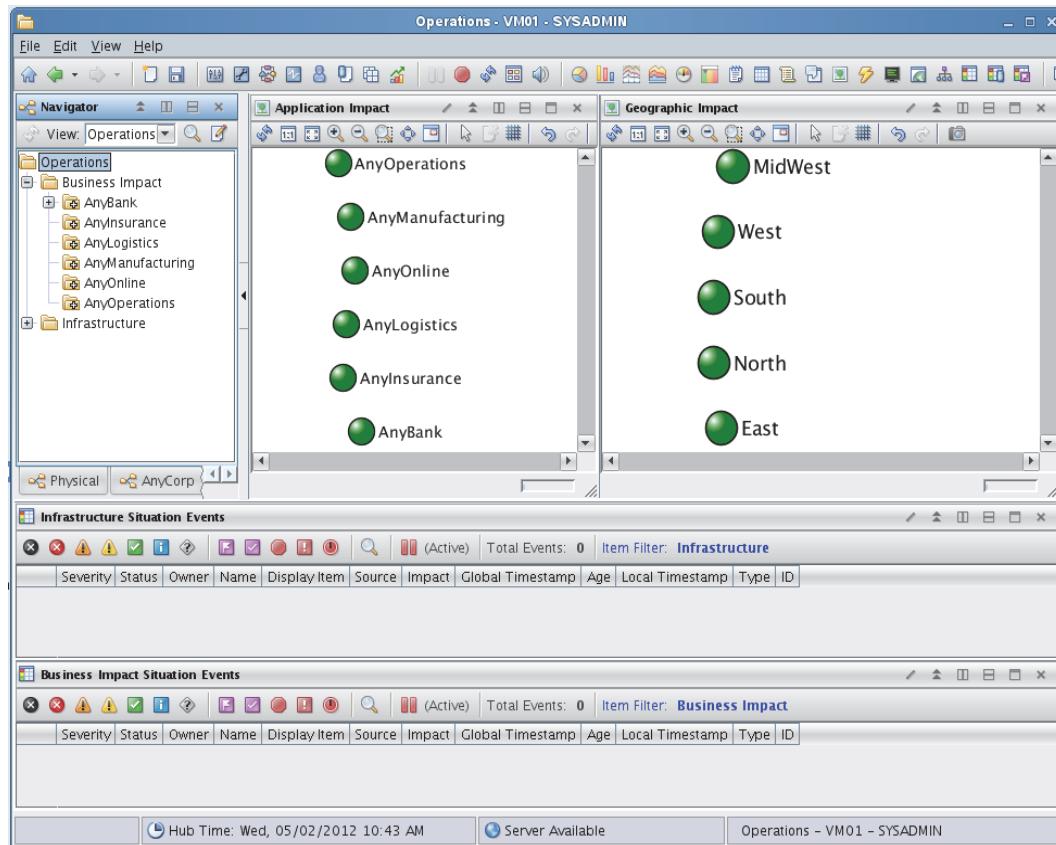


10. Save your workspace.

Adding Situation Event Consoles

11. Add two situation event consoles on the bottom of the workspace by splitting the bottom view horizontally.
12. Specify the Situation Event Console filters by dragging the **Infrastructure** Navigator item into one situation event console, and the **Business Impact** Navigator item into the other.
13. Change the console titles to **Infrastructure Situation Events** and **Business Impact Situation Events**.

Your finished workspace looks like the following screen capture.



14. Save your workspace.

Exercise 6. Creating the Infrastructure workspace

Another Navigator item that you must develop a meaningful workspace for is the **Infrastructure** Navigator item. It includes important information about your monitoring environment. Product-provided queries capture data from the hub monitoring server, and provide the data for this workspace.

1. Open the **Infrastructure** Navigator item in the **Operations** Navigator.
2. Click a table view for the view on the upper right of the workspace and add the query **Queries > Tivoli Enterprise Monitoring Server > Situation Definition > Situation Definition**
3. Rename the view to **All situations defined at the hub monitoring server**.
4. Name the view **Changes made by portal client users, such as situations and policies**, and save the workspace.

6 Visualizing monitoring data exercises

Exercise 6. Creating the Infrastructure workspace

Your new workspaces look like the following screen capture.

The screenshot shows the 'Infrastructure - VM01 - SYSADMIN' workspace. The left pane features a Navigator tree with categories like Operations, Business Impact, and Infrastructure. The main area contains two tables:

All Situations defined at the hub monitoring server

Situation Name	Description
Apache_Down_Linux	Check for a webserver that is down.
Deploy_Failed	One or more agent deployments have failed.
Deploy_Retrying	One or more deployments are in Failed state.
HACMP_acquire_service_addr	Changes boot address to the corresponding HACMP service IP address.
HACMP_acquire_takeover_addr	Acquires takeover IP address by checking the current boot address.
HACMP_config_too_long	Node has been in reconfiguration for too long.
HACMP_event_error	Occurs when an HACMP event script fails.
HACMP_fail_standby	Standby network adapter failed or is not available.
HACMP_get_disk_vg_fs	Acquire system resources as part of a takeover.
HACMP_join_standby	Standby network adapter is available.

Changes made by portal client users, such as situations and policies

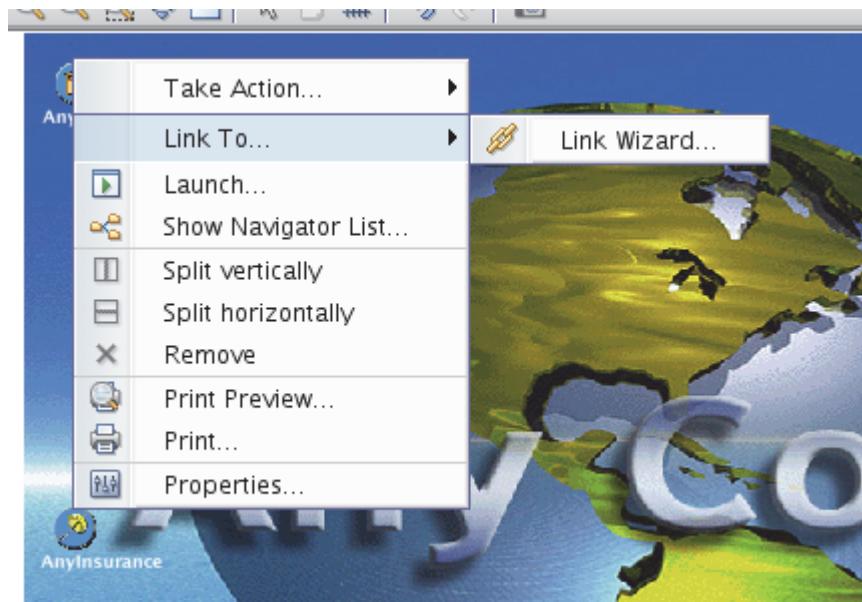
Global Timestamp	Last User	Object Name	Operation	Table Name		
05/01/12 07:33:52	SYSADMIN	*EMPTYNODE	Add	IDDefSituation		
05/01/12 07:33:52	SYSADMIN	Managed_System_OFFLINE	Insert	IDDefSituation		
05/01/12 07:18:43	SYSADMIN	VM01_TEMS	Add	IDDefSituation		
05/01/12 07:18:43	SYSADMIN	Invalid_ssh_attempt	Insert	IDDefSituation		
05/01/12 06:53:55	SYSADMIN	VM01_TEMS	Add	IDDefSituation		
05/01/12 06:53:55	SYSADMIN	Apache_Down_Linux	Insert	IDDefSituation		
05/01/12 06:50:11		VM01_TEMS	Linux_Missing_Process	5140	T	IDRestartCommand
05/01/12 06:50:08	SYSADMIN	Linux_Missing_Process	Update	IDDefSituation		
05/01/12 06:47:32	SYSADMIN	Linux_Missing_Process	Update	IDDefSituation		

Exercise 7. Providing user navigation

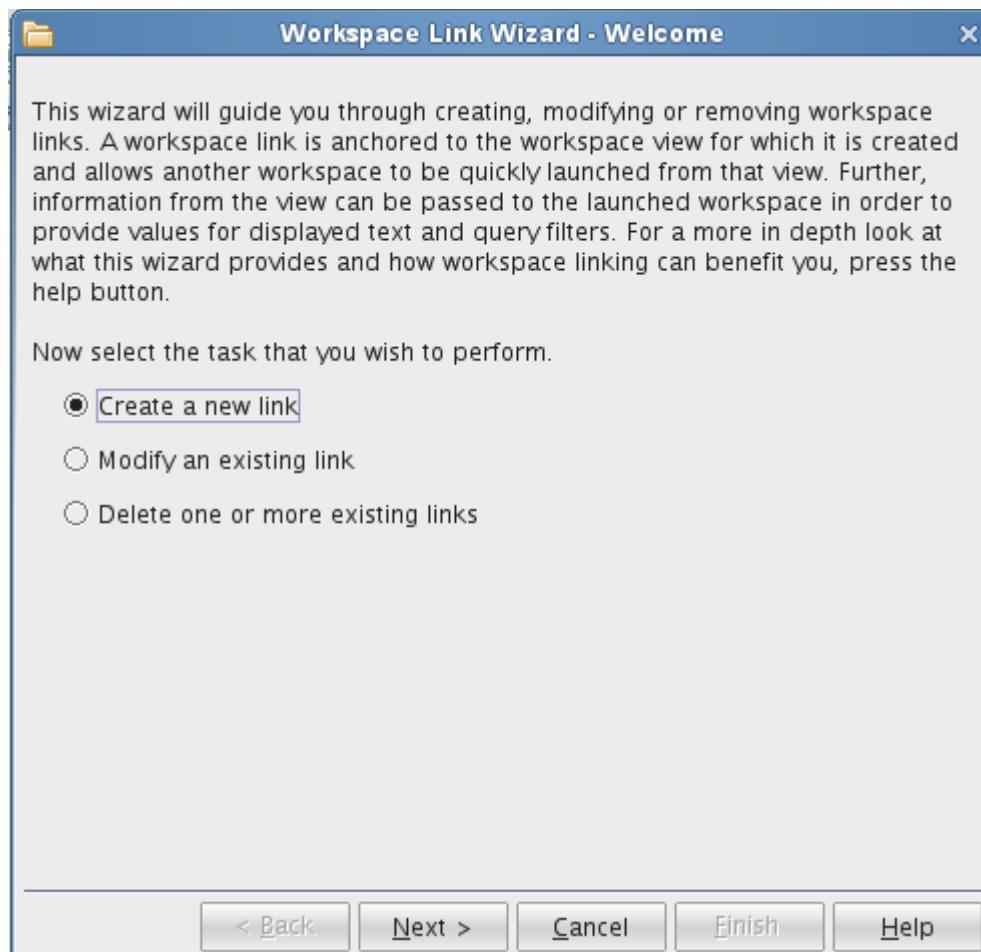
One of your solution requirements is to create an executive dashboard. From this dashboard, business executives can browse critical information without having to learn the portal client interface. Simple links provide navigation without the need to use the Navigator view. During this exercise, you use many of the features from previous lessons.

Building simple links

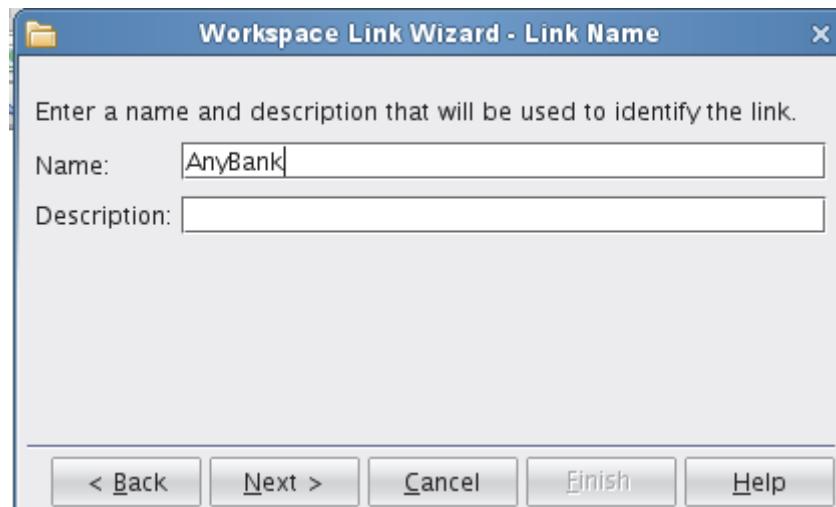
1. Begin with the highest level of the AnyCorp dashboard by clicking the **AnyCorp** Navigator item.
2. Right-click the **AnyBank** item in the graphic view and click **Link To > Link Wizard**.



3. The Welcome window opens. Click **Create a new link** and click **Next**.

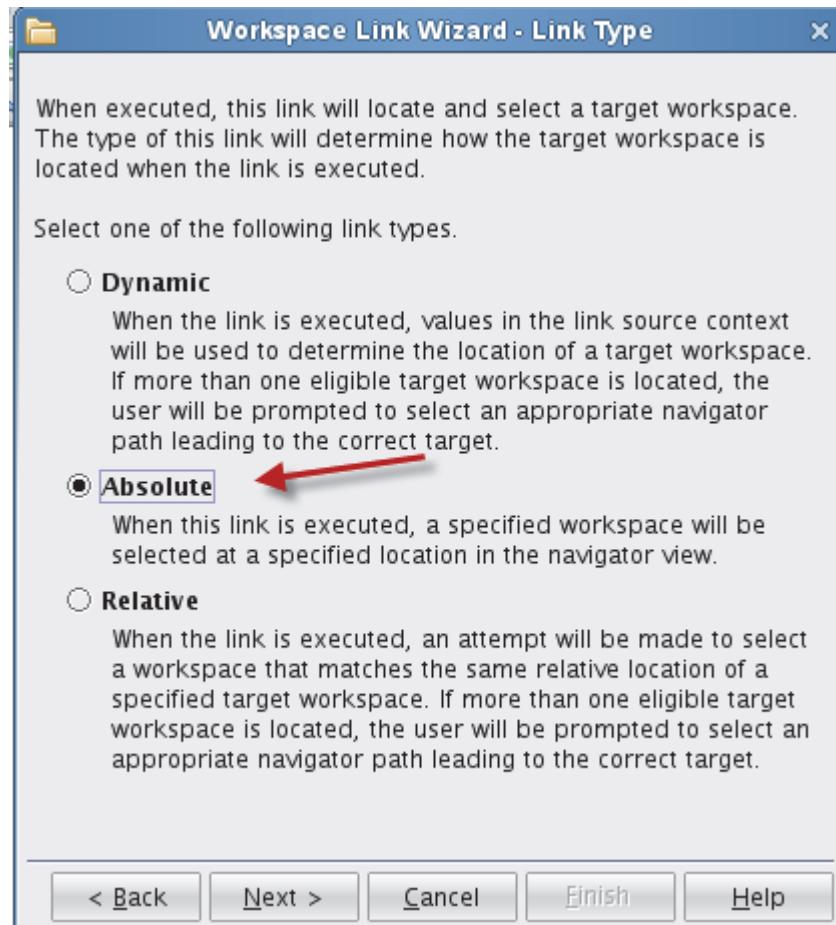


4. The Link Name window opens. Use a descriptive name for your link, such as the name of the target workspace, which is AnyBank. Type **AnyBank** as the name of the link and click **Next**.



The Link Type window opens. Select the type of link you want to create. Three different link types are available that define how the target workspace is located.

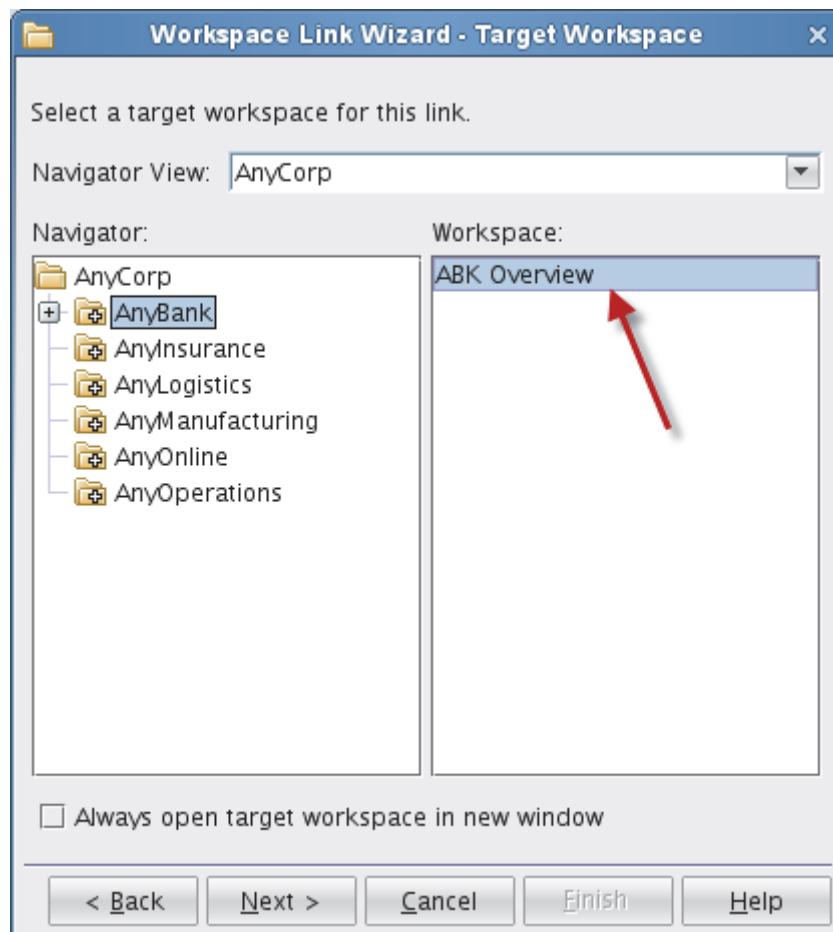
- Because you want to create a simple link, and your link target is only one workspace, click **Absolute** as the link type.



- Click **Next**.

The Target Workspace window opens.

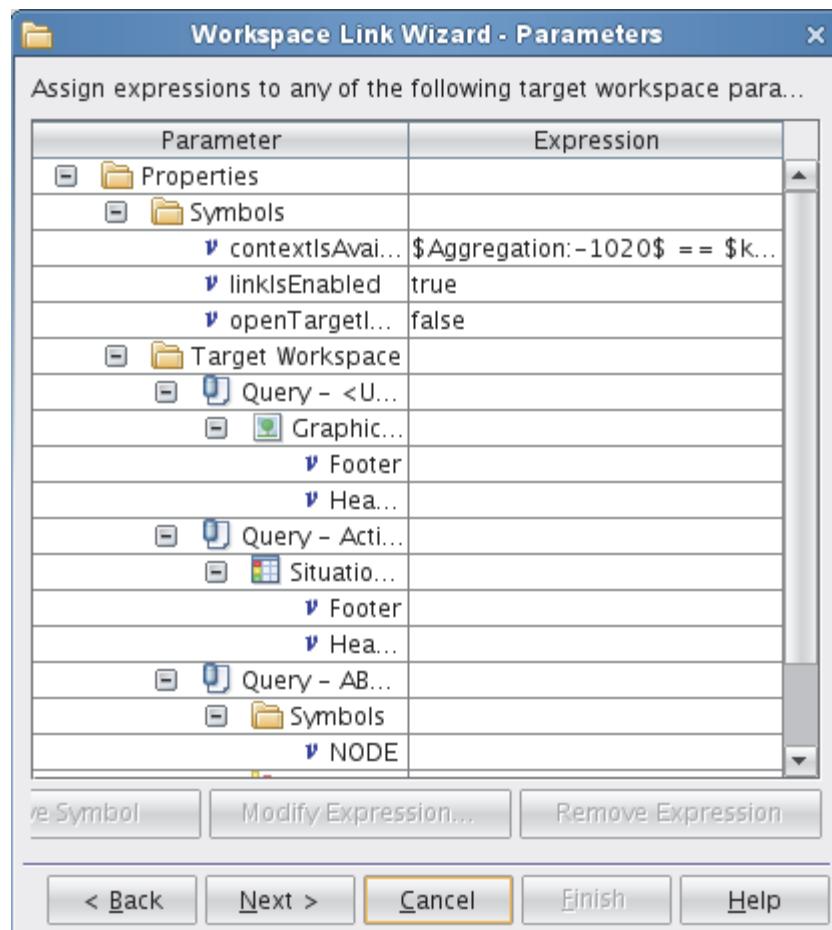
7. Select your target workspace. You can select a workspace in the same Navigator or in a different Navigator.



Note: If you cannot select the correct workspace, use the Navigator View menu to select any other item, then select AnyCorp again.

8. Ensure the selection of **AnyCorp** Navigator as the Navigator view, and highlight the **AnyBank** Navigator item. From the **Workspace** pane, click the **ABK Overview** workspace as your target and click **Next**.

The **Parameters** window opens.



- Because you are creating a simple link, you do not have to modify link parameters. Click **Next** to review the link summary.

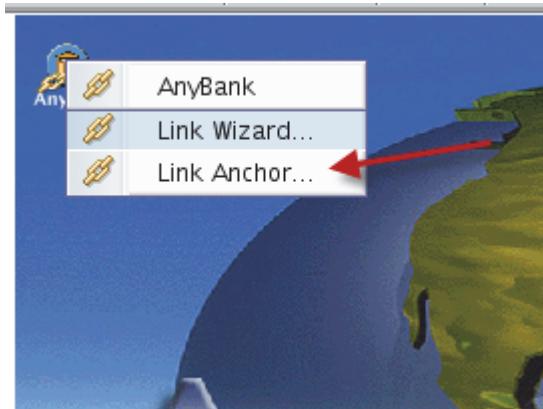


- Click **Finish**. The AnyBank icon displays a link indicator.

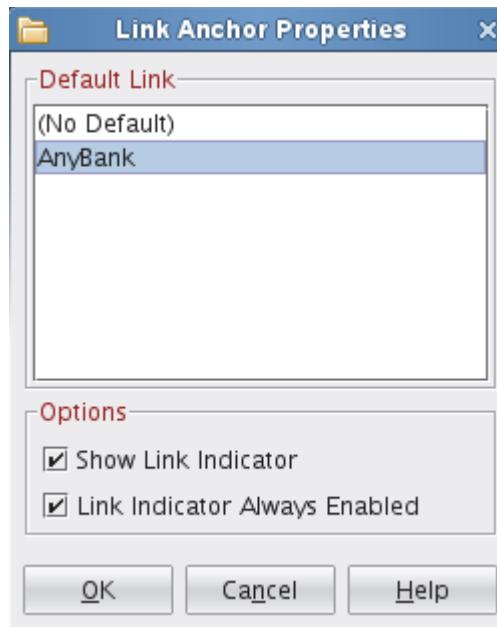
- Save the workspace.

You can assign a default target to a link. This default target is called a Link Anchor. When you click the link icon, you go directly to the workspace identified as the Link Anchor.

- Click the link icon on the **AnyBank** Navigator item, and click **Link Anchor**.



13. Select the **Anybank** link and click **OK**.



You can now issue the link by either left-clicking the graphic view icon or clicking the link from the right-click menu.

14. Right-click the icon and click the **AnyBank** link.

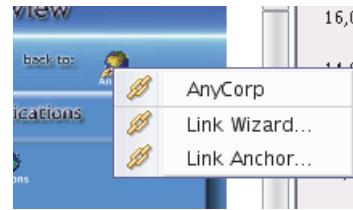
If you did not save the workspace, a prompt opens.



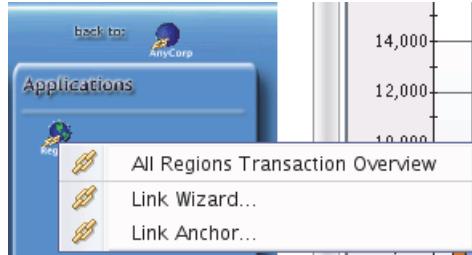
15. Click **Yes** to save your workspace.

Create two more simple links with link anchors originating from the **ABK Overview** workspace, which is associated with the AnyBank Navigator item.

16. Create one link to navigate back to the **AnyCorp** workspace (found on the AnyCorp Navigator item). Assign a default link anchor to AnyCorp. The result looks like the following example.



17. Create another link to navigate from the **Regions** graphic view icon to the **All Regions Transaction Overview** workspace.



Create both of these links on your own and ensure that you can successfully navigate to your targets.



7 Introduction to Dashboard Application Services Hub exercises

These exercises provide experience with the Infrastructure Management Dashboards for Servers that is provided with the IBM Tivoli Monitoring 6.3 installation media. After you learn to navigate the dashboard, you use the Dashboard Application Services Hub and the Tivoli Monitoring connection to build a simple dashboard to monitor available memory.

When you complete these exercises, you can perform the following tasks:

- Start and navigate the Infrastructure Management Dashboards for Servers to view situation event status.
- Drill down into the dashboard to discover details about situation events.
- Create a dashboard page.
- Add widgets to the dashboard page to visualize monitoring metrics.
- Save and test the dashboard page.

Exercise 1. Starting situations to monitor

The dashboard can show historical information about situation attributes. You must be collecting historical data on the 64-bit attribute group sets, and the situation must be monitoring the same attribute groups. Situations with attributes in the superseded (32-bit) groups do not display numeric attributes in the dashboard situation view.

Before starting the dashboard, ensure that you have some situation events to monitor. Two situations, one for Linux and one for Windows, are available but not started. Their operands are set artificially low to force the situations to open.

1. Access the Situation editor from the Linux OS **Disk Usage** Navigator item on VM01. Locate and start situation **Linux_Low_Percent_Space_DASH**.
2. Access the Situation editor from the Windows OS **Memory** Navigator item on VM03. Locate and start situation **NT_Memory_Warning_DASH**.

3. Confirm that both situations are open and that you can see the situation events in the Navigator Physical view.

The screenshot shows the Situation Event Console window. At the top, there are several icons for filtering and searching. Below the header, a message says "Total Events: 2" and "Item Filter: Ent". The main area is a table with columns: Severity, Status, Owner, Name, Display Item, and Source. There are two rows, both marked as Critical and Open. The first row is for "NT_Memory_Warning_DASH" with Source "Primary:VM03:NT". The second row is for "Linux_Low_Percent_Space_DASH" with Source "VM01:LZ".

	Severity	Status	Owner	Name	Display Item	Source
!	Critical	Open		NT_Memory_Warning_DASH		Primary:VM03:NT
!	Critical	Open		Linux_Low_Percent_Space_DASH		VM01:LZ

If the situations do not open immediately, adjust the values to force them to open.

Exercise 2. Starting the dashboard

The Dashboard Application Services Hub (DASH) runs as an instance of WebSphere Application Server. Validate that the instance is running.

1. Open a command prompt on VM03. Change to the WebSphere bin directory and run the serverStatus command for the server instance named server1.

```
cd C:\Program Files\IBM\JazzSM\profile\bin
serverstatus server1
```

2. Respond with these user credentials when prompted:

- User: **smadmin**
- Password: **object00**

Confirm that server1 status is STARTED.

The screenshot shows an Administrator Command Prompt window on Windows. The command entered was "C:\Program Files\IBM\JazzSM\profile\bin>serverstatus server1". The output shows several messages: "ADMU0116I: Tool information is being logged in file C:\Program Files\IBM\JazzSM\profile\logs\server1\serverStatus.log", "ADMU0128I: Starting tool with the JazzSMProfile profile", "ADMU0500I: Retrieving server status for server1", and "ADMU0508I: The Application Server "server1" is STARTED". The last message is circled in red.

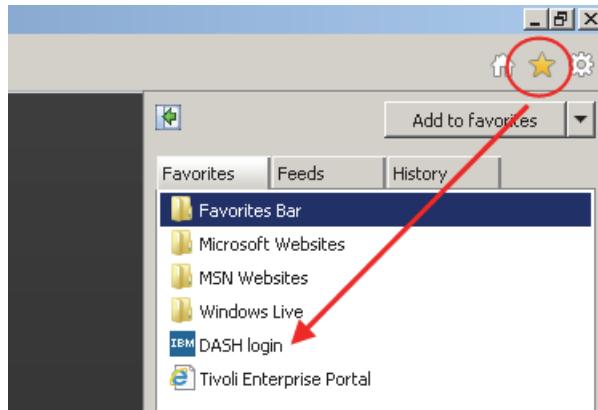
```
Administrator: Command Prompt
Microsoft Windows [Version 6.0.6002]
Copyright <c> 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd C:\Program Files\IBM\JazzSM\profile\bin
C:\Program Files\IBM\JazzSM\profile\bin>serverstatus server1
ADMU0116I: Tool information is being logged in file C:\Program
Files\IBM\JazzSM\profile\logs\server1\serverStatus.log
ADMU0128I: Starting tool with the JazzSMProfile profile
ADMU0500I: Retrieving server status for server1
ADMU0508I: The Application Server "server1" is STARTED
```

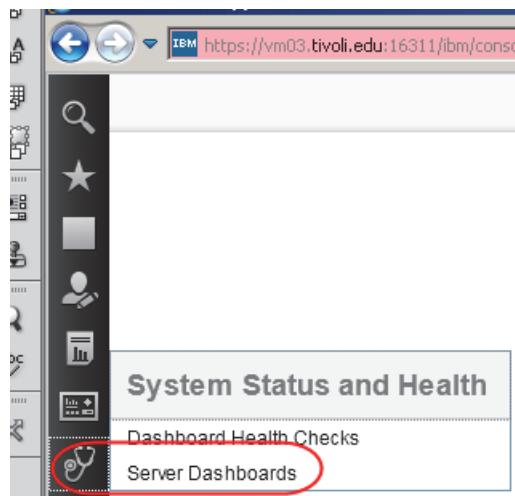
If the status is not STARTED, start the JazzSM profile and wait for the instance to stabilize.

```
Start > All Programs > IBM WebSphere > IBM WebSphere Application
Server V8.5 > Profiles > JazzSMProfile > Start the server
```

3. Start an Internet Explorer browser from the icon in the taskbar. Click the Favorites icon and click **DASH Login**.



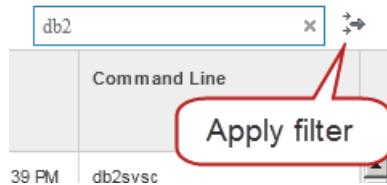
4. Click **Continue to the website** when prompted with a certificate warning.
5. Log in to the dashboard:
 - User name: **smadmin**
 - Password: **object00**
6. Hold the mouse pointer over the System Status and Health icon and click **Server Dashboards**.



The server dashboard opens to the Managed System Groups Overview page.

A screenshot of the 'Managed System Groups' overview page. The top navigation bar has tabs for 'Server Dashboards' and 'Memory Monitor'. The main content area features a 'Managed System Groups' section with a 'Managed System Groups' icon and the text 'Managed System Groups'. Below this is an 'Overview' section with four status cards: 'LINUX_SYSTEM' (red, 5 errors), 'Linux_web_s...' (red, 5 errors), 'NT_SYSTEM' (yellow, 1 warning), and 'AGGREGATIO...' (green). To the left, there are icons for 'Managed System Groups' (server rack) and 'Situation Events' (flag).

7. Click the **Switch to Scorecard** link on the far right side of the window. The scorecard presents a different view of situation status across the enterprise.
8. Click **Switch to Carousel** to return to the original view.
9. Scroll through the three bar chart views in the bottom half of the page to see the options:
 - Situation Event Count by Severity
 - Situation Event Count by Managed System Group
 - Situation Event Count by Managed System Type
10. Hold the mouse pointer over the bars to see the number of situations that are represented by each bar.
11. Explore the dashboard by clicking the ***LINUX_SYSTEM** icon that represents all of the running Linux systems, VM01 and VM02. Scroll through the three bar charts:
 - Situation Event Count by Severity
 - Most Critical Servers
 - Situation Event Count by Managed System
12. Click the **VM01:LZ** Linux server to go to the Overview page.
13. Scroll through the bar charts to observe the available information.
14. Click the **Process** link to see details about the top processes.
15. Use the filter to limit the items in the Process Table to those processes with a certain character string. Set the Process Table view to return all rows by clicking **All** in the lower right corner. Enter **db2** in the filter field and click the **Apply filter** icon.



The list of processes is limited to those having db2 somewhere in process command name.

16. Click the **X** in the filter field to clear the filter and return all processes.
17. Click the Overview link to return to the overview page. The list of situation events opens.
18. Click the **Linux_Low_Percent_Space_DASH** situation name. The situation detail page opens, showing the value of the monitored attributes over the 2 hours before the event occurrence. You can choose to remove the situation value on the plot chart by clearing the **Show Threshold** check box.

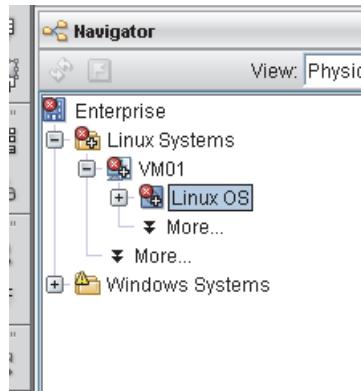
19. Return to the VM01:LZ page by clicking that link in the link hierarchy.



The server dashboard can open the Tivoli Enterprise Portal web client in context from this page.

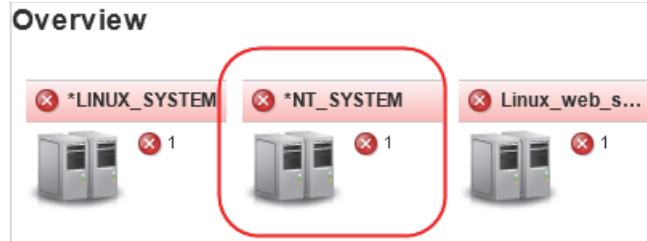
20. Click **Actions** and **Launch to TEP**. Log in to the portal client as **sysadmin** and no password.

The portal client opens in a new browser window (tab) with the Navigator Physical view positioned on the VM01 managed system and Linux OS.



Note: If single sign on (SSO) was configured in the lab environment, and you logged in to the dashboard with a user ID and password that was valid in IBM Tivoli Monitoring, the browser client would log directly in to the workspace without prompting you for credentials.

21. If time permits, explore the *NT_SYSTEM managed system group in the dashboard to observe the information available.

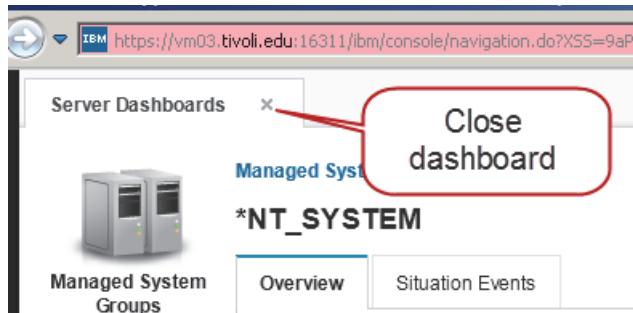


There is an open situation, **NT_Memory_Warning_DASH**, that you can use to see historical data. You can also start the Tivoli Enterprise Portal client from the Primary:VM03:NT page and watch it open to the Windows OS Navigator Physical view on VM03.

22. When you finish with this exercise, stop the two situations that you started earlier.

- Linux_Low_Percent_Space_DASH
- NT_Memory_Warning_DASH

23. Close the server dashboard by clicking the X in the upper left portion of the page.

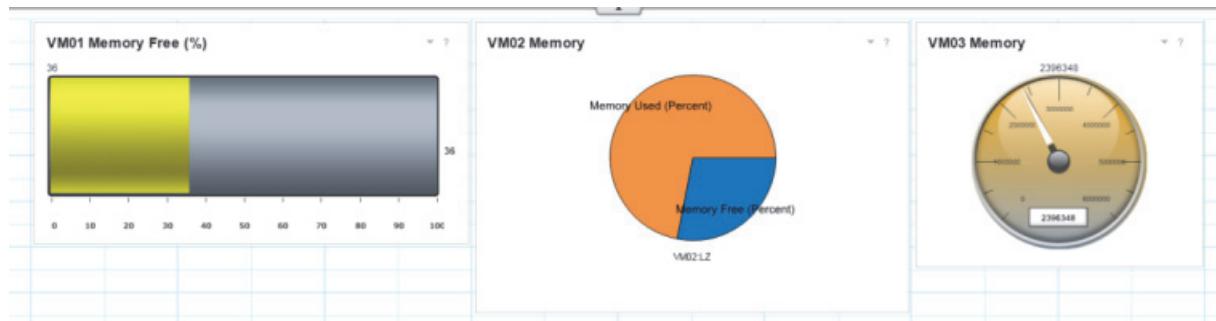


Exercise 3. Creating a dashboard

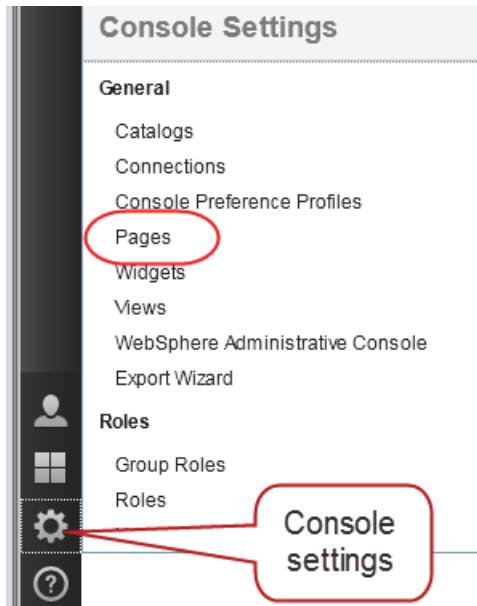
This exercise shows you how to create an original dashboard, or page. The exercise uses three types of widgets to show memory metrics on three servers. The choice of widget types is arbitrary and is intended to show how different widgets are configured and customized.

Create the layout of the dashboard first. Then, customize each widget.

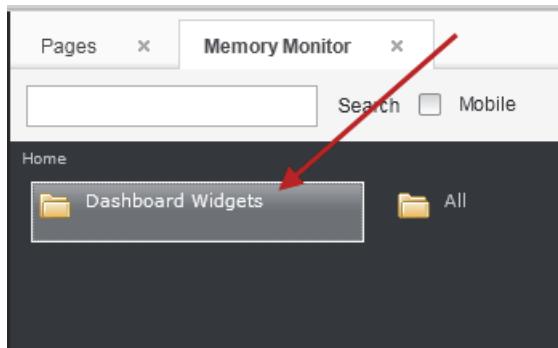
The completed dashboard resembles this example, with a volume bar for VM01 memory, a pie chart for VM02 memory, and an analog gauge for VM03 memory.



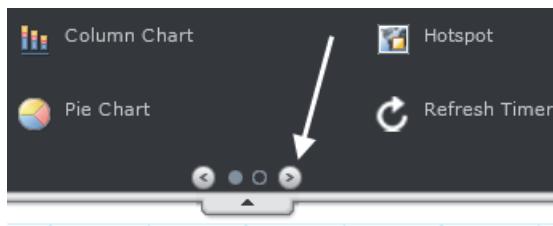
1. Before you create the new page, create a folder by clicking **Console Settings > Pages**.



2. The **Pages** tab opens. Click **New Folder**. Name the folder **Exercises** and click **Save**.
3. You are still on the Pages tab. Click **New Page**. Name the page **Memory Monitor** and click **Location**. Your Memory Monitor page is placed in the Default folder. Click the Memory Monitor page and drag it down the list of folders until you can drop it on the **Exercises** folder. Click **OK** for the folder selection and **OK** again on Page Settings.
4. There are two sets of widgets you can use to build a page. Click the **Dashboard Widgets** icon.



5. Begin building the dashboard with the volume bar for VM01 memory. Depending on the monitor resolution, you might have to scroll to the right by clicking the right-pointing arrow one time.



6. Click the Volume Bar icon and drag it to the left side of the palette near the top.



7. Read about the volume bar widget by clicking the question mark in the upper right corner. Help opens in a new browser window. Close the help browser after reading the procedures.

<https://vm03.tivoli.edu:16311/?noframes=true> - Editing a volume bar widget - Windows Internet Explorer

Editing a volume bar widget

This dashboard widget visually presents details for a single value in a simple volume bar type visualization.

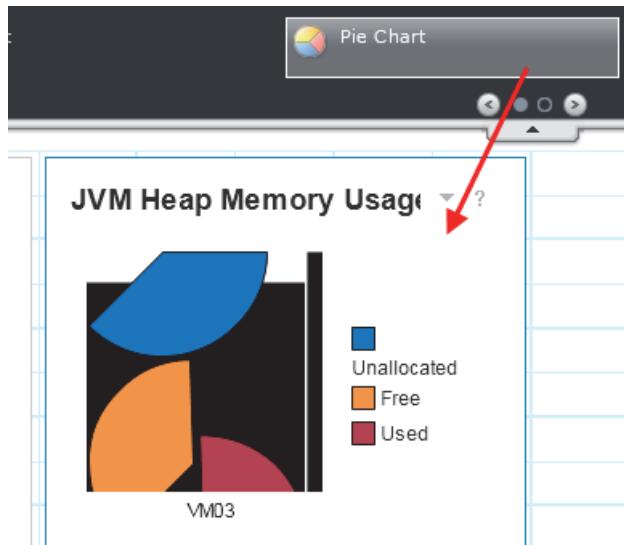
Before you begin

Ensure that the dashboard that contains the widget is in edit mode. In edit mode, you can add, edit, and remove widgets. When you create a new dashboard, it is automatically in edit mode. For an existing dashboard, to enter edit mode, click and select **Edit Page**.

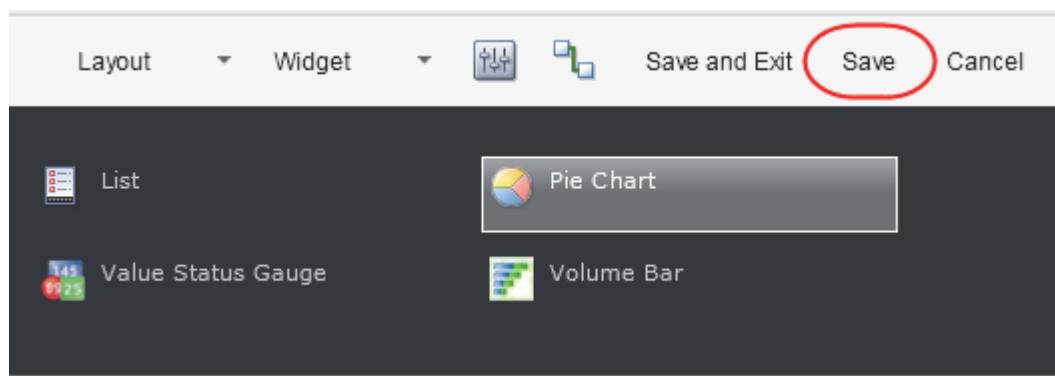
Procedure

- To edit data provider settings for the widget, select the widget and in its title bar click and select **Edit**, or from the **Widget** menu in the dashboard menu bar, select **Edit**. A configuration page is displayed, where you can search for a data provider.
- Enter a search string and click **Search** to return a list of data sets that include the specified search string in their name. To return a list of all data sets available to the widget, leave the search field empty and click **Search**.

8. Place a pie chart in the center of the dashboard for VM02 memory. Scroll back to the left if necessary. Locate the pie chart icon and drag it to the middle of the palette.

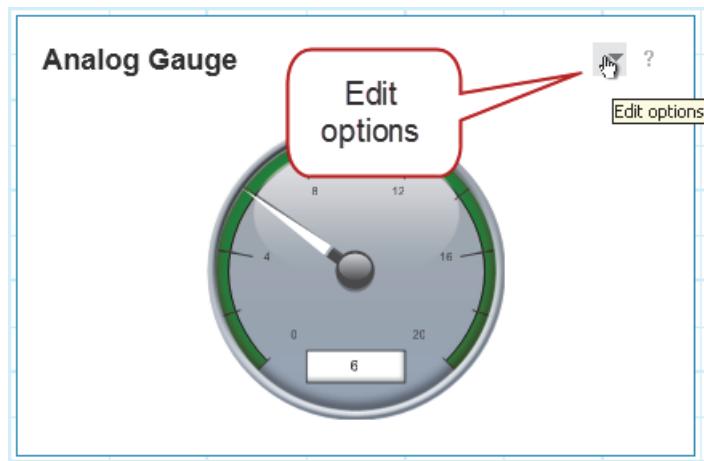


9. Finish the layout by dragging an Analog Gauge icon to the right side of the palette.
10. Save the work in progress by clicking **Save** in the toolbar.

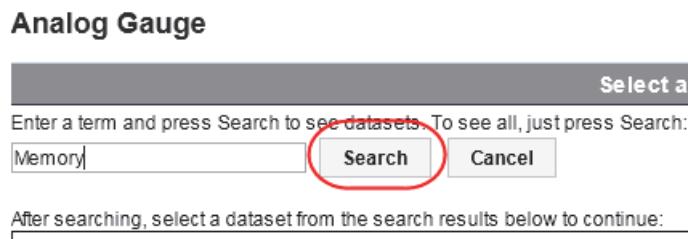


Each type of widget has different settings and controls. Customize each widget, and save your work after each one.

11. Click the analog gauge. Edit the widget settings by clicking the **Edit Options** icon, and clicking **Edit**.

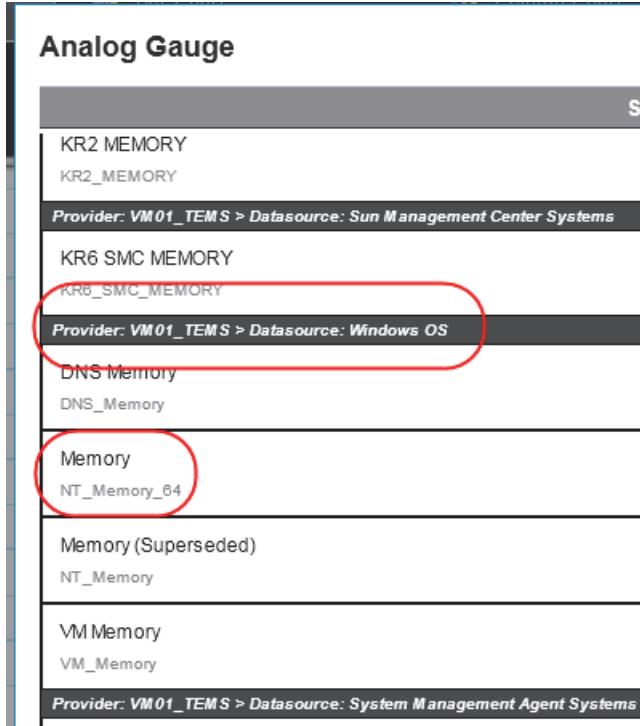


12. Select a dataset, or attribute group name. Use the Windows Memory attribute group for this widget. Enter **Memory** in the field and click **Search**.



The search returns all attribute groups with *Memory* in their name.

13. Scroll to near the bottom of the list and locate the Windows OS provider. Click **Memory (NT_Memory_64)** to select it.



The Required Settings section opens.

14. Click the arrow next to None and select Available kBytes.

This screenshot shows the 'Map Visualization Attributes to Dataset Columns' section. It includes a dropdown menu labeled 'Value' with the option 'Available kBytes' selected, which is highlighted with a red oval. Below the dropdown, there is a note: 'Numeric value/Status expected'.

15. Click **Optional Settings** to expand it. Enter **VM03 Memory** in the **Title** field.

16. Select **Available kBytes** for the Label above Gauge. Leave the leading edge label empty.

You can provide values that cause the gauge to change color, somewhat like situation states.
The VM03 server has 6 GB of memory allocated.

17. Enter the following values to set up the gauge thresholds:

Label	Value
Informational	5,000,000
Normal	4,000,000
Minor	3,000,000

Label	Value
Major	2,000,000
Critical	1,000,000
Fatal	250,000

You can control the tick marks on the gauge also.

18. Enter these values:

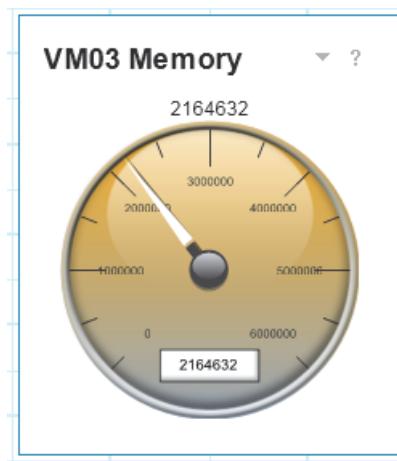
Label	Value
Minimum Value	0
Maximum Value	6,000,000
Major Ticks Separation	1,000,000
Minor Ticks Separation	500,000

19. Enter the managed system name as **Primary:VM03:NT**.

20. Do not add a time filter. Set the Refresh Every field to **30 seconds**.

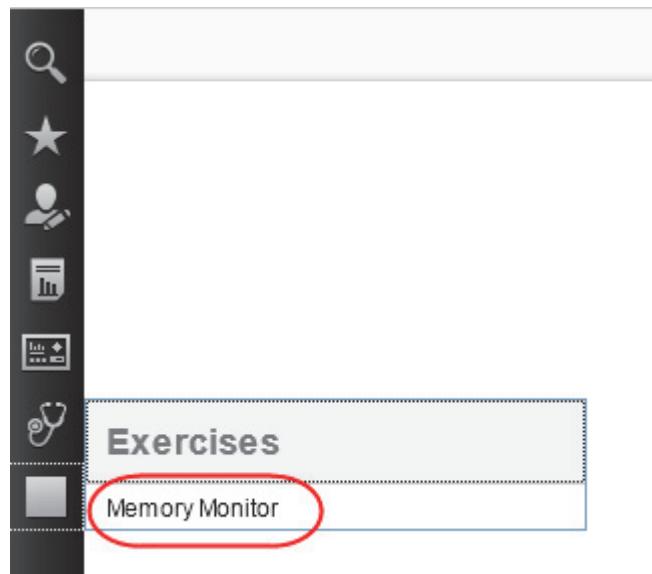
21. Click **OK** to close the configuration window.

22. Hold the mouse pointer over the right border of the widget. When the mouse becomes a double-ended arrow, drag the right border as far to the left as you can without creating scroll bars. Slowly move the mouse pointer outside the frame and click the palette to release the widget. The widget snaps to the nearest grid line.

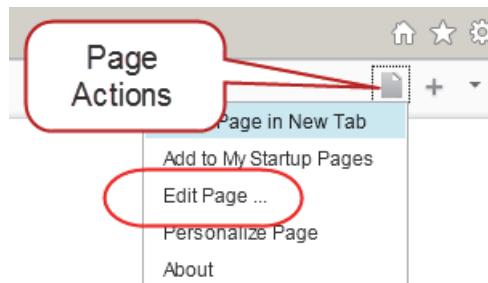


23. Test the dashboard by clicking **Save and Exit** in the menu bar. Close the page by clicking the **X** on the tab.

24. Open the dashboard by holding the mouse pointer over the Exercises folder icon in the Navigator view and clicking Memory Monitor.



25. Customize the next widget. Click the **Page Actions** icon in the upper right and click **Edit Page**.

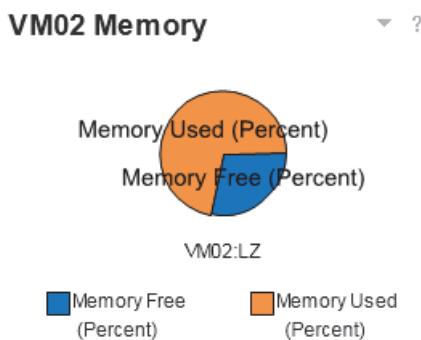


26. Click the pie chart in the middle of the palette. Click the **Edit Options** icon and click **Edit**.
27. Search for **VM Stats**, which is where you find Linux memory attributes.
28. Select **Linux VM Stats (KLZ_VM_Stats)**. That group is the 64-bit version of the attributes.

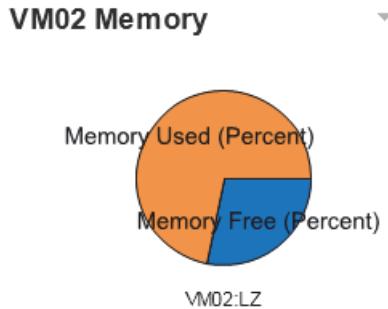
A screenshot of the DASH search interface. At the top, there's a search bar with the placeholder 'Enter a term and press Search to see datasets. To...' and a 'Search' button. Below the search bar, the text 'After searching, select a dataset from the search results' is displayed. A list of datasets is shown, with 'Provider: VM01_TEMS > Datasource: Linux OS' at the top. Underneath, there are two items: 'Linux VM Stats' and 'KLZ_VM_Stats', which are circled in red. Below these, there are two other items: 'Linux VM Stats (Superseded)' and 'Linux_VM_Stats'.

The Charting window opens.

29. Enter **VM02 Memory** as the Name.
30. Use the list to select **System Name** as the pie label.
31. Select **Memory Free (Percent)** as the first pie slice. Click the plus sign (+) to add another slice.
32. Select **Memory Used (Percent)** as the second pie slice.
33. Expand the **Settings** section.
34. Set the **Legend** to **Bottom**. Select the check box labeled **Automatically update the value**.
35. Enter the managed system name as **VM02:LZ**. Do not use a time filter. Set the **Refresh Every** field to 30 seconds.
36. Click **OK** to see the results.



37. Having the legend at the bottom causes excess clutter. Go back into the properties and set **Legend to None**. The widget now presents a neater appearance.



38. Save your work. If you click **Save and Exit**, you leave the edit session. Refer to [Step 25](#) on page 159 for how to enter the edit session.

39. Edit the Volume Bar widget. Search for **VM Stats** again and select it.

Enter a term and press Search to see datasets. To

After searching, select a dataset from the search results

Provider: VM01_TEMS > Datasource: Linux OS

Linux VM Stats
KLZ_VM_Stats

Linux VM Stats (Superseded)
Linux_VM_Stats

40. Select **Total Memory Free (Percent)** as the Value. Open the **Optional Settings**.

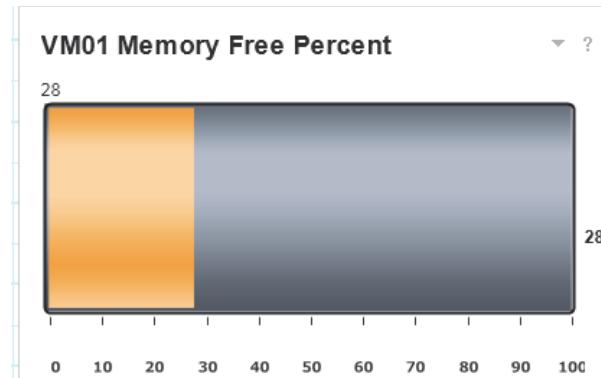
41. Enter **VM01 Memory Free Percent** as the Title. Leave the two label fields set to **None**.

42. Set the thresholds to these values:

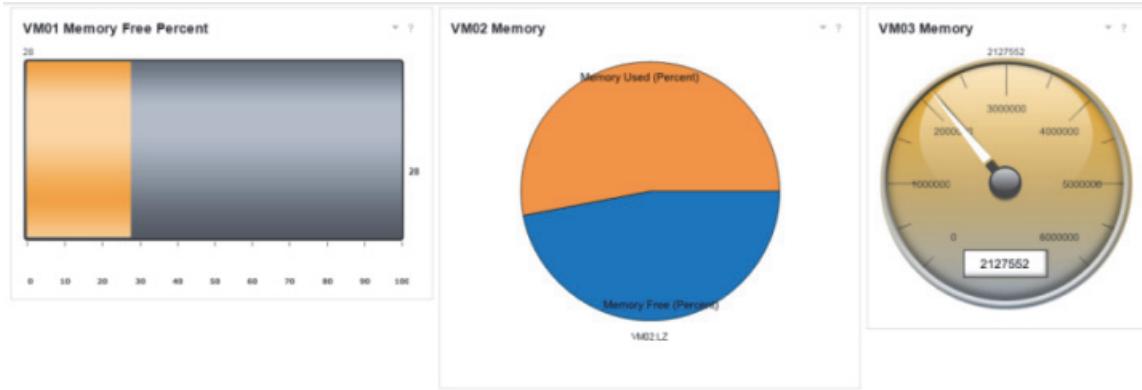
Label	Value
Informational	50
Normal	40
Minor	30
Major	20
Critical	10
Fatal	5
Minimum Value	0
Maximum Value	100
Major Ticks Separation	10

43. Enter the **Managed System** name as **VM01:LZ**. Set the refresh rate to 30 seconds.

44. Click **OK** to view the results.



45. Resize and move the three widgets so that the dashboard is clean and easy to read. Make each widget just large enough to avoid having scroll bars.



46. When you finished sizing the dashboard to your satisfaction, click **Save and Exit**.



8 Historical data collection exercises

Exercise 1. Configuring historical data collection

In this exercise, configure several Linux OS attribute groups for historical data collection, and distribute the settings to VM01.

Storing historical data

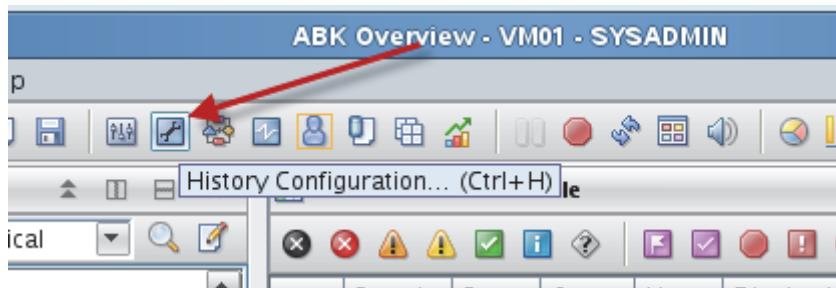
You can specify whether to store historical data at the agent, or at the Tivoli Enterprise Monitoring Server to which the agent connects. The stored data in those locations, available for up to 24 hours, is called short-term history. You can also specify when the data is transferred to the Tivoli Data Warehouse.

1. Before you begin, make sure that the Warehouse Proxy agent is running on VM01 by checking its status in **Manage Tivoli Monitoring Services**.

Action	Service	Version	Platform	Configured	Status
	IBM Eclipse Help Server	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Monitoring Agent for ABK Transacti...	V06.30.00.00	Linux Intel R2.6 ...	Yes	Started
	Monitoring Agent for Linux OS	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Summarization and Pruning Agent	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Tivoli Enterprise Monitoring Autom...	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Tivoli Enterprise Monitoring Server	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Tivoli Enterprise Portal Desktop Cli...	V06.30.01.00	Linux Intel R2.6 ...	Yes	Stopped
	Tivoli Enterprise Portal Server	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started
	Tivoli Log File Agent	V06.30.00.00	Linux Intel R2.6 ...	Yes	Started
	Warehouse Proxy	V06.30.01.00	Linux Intel R2.6 ...	Yes	Started

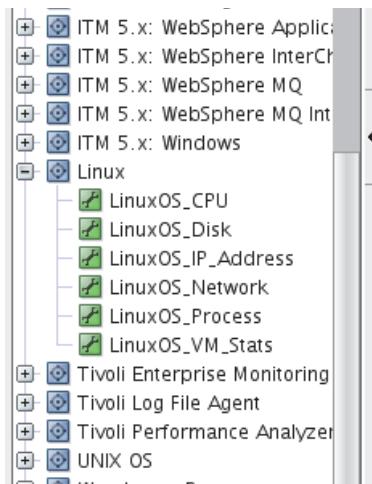
Exercise 1. Configuring historical data collection

2. To configure historical data collection, click the **History Configuration** icon on the portal client toolbar or press Ctrl+H.



The History Collection Configuration editor opens.

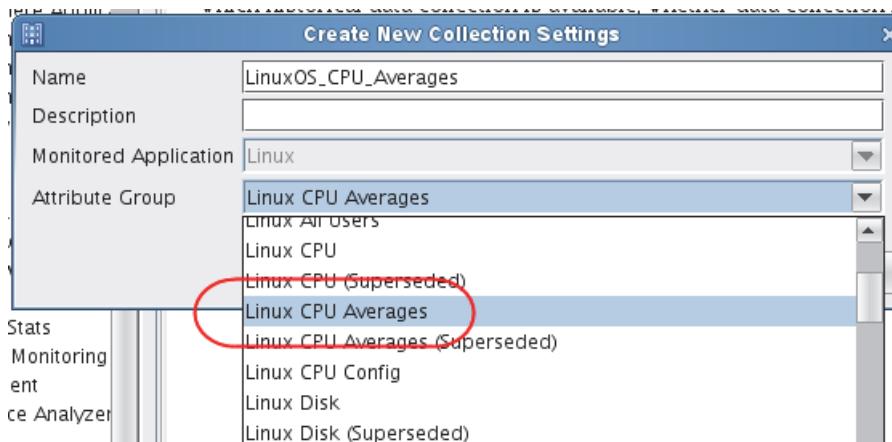
3. Click **Linux** in the list of Monitored Applications, and expand the tree to see existing historical collection settings.



Note: The existing collection settings are collecting historical data for Tivoli Common Reporting.

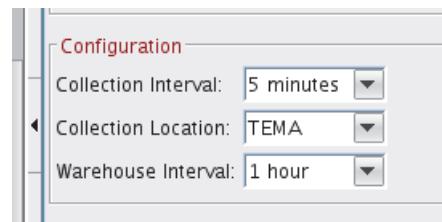
4. Right-click **Linux** and click **Create new collection setting**.

5. Name the setting **LinuxOS_CPU_Averages**. Select **Linux CPU Averages** from the list in the Attribute Group field. Click **OK**.



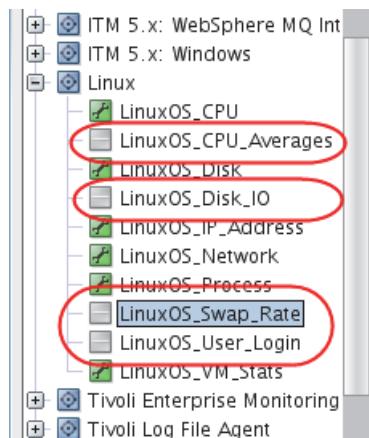
Note: If you click the History editor window behind the Create New window, the Create New window positions behind the History editor window. Drag the History editor window to the side to uncover the Create New window.

6. Set the collection interval to **5 minutes** and the warehouse interval to **1 hour**.



7. Click **Apply** to save the new setting.
8. Repeat [Step 4](#) through [Step 7](#) for these Linux attribute groups. Use the same naming convention: **LinuxOS_<attribute group name>**
 - **LinuxOS_Disk_IO**
 - **LinuxOS_User_Login**
 - **LinuxOS_Swap_Rate**

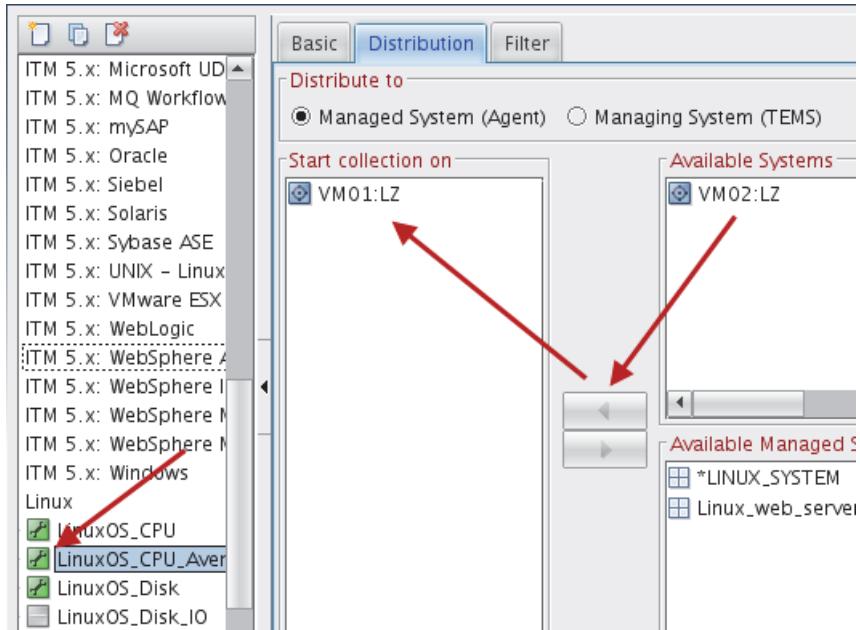
Click **Apply** after creating each group of settings to save the changes. Do not click **OK**.



After you create the history collection settings, distribute them to the managed systems where they are going to run.

9. Click the **LinuxOS_CPU_Averages** setting that you created and click the **Distribution** tab.
10. Click **VM01:LZ** in the **Available Systems** field, and move it to the **Start Collection On** field.

Click **Apply**.



Observe that the icon for this historical collection definition changes to green. The green icon indicates that the setting was distributed and collection is running.

11. Repeat the distribution process for the other three collection settings you created.

12. Click the **Linux** item in the **Monitored Application** list again. Click **Linux CPU Averages** in the **Group** list. The **Configuration Controls** section of the editor becomes active.

The screenshot shows a configuration interface for selecting attribute groups. At the top, it says "Select Attribute Group(s)". Below is a table with columns: Group, Prune Detailed, and Summarize Hourly. The table lists several groups: Alerts Table, Configuration Information, Linux All Users, Linux CPU, Linux CPU (Superseded), Linux CPU Averages, and Linux CPU Averages (Superseded). The "Linux CPU Averages" row is highlighted with a blue selection bar and has a red circle drawn around it. Below the table is a section titled "Configuration Controls". It has two main sections: "Summarization" and "Pruning". The "Summarization" section contains checkboxes for Yearly, Quarterly, Monthly, Weekly, Daily, and Hourly. The "Pruning" section contains checkboxes for Yearly, Quarterly, Monthly, Weekly, Daily, Hourly, and Detailed data. Each pruning entry includes a "keep" field with a dropdown menu for selecting time units (Years, Months, Days).

13. Scroll down, clicking the other three groups you configured for collection, while holding the **Ctrl** key to select multiple rows.

- **Linux Disk IO**
- **Linux User Login**
- **Linux Swap Rate**

14. Check all of the boxes in the **Summarization** and **Pruning** columns.

15. Set the Pruning intervals as follows:

- **Yearly:** 5 years
- **Quarterly:** 5 years
- **Monthly:** 6 months
- **Weekly:** 6 months
- **Daily:** 1 month
- **Hourly:** 7 days

- **Detailed data:** 3 days



16. Click **Apply** to activate the configuration settings.



Hint: You can bring all of the configured groups to the top of the list by clicking twice in the setting column headers.

A table listing historical distribution groups. The columns are Group, Prune Detailed, Summarize Hourly, and a timestamp. The 'Group' column header is highlighted with a red box, and the text 'Sorted ascending' is overlaid on it. The table rows show various Linux metrics like CPU, Disk, User Login, Swap Rate, and IP Address, each with its pruning and summarization settings.

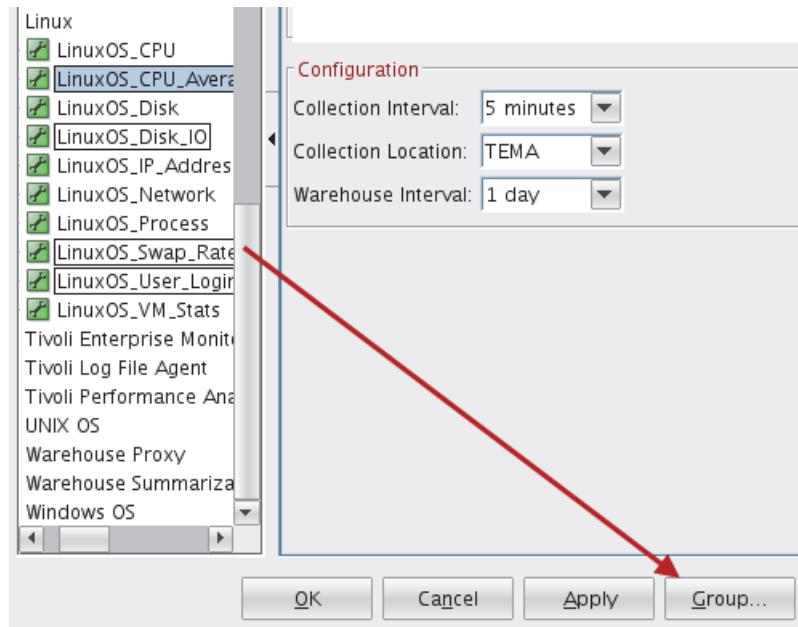
Group	Prune Detailed	Summarize Hourly	
Linux CPU Averages	3 Days	On	7/1/2013 10:45 AM
Linux Disk IO	3 Days	On	7/1/2013 10:45 AM
Linux User Login	3 Days	On	7/1/2013 10:45 AM
Linux Swap Rate	3 Days	On	7/1/2013 10:45 AM
Linux IP Address	3 Days	On	7/1/2013 10:45 AM
Linux CPU	12 Days	On	12/1/2013 10:45 AM
Linux Disk	12 Days	On	12/1/2013 10:45 AM
Linux Network	12 Days	On	12/1/2013 10:45 AM
Linux Process	12 Days	On	12/1/2013 10:45 AM

Exercise 2. Creating a historical distribution group

Distributing individual settings to managed systems is tedious and time consuming. You can group the settings to make distribution management easier.

1. Click the **LinuxOS_CPU_Averages** setting. Hold the **Ctrl** key and click the other three settings.
 - **LinuxOS_Disk IO**
 - **LinuxOS_User Login**
 - **LinuxOS_Swap Rate**

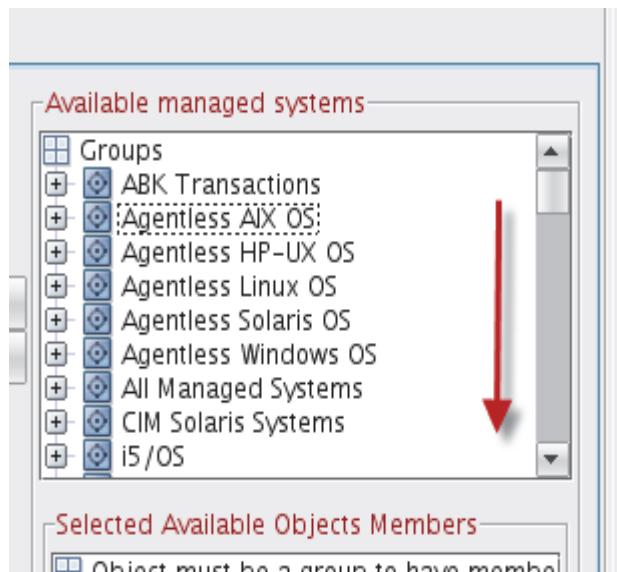
2. Click **Group** next to the **Apply** button.



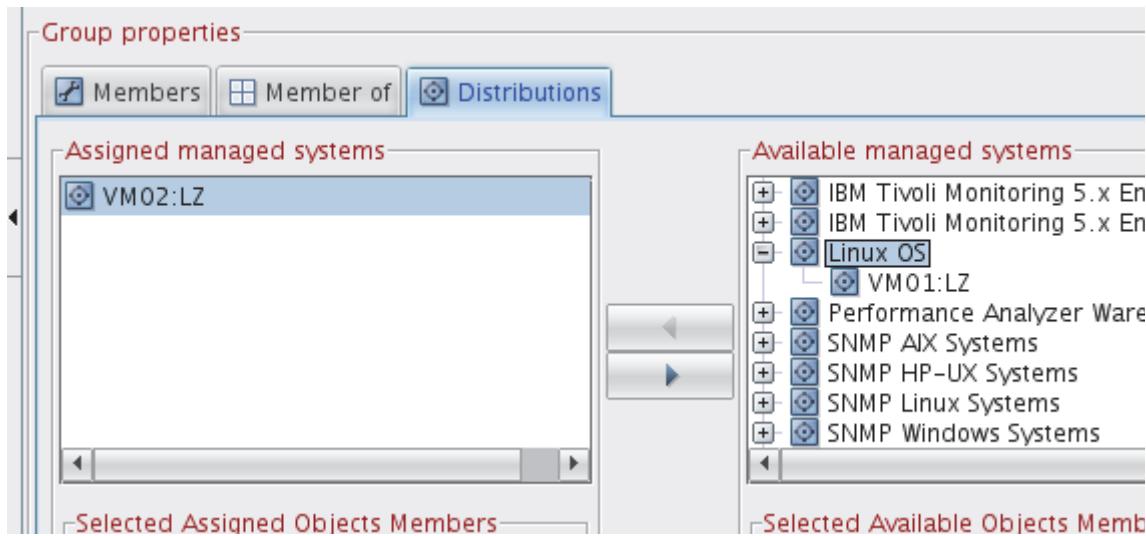
3. Leave the **Create a new object group** radio button selected and click **OK**. Name the group **Linux OS settings**. Click **OK**.

The Object Group editor opens.

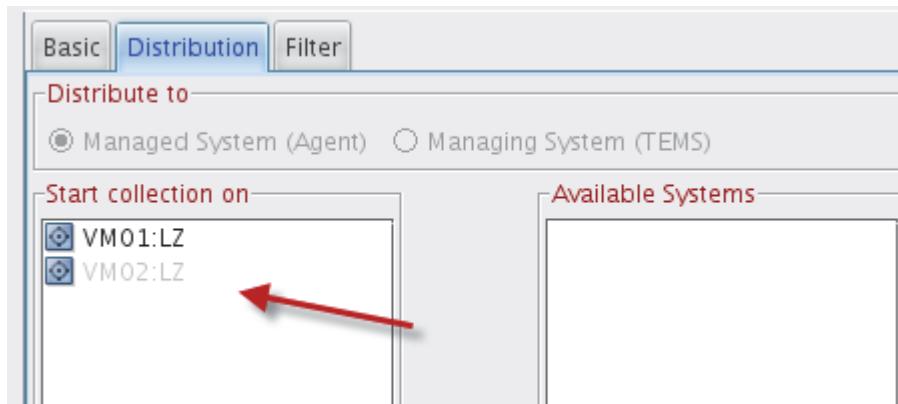
4. Click the **Distributions** tab. Scroll past **Groups** in the **Available managed systems** window until you find **Managed systems**.



- Find and expand **Linux OS** in the list of available managed systems. Click **VM02:LZ** and move it to the **Assigned managed systems** list. Click **OK** to return to the history configuration window.



- Click the **Distribution** tab of one of your Linux OS settings and observe that it is distributed to **VM01:LZ** from the previous distribution and to VM02:LZ as a group. **VM02:LZ** is not available for selection or changing.

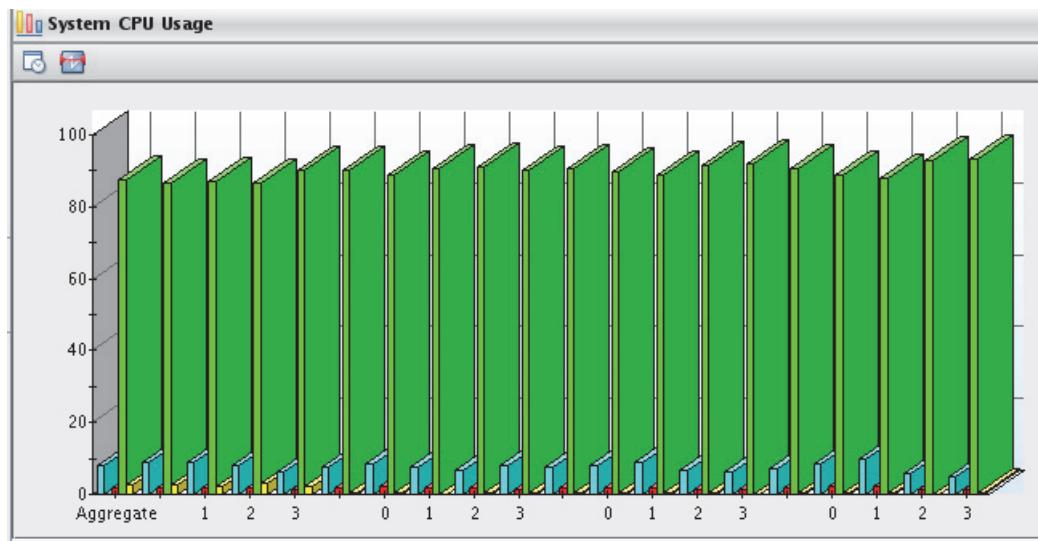


Use the Object Group editor to manage collection settings that are distributed to groups.

- Click **OK** to close the History editor.
- Open the default workspace for the **Linux OS** Navigator item for **VM01**. Locate the **System CPU Usage** view.

If the historical configuration and distribution are correct, the **Specify Time Span for Query** icon is in the upper left corner of the view.

9. Click the icon and select **Last one hour** and click **OK**. There is one set of bars (attributes) for each collection interval.



Note: It takes a few minutes for your view to look like the example.

Exercise 3. Configuring historical data collection for an application

You can collect historical data from an application by using the same procedure as for the OS agent. This exercise configures historical data collection for views on the **Regions** workspace in the AnyBank application.

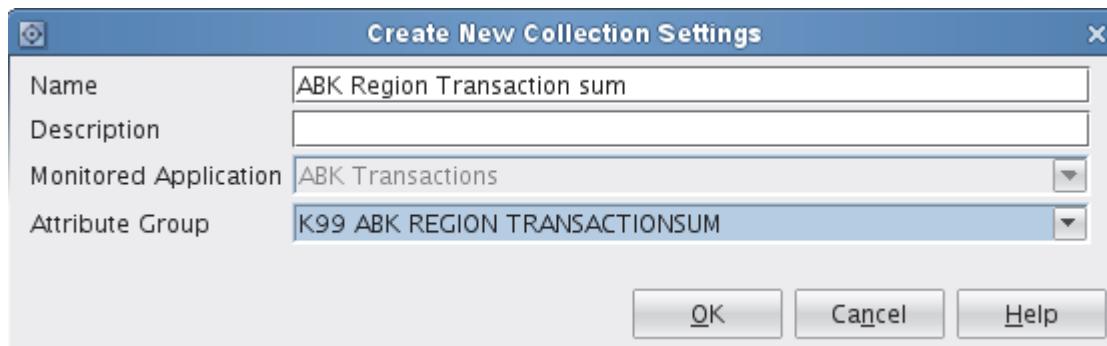
1. Open the History Configuration editor.
2. In the **Monitored Applications** list, select **ABK Transactions**.

This action populates the list of available attribute groups that you can configure for collecting historical data.

- Right-click **ABK Transactions** and click **Create new collection setting**.



- Name the setting **ABK Region Transaction Sum**. Select **K99 ABK REGION TRANSACTIONSUM** from the Attribute Group list. Click **OK**.

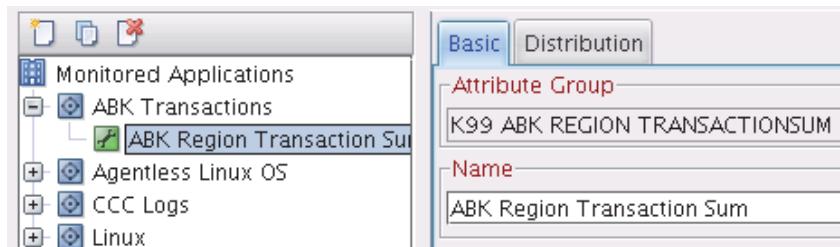


- Set the collection parameters:

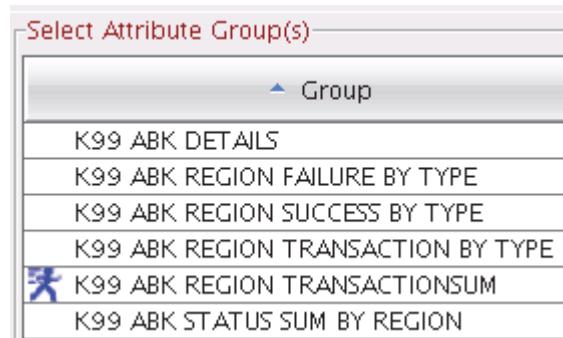
- Collection Interval:** 1 minute
- Collection location:** TEMA
- Warehouse interval:** 15 minutes

Note: The Collection and Warehouse Intervals are artificially low for the lab environment. Do not run collection frequently except to troubleshoot a problem.

- Click the **Distribution** tab and distribute the setting to **VM01:99** and click **Apply**. This action starts the collection immediately. The icon turns green, indicating that collection are distributed.



7. In the **Monitored Applications** list, click **ABK Transactions**. The K99 ABK REGION TRANSACTIONSUM group shows the running person icon.



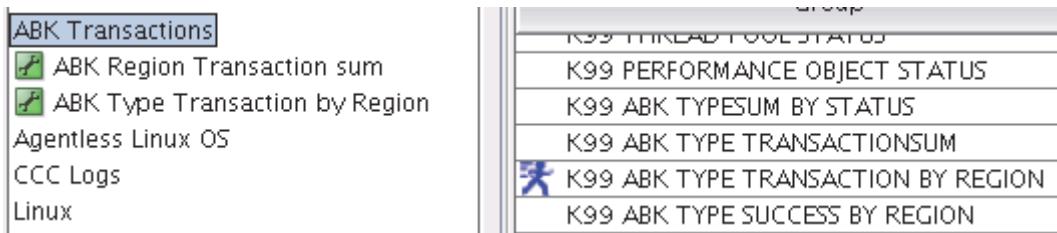
8. In the **Select Attribute Groups** window, click **K99 ABK REGION TRANSACTIONSUM**.
 9. Select Monthly, Weekly, Daily, and Hourly summarization. Select the same boxes for the pruning settings, plus Detailed data, and enter reasonable settings for each.

Select Attribute Group(s)		
▲ Group	Prune Detailed	Summar Hourly
K99 ABK DETAILS		
K99 ABK REGION FAILURE BY TYPE		
K99 ABK REGION SUCCESS BY TYPE		
K99 ABK REGION TRANSACTION BY TYPE		
K99 ABK REGION TRANSACTIONSUM		
K99 ABK STATUS SUM BY REGION		
K99 ABK TYPE FAILURE BY REGION		
K99 ABK TYPE SUCCESS BY REGION		
K99 ABK TYPE TRANSACTION BY REGION		
K99 ABK TYPE TRANSACTIONSUM		
K99 ABK TYPESUM BY STATUS		
K99 PERFORMANCE OBJECT STATUS		
K99 THREAD POOL STATUS		

Configuration Controls			
Summarization	Pruning		
<input type="checkbox"/> Yearly	<input type="checkbox"/> Yearly	keep <input type="text" value=""/>	Years <input type="button" value="▼"/>
<input type="checkbox"/> Quarterly	<input type="checkbox"/> Quarterly	keep <input type="text" value=""/>	Years <input type="button" value="▼"/>
<input checked="" type="checkbox"/> Monthly	<input checked="" type="checkbox"/> Monthly	keep <input type="text" value="6"/>	Months <input type="button" value="▼"/>
<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/> Weekly	keep <input type="text" value="6"/>	Months <input type="button" value="▼"/>
<input checked="" type="checkbox"/> Daily	<input checked="" type="checkbox"/> Daily	keep <input type="text" value="10"/>	Days <input type="button" value="▼"/>
<input checked="" type="checkbox"/> Hourly	<input checked="" type="checkbox"/> Hourly	keep <input type="text" value="5"/>	Days <input type="button" value="▼"/>
	<input checked="" type="checkbox"/> Detailed data	keep <input type="text" value="5"/>	Days <input type="button" value="▼"/>

10. Click **Apply** to save the changes.

11. Repeat [Step 3](#) through [Step 10](#) for the **K99 ABK TYPE TRANSACTION BY REGION** attribute group.



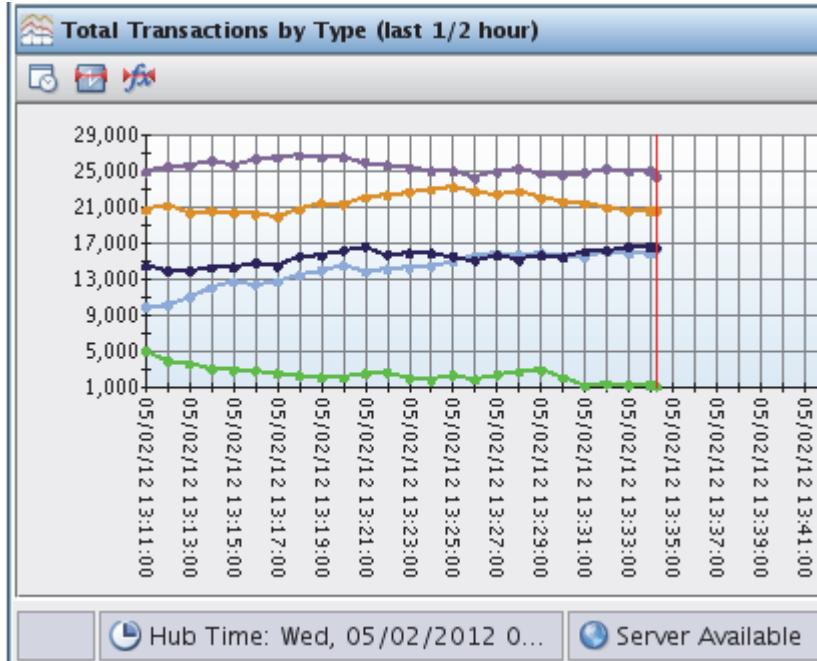
12. Close the Historical Configuration editor and test your results.

Plot chart views show only the latest data sample when the workspace is opened, but you can initialize them with historical data.



Important: Wait 2 or 3 minutes for collection to occur before performing the next step.

13. Select the **Regions** Navigator item (under **AnyCorp > AnyBank**). Set the time span for the **Total Transactions by Type** view to **Real time plus last 1 hours**. Your view looks like this example.

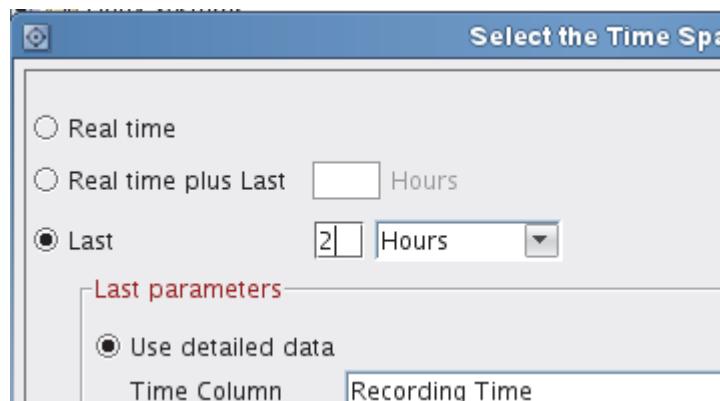


14. Open the view properties and set the view title to **Total Transactions by Type (last hour)** to reflect your changes.

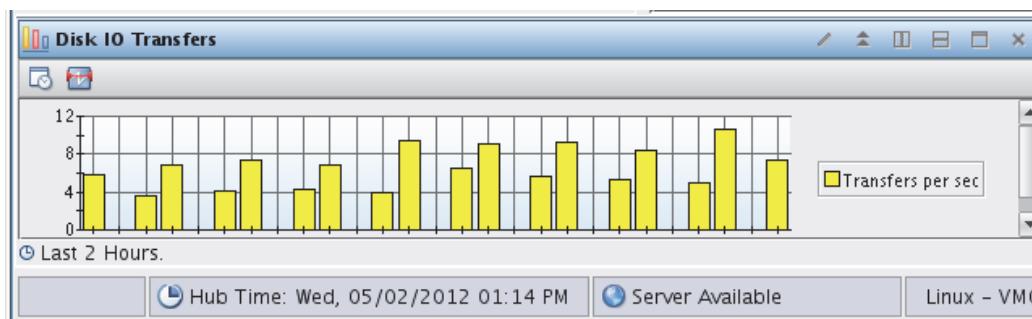
Exercise 4. Viewing collected historical data

Any view that uses attributes that are being collected can show historical data. If the **Select time span for query** icon is available, that view can show historical data.

1. Open the **Linux OS** workspace on VM01. Click the time span icon in the **Disk IO Transfers** view.
2. Click the **Last** button and enter **2** in the hours field. Click **OK** to close the time span window.

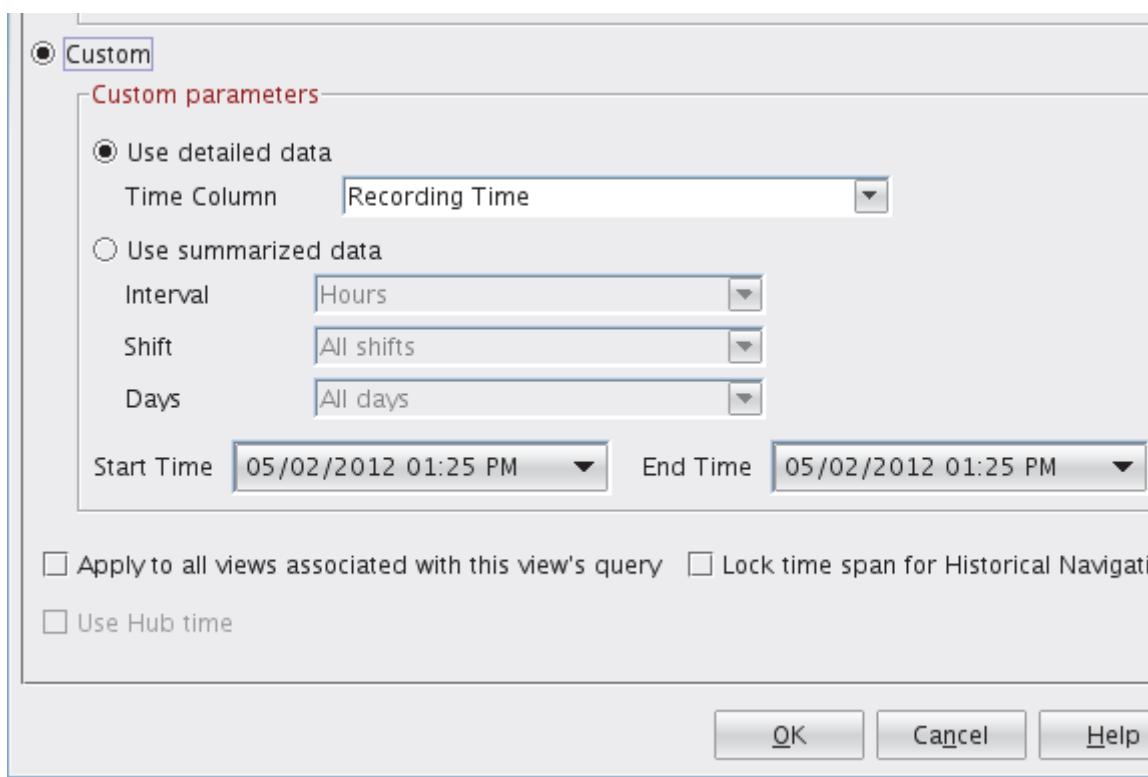


Each collection interval has a set of bars.



Assume that you want to see only the past 30 minutes of data. The smallest interval that you can set with **Last** or **Real time plus last** is 1 hour. You can set a custom time span for just the period you want to see.

3. Open the time span window again and click **Custom**. Click the **Start Time** field to adjust the time.



That action opens a calendar window. The start and end times vary depending on the current time.



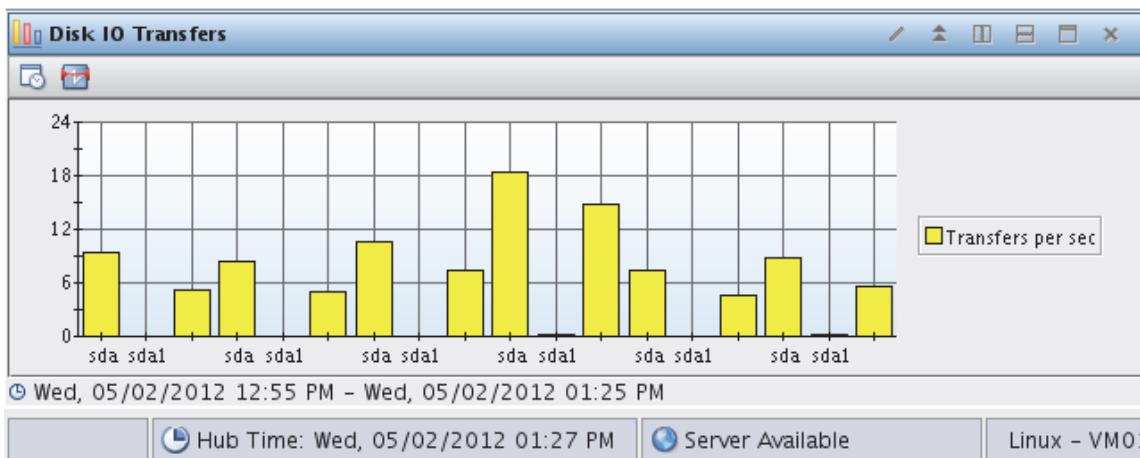
- Set the start time to 30 minutes ago. Click the hour field (1 in this example) and click the down arrow until you reach 12. Click the minutes field (25 in this example) and click the up arrow until the minutes show 55.



The actual values that you use depend on the current time.

- Click to the side of the calendar window to close it. Click **OK**.

The view now shows the past 30 minutes.



Use the **Custom** time span to see any amount of time, for example, from noon last Monday to noon last Wednesday. Use this setting when gathering information about an event or failure.

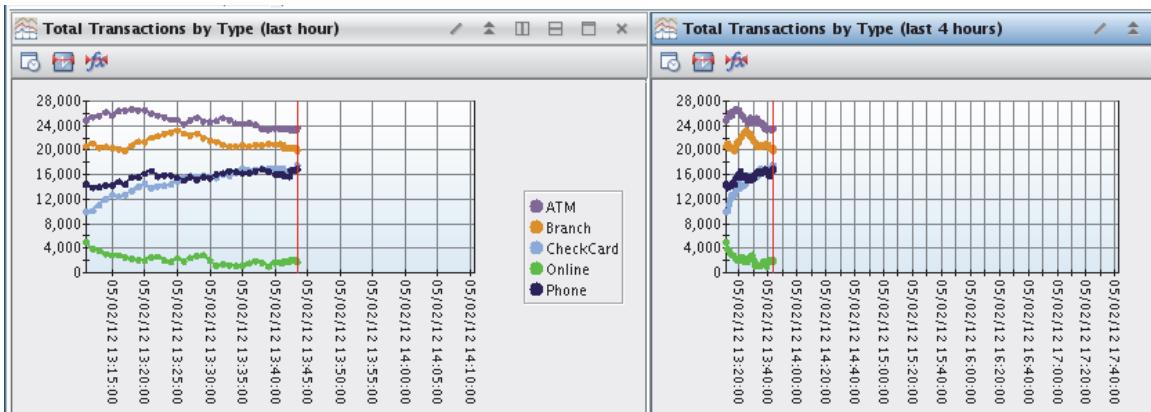
Viewing historical data from an application

You configured historical data collection for the ABK Transactions application earlier in this exercise. Show some of that data in views.

- Open the **Regions** Navigator item.

7. Split the **Total Transactions per Type (last hour)** plot chart vertically. Change the name of the plot on the right to **Total Transactions per Type (last 4 hours)**.
8. Change the plot duration in the view on the right to 4 hours.
9. Click the **Specify time span for query** icon of the new plot chart and set the values to real time plus the last 4 hours. Click **OK** to close the time span window.

Your new view looks like this following example.

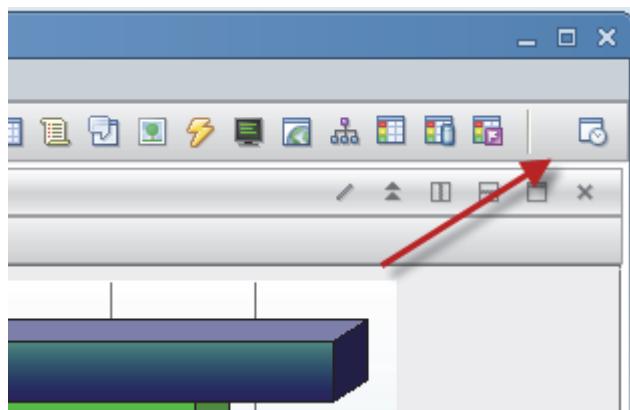


10. Save your workspace changes pressing **Ctrl+S** or clicking **File > Save** on the portal client toolbar.

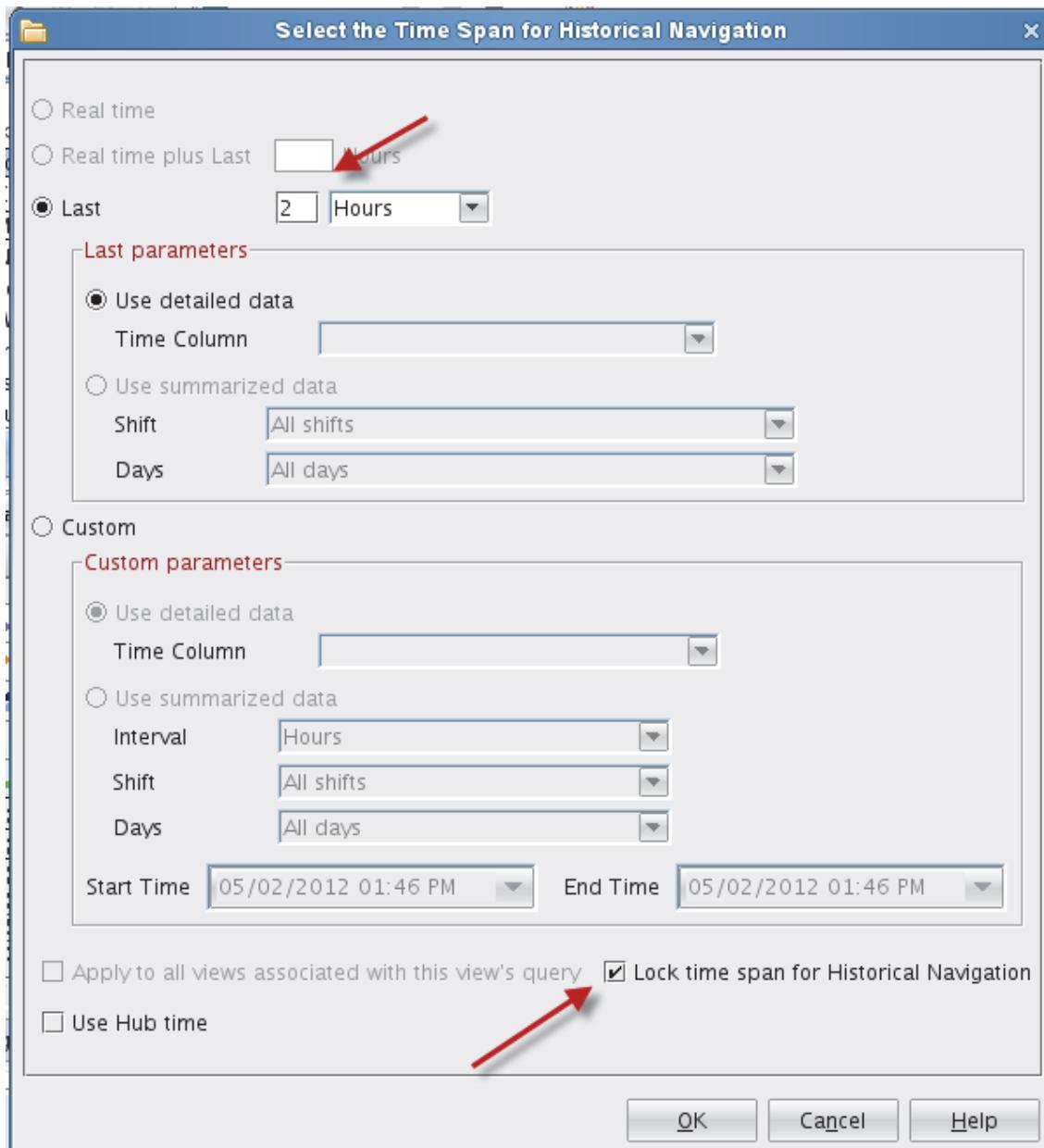
Exercise 5. Using the historical navigation tool

The historical navigation tool can set the same date and time range for all workspaces.

1. Click the **Historical Navigation Mode** tool at the far right side of the portal client.

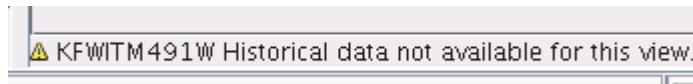


2. Set the time span to the last 2 hours. The **Lock time span for Historical Navigation** box is automatically selected. Click **OK** to close the history configuration window.

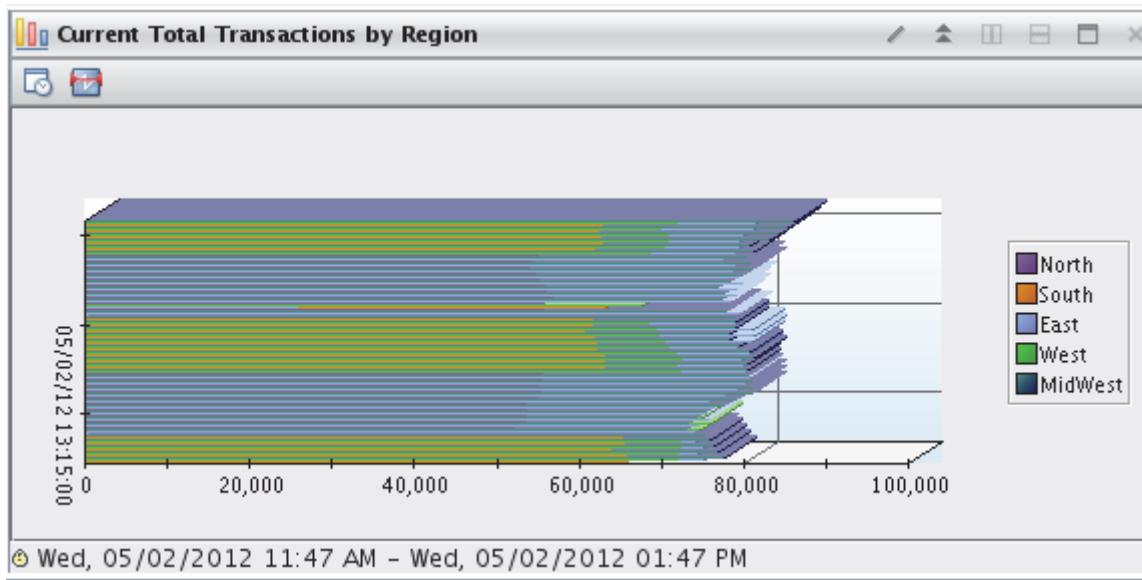


This action sets the time range for all views, all workspaces, and all managed systems.

3. Switch to another workspace on the same managed system. Observe that all the views have the same time span. Any view that has no historical data available for that time shows a message.



- Select a workspace from a different managed system. Those views have the same time span also.



- Click the historical navigation tool icon and clear the **Lock time span for Historical Navigation** check box at the bottom of the window to return to normal mode.

Exercise 6. Viewing summarized historical data with Tivoli Common Reporting

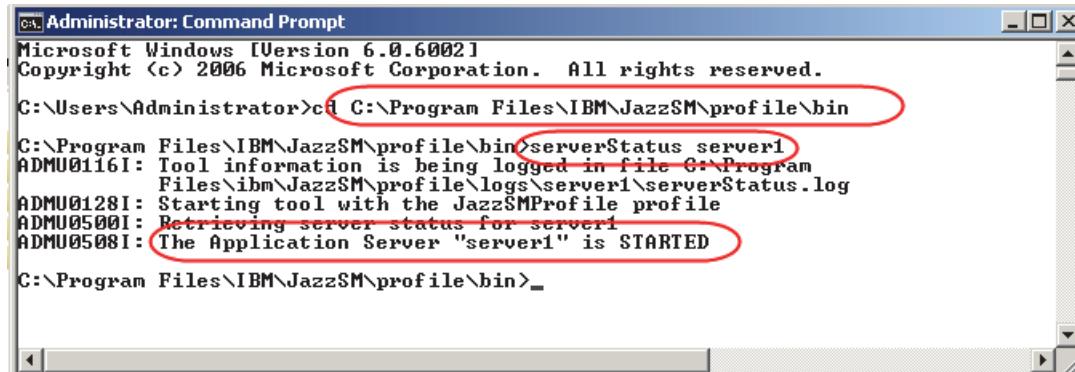
Your exercise environment has the required shared dimension tables and the IBM Tivoli Monitoring OS Agents reports already installed on VM03. Perform these exercise steps on VM03 only.



Important: The report examples that are shown here came from an environment with more managed systems than are present in your exercise environment.

- Ensure that the Jazz for Service Management WebSphere instance is running on VM03. Open a DOS command prompt from the shortcut on the desktop.
 - Change to the Jazz for Service Management bin directory and run the serverStatus command.
- ```
cd C:\Program Files\IBM\JazzSM\profile\bin
serverStatus server1
```

3. Provide the Jazz for Service Management credentials when prompted:
  - User ID: smadmin
  - Password: object00
4. Confirm that the server1 instance is started.



```

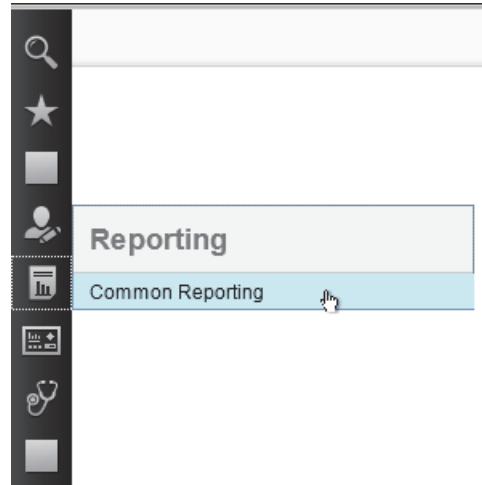
Administrator: Command Prompt
Microsoft Windows [Version 6.0.6002]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>c1 C:\Program Files\IBM\JazzSM\profile\bin
C:\Program Files\IBM\JazzSM\profile\bin>serverStatus server1
ADMU0116I: Tool information is being logged in file C:\Program
Files\ibm\JazzSM\profile\logs\server1\serverStatus.log
ADMU0128I: Starting tool with the JazzSMProfile profile
ADMU0500I: Retrieving server status for server1
ADMU0508I: The Application Server "server1" is STARTED

C:\Program Files\IBM\JazzSM\profile\bin>_

```

5. If the instance is not available, start it.  
Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > JazzSMProfile > Start the server
6. Start Windows Task Manager and monitor the processor usage until the system is idle. The startup takes several minutes.
7. If Internet Explorer is not currently running, refer to Unit 7, [Exercise 2, “Starting the dashboard,”](#) on page 148 for the steps to start it and access the Dashboard Application Services Hub.
8. Log in to the dashboard as **smadmin** with password **object00**.
9. Hold the mouse pointer over the **Reporting** icon in the Navigator window, and click **Common Reporting**.



10. Click the IBM Tivoli Monitoring OS Agents Reports link.



The reports are organized into folders by Availability and Utilization.

11. Begin with the Utilization reports. Click the **Utilization** link to open that folder.

The screenshot shows a software interface with a navigation bar at the top. Below the navigation bar is a breadcrumb trail: 'Public Folders > IBM Tivoli Monitoring OS Agents Reports > Utilization'. The 'Utilization' link in the breadcrumb trail is highlighted with a red oval. The main area displays a list of utilization reports, each with a small icon and a title. The titles include: CPU Utilization Comparison for Multiple Resources, CPU Utilization for Single Resource, Disk Utilization Comparison for Multiple Resources, Disk Utilization for Single Resource, Enterprise Daily Utilization Heat Chart, Enterprise Resources List, Enterprise Summary, IBM i CPU Utilization Comparison for Multiple Resources, IBM i CPU Utilization for Single Resource, and IBM i Disk Utilization Comparison for Multiple Resources.

|                          | Name                                                     |
|--------------------------|----------------------------------------------------------|
| <input type="checkbox"/> | CPU Utilization Comparison for Multiple Resources        |
| <input type="checkbox"/> | CPU Utilization for Single Resource                      |
| <input type="checkbox"/> | Disk Utilization Comparison for Multiple Resources       |
| <input type="checkbox"/> | Disk Utilization for Single Resource                     |
| <input type="checkbox"/> | Enterprise Daily Utilization Heat Chart                  |
| <input type="checkbox"/> | Enterprise Resources List                                |
| <input type="checkbox"/> | Enterprise Summary                                       |
| <input type="checkbox"/> | IBM i CPU Utilization Comparison for Multiple Resources  |
| <input type="checkbox"/> | IBM i CPU Utilization for Single Resource                |
| <input type="checkbox"/> | IBM i Disk Utilization Comparison for Multiple Resources |

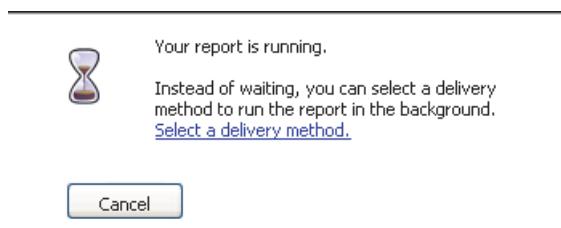
## Enterprise Resources List

The Enterprise Resources List reads a database table that contains all of the managed systems in the Tivoli Data Warehouse.

12. You run reports by clicking the report title. Click the **Enterprise Resources List** report to run it.

This report lists all the Linux, UNIX, and Windows systems in the database, and it requires no filter parameters.

Watch the browser status bar at the bottom of the browser window. After a few seconds, you see the report status indicator. The report opens.



13. Click the hyperlink for the Linux resource **vm01**.

This action drills down to the Utilization Heat Chart for Single Resource report. That report opens in a new browser tab, and shows average processor, disk, and memory utilization for the selected server over the past seven days.

Heat charts list the report year, month, and day of the month along the Y axis. The hour of the day is across the X axis, at the top of the report. At the intersection of the axes, you see the monitored values, summarized to the hourly level.

Heat charts use color-coded cells to indicate whether the data reached a threshold. The thresholds are shown under the report parameters. This technique provides a way to look for *hot spots*. The servers that provided the summarized data are lightly loaded; you might not see many values that exceed the minimum.

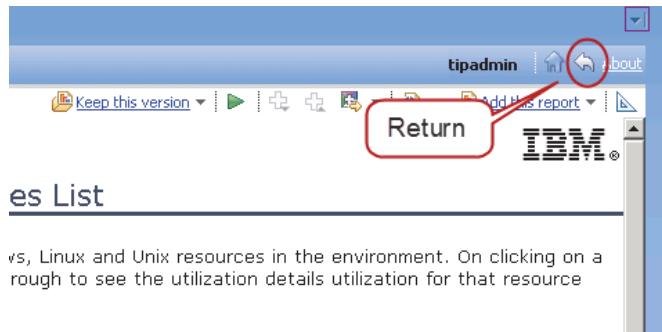


**Hint:** Typically, the reports require that you enter parameters such as operating system type, managed system name, and date range. When you linked to the Utilization Heat Chart for Single Resource, the operating system and managed system name were passed from the Enterprise Resources List report. The date range is preset to the last 7 days.

If you access the Utilization Heat Chart report from the report package menu, you are prompted for all the necessary parameters. You can also modify the threshold settings.

14. Return to the Enterprise Resources List report, and click **VM03** in the Windows resource hyperlinks. That report also opens in a new browser tab.

15. Close both of the Heat chart browser tabs. Click the Return icon to return to the list of reports.



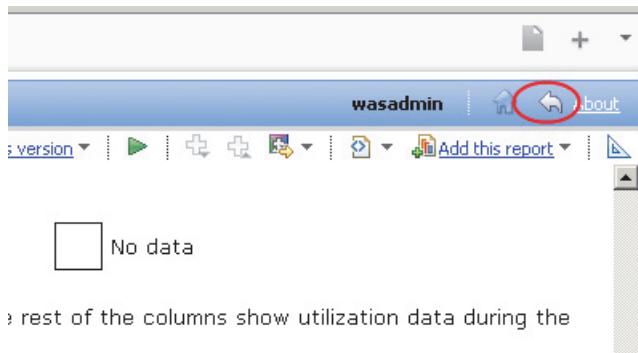
## Enterprise Daily Utilization Heat Chart

This report shows CPU, disk, and memory patterns for all servers, for a select operating system type, and on a particular date. The first column lists the server names. The other columns show utilization data during the day hours, and the last column shows the average for the server on the selected date. You can choose to see either CPU, disk, memory, or all metrics.

16. Click the **Enterprise Daily Utilization Heat Chart** in the list of Utilization reports. Select yesterday's date. Choose **Linux** for the operating system type, and leave the **Attribute** field set to **All**. Click **Finish** to run the report.

You see heat charts that show utilization per hour for the selected date. Scroll up and down, right and left to see the entire report. Processor utilization is light on these systems, but disk utilization might be approaching problem status on some of the servers.

17. Return to the list of reports by clicking the Return icon in the upper right corner.



## CPU Utilization Comparison for Multiple Resources report

This report shows processor, memory, disk, and network utilization for multiple systems during the selected time period in an overlaid line chart. A linear trending feature is also provided, and it is based on the selected forecast period.

18. Click **CPU Utilization Comparison for Multiple Resources** in the list of reports. This report requires that you select multiple servers of the same operating system type.
19. Set the time range to the **Last 7 days**.



20. Select **Linux** as the operating system type. Select both Linux servers in the list by holding the **Ctrl** key and clicking the server names.

You can forecast utilization values to a specified date, which is based on available data. If set, all the charts show data that ends at that date, and missing samples are determined based on linear trend that is computed over historical data.

21. Change the **Forecast** field to **Use forecast**. Set the forecast period to a date **5 days** in the future.

OS type: \* Linux

\* vm01  
vm02

Servers

Select all Deselect all

Forecast: \* Use forecast

Forecast period:

Oct 1, 2013

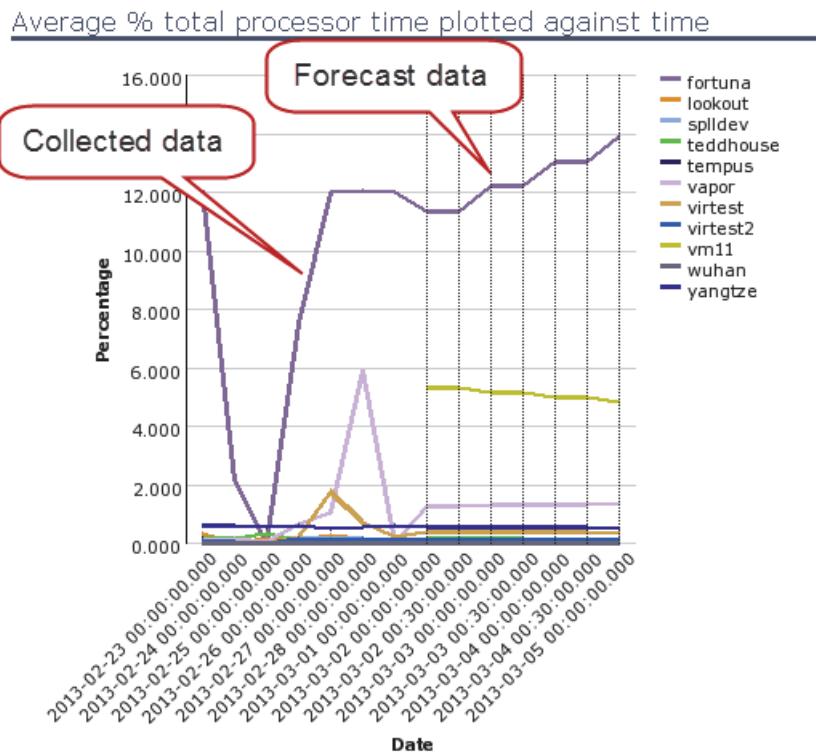


**Note:** Reports with forecast dates more than a few days into the future take significantly longer to process. Forecast reports can be scheduled to run during off-shift hours. You see report scheduling in a later exercise.

## 22. Click **Finish**.

This report plots utilization for the selected servers on the same graph. There are graphs for processor (CPU), disk, memory, and network usage. You can see how each server compares to the others in the list. This report is useful when you perform load balancing because you can spot resources that are lightly loaded compared to their peers. Such servers are candidates for more work.

The forecast data is on the right.



Remember that your exercise environment has fewer resources than the report examples shown here.

## Resource Availability Comparison

This report compares availability between two or more servers.

23. Change to the Availability reports by clicking the report package link and clicking **Availability**.
24. Click **Resource Availability Comparison** in the Availability reports list.
25. Set the time range to the **past 30 days**.
26. Select Linux as the operating system. Click **Select all** to highlight all of the servers in the list.  
Click **Finish** to run the report.

You can see that all of the Windows servers were available during the reporting period. Scroll down to see details on each server.



## 9 Managing user security and publishing workspaces exercises

### Exercise 1. Managing users

This unit completes the visualization aspect of the Tivoli Enterprise Portal client. Everything that you have done in the previous exercises helps provide users with access to the enterprise monitoring solution data and features. During this exercise, you create and manage new user IDs from the Tivoli Enterprise Portal Administer Users editor. You specify user permissions and access to applications and Navigator views.

To immediately view the effect of certain settings, open a second portal client session on VM02. Log in to that session with the new user IDs you create.

### Accessing the Administer Users editor

1. Click the **Administer Users** icon or press the Ctrl+U keys on your keyboard.



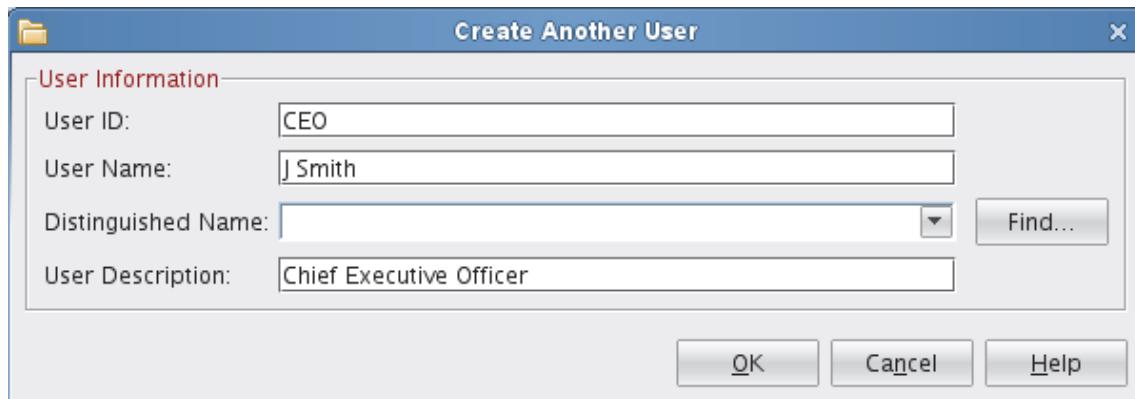
The **Administer Users** editor opens. Verify the settings of previously defined user IDs. The available tabs are as follows:

- **Permissions:** Provides access to portal client functions
- **Applications:** Provides access to products
- **Navigator Views:** Provides access to Navigator views and levels
- **Member Of:** Provides access to user groups

## Adding a user ID

Create a user ID for the business executives.

2. Click the **Create New User** icon.
3. When prompted, type **CEO** as the user ID for the new user. A description is optional. Leave the **Distinguished Name** field blank. It populates when you save the user.



The user ID serves as the login user ID. In Linux, user IDs are case-sensitive.

4. Click **OK** to save your settings.

The new user ID is in the list. Because user security is turned off in your exercise environment, the user ID does not have to be defined to the operating system.

**Note:** If you log in with the **CEO** user ID now, the workspaces in the **AnyCorp** or **Operations** Navigator items are undefined. You must publish the workspaces that you created earlier and make them available to all users, including your business executives. Publishing occurs on a later exercise step.

## Setting permissions

Now that you defined the user ID, set the permissions for the user. You want the executives to be able to see only events and actions. This setting reduces the number of buttons and icons on their application window, reducing potential confusion that pertains to the user interface.

A newly defined user has no permissions except for Login Permitted in the User Administration section; so step through the sections and grant the proper permissions.

5. Click the **CEO** user ID.

6. Work through the **Authorities** entries in the bottom pane of the **Permissions** tab. Set the permissions according to [Table 1](#). With these settings, the CEO can view events in the enterprise without changing anything.

**Table 1. User permissions**

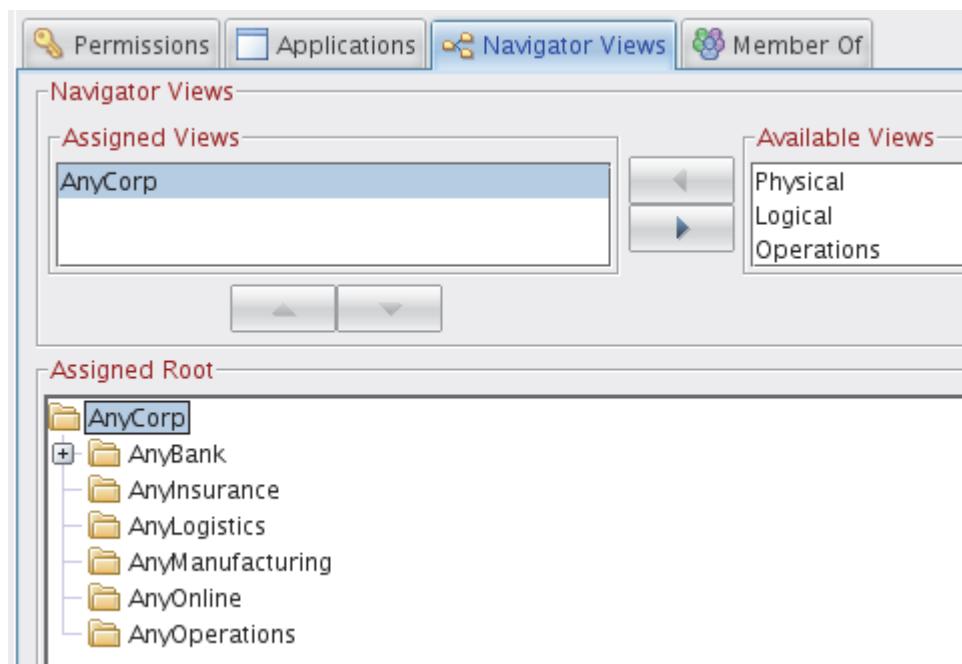
| Authorities         | Permission      | Yes or No |
|---------------------|-----------------|-----------|
| Action              | View            | Y         |
| Event               | View            | Y         |
| User Administration | Logon Permitted | Y         |

7. Refer to the online help to determine the meaning of the different permissions.
8. Select **Apply** to save your settings.

## Modifying access to Navigator views

One important setting for the business executives is access to the Navigator views.

9. Open the **Navigator Views** tab in the Administer Users editor for the **CEO** user ID. A new user does not have any Navigator views assigned and cannot log. All the Navigator views that you created are in the **Available Views** field with the product-provided ones.
10. Move the **AnyCorp** Navigator item from the Available view to the **Assigned Views** field. Click **Apply**, and AnyCorp is copied to the **Assigned Root** field. The **Assigned Root** field determines the highest level within a Navigator view that a user can access.

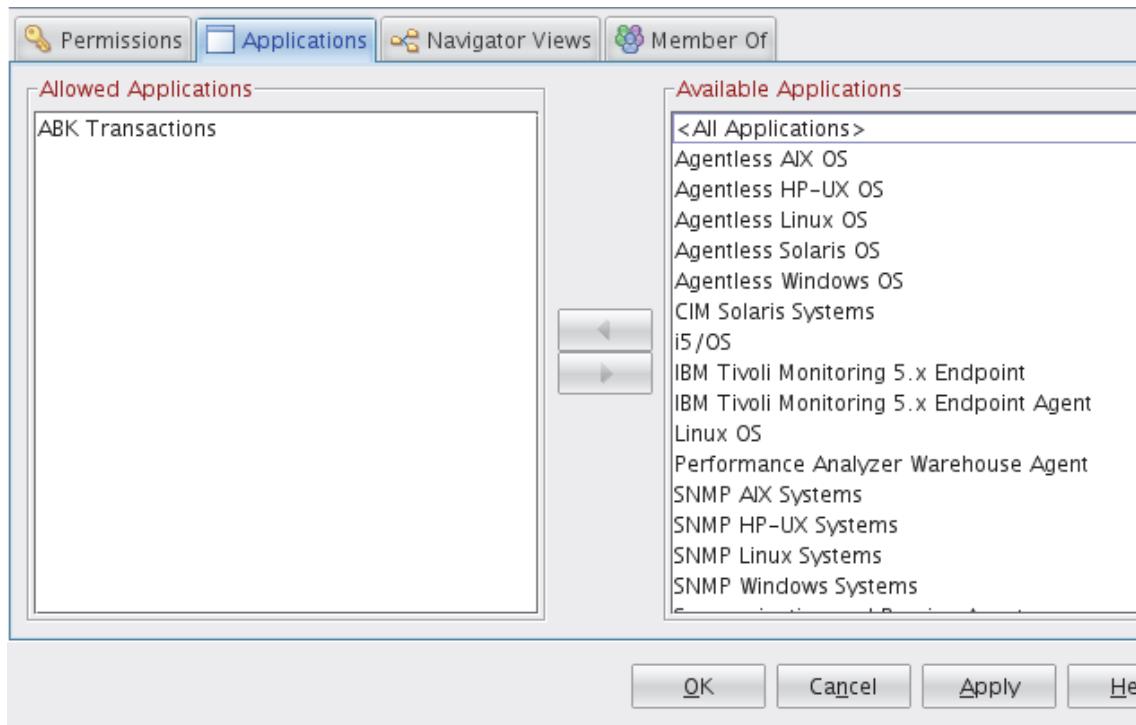


If you have access to multiple Navigators, one of them is the default (the one you see when you sign on). For a Navigator view to be the default, it must be first in the **Assigned Views** pane. You can rearrange the list with the up and down arrows.

## Providing access to applications

You must be able to access applications before you can see any workspaces.

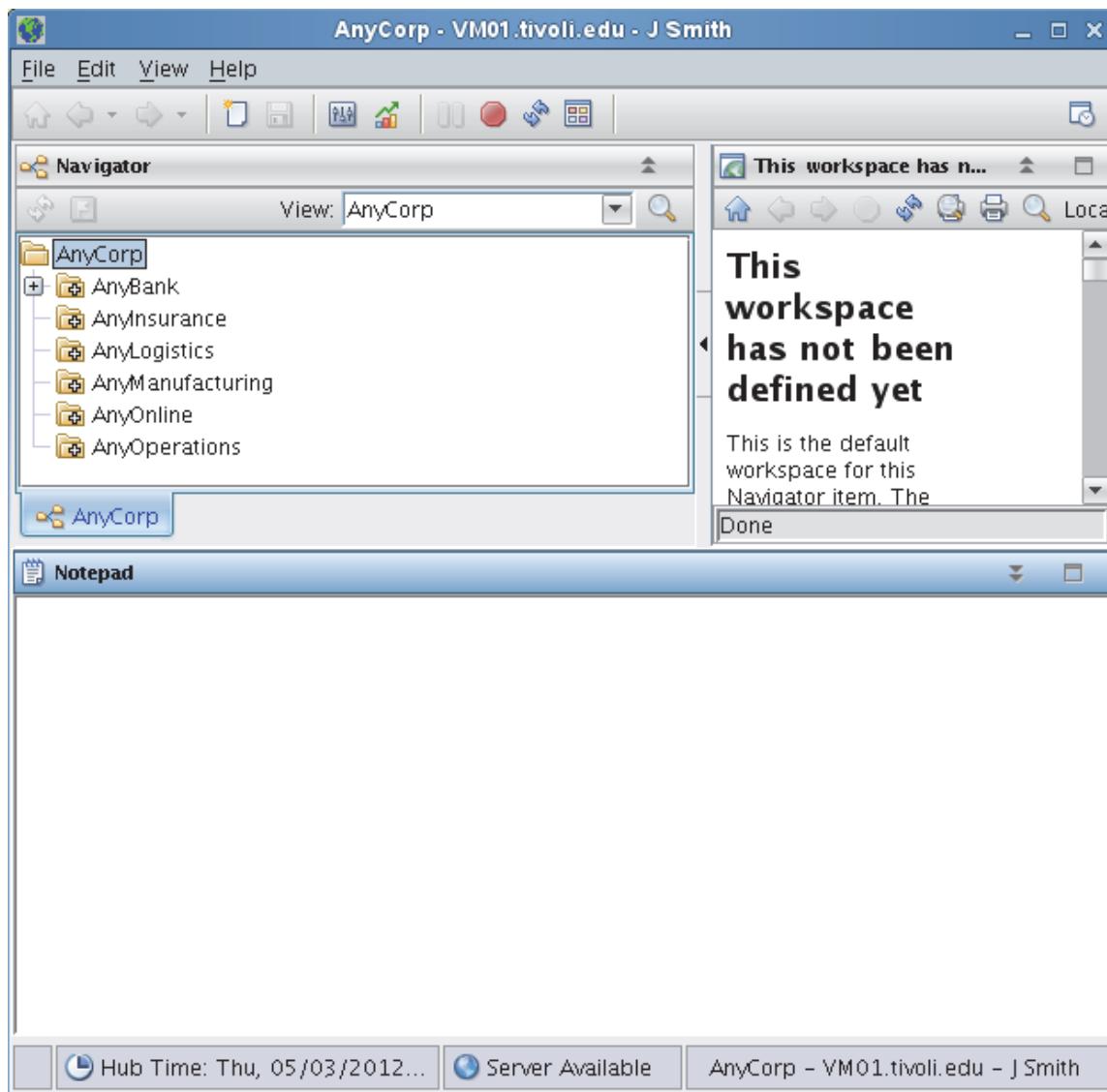
11. Click the **Applications** tab for the user ID **CEO**.
12. Move **ABK Transactions** from the **Available** field to the **Assigned** field. This setting provides the CEO access to the workspaces, views, and queries that makeup the ABK application.



13. Click **OK** to save your changes.

## Exercise 1. Managing users

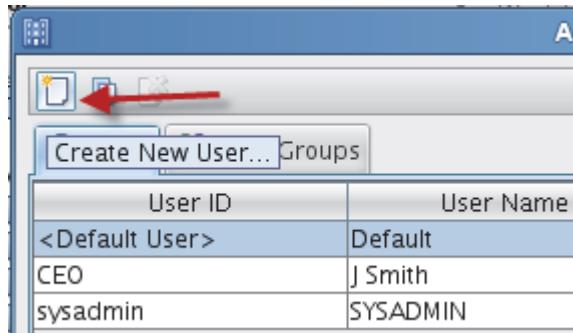
14. From VM02, log in to a portal client with the **CEO** user ID by using the Java Web Start client and view the changes. The user ID is case-sensitive, and no password is required.



All the workspaces are empty. The custom workspaces in the AnyCorp application are not yet published. Only **sysadmin** can see them.

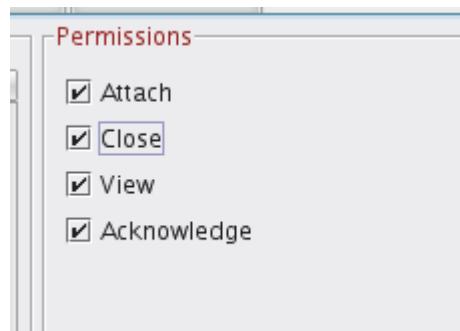
## Creating the Operator ID

15. Create an ID named **Operator** with the **Create New User** icon.

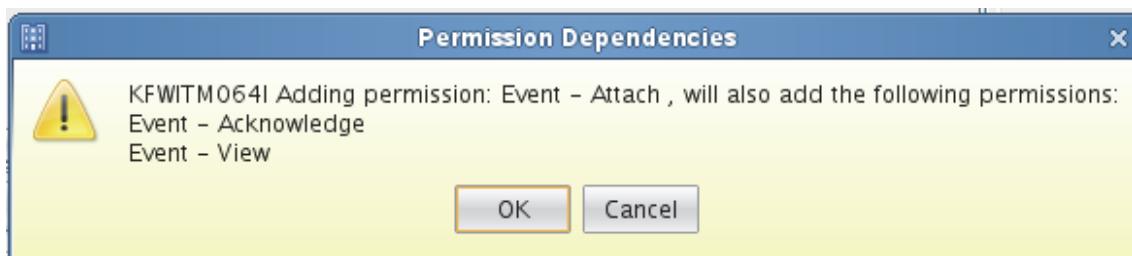


16. Set only the permissions that are shown in [Table 2](#) for the Operator ID. With these settings, the Operator ID can see all relevant activity but not configure or delete anything.

Ensure that all **Permissions** under **Event** are selected.



Some permissions are additive, and setting one permission causes other permissions to be automatically set.



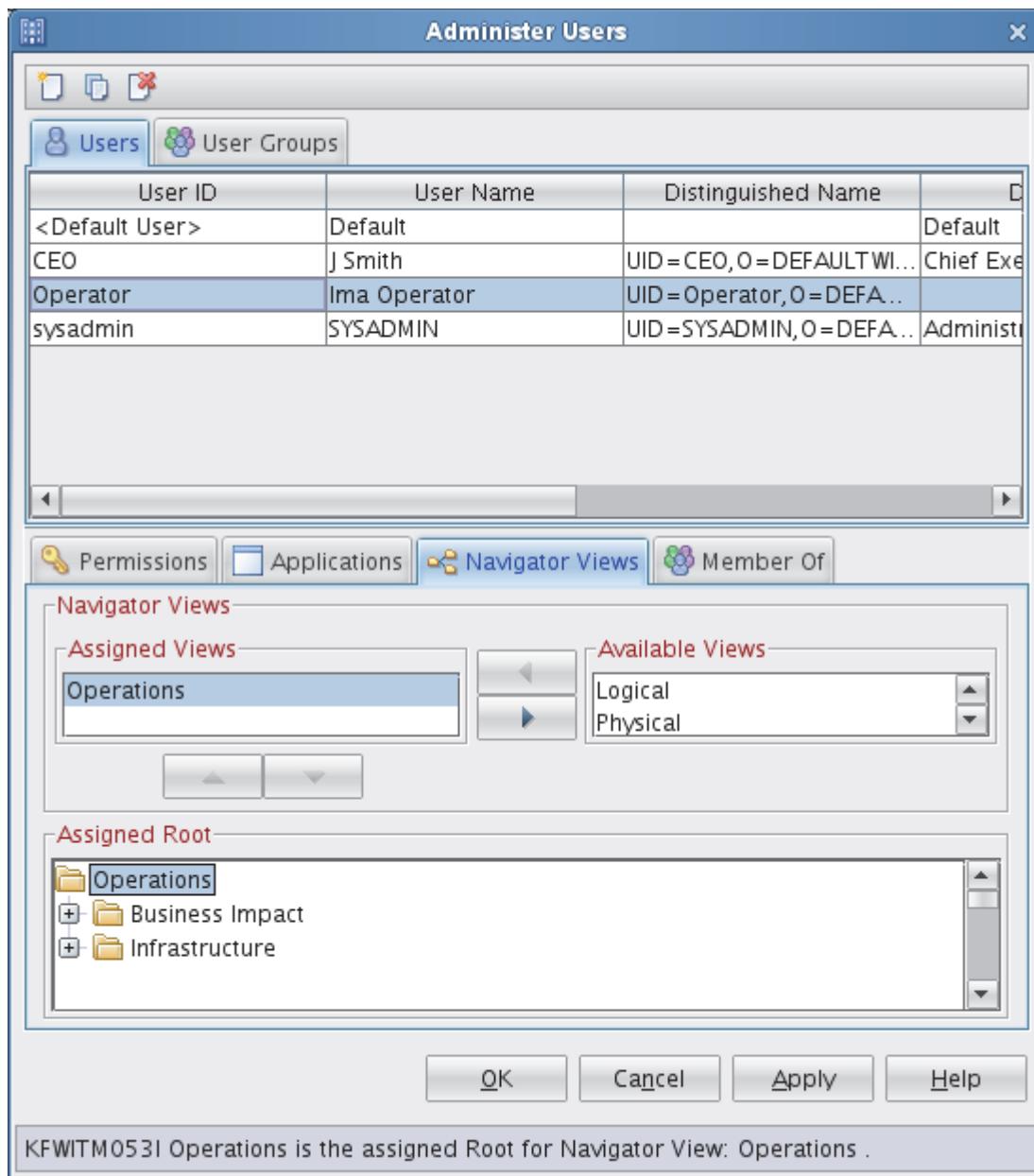
**Table 2. Event permissions**

| Authorities      | Permission | Yes or No |
|------------------|------------|-----------|
| Action           | View       | Y         |
| Agent Management | Start/Stop | Y         |
| Event            | Attach     | Y         |
| Event            | Close      | Y         |

**Table 2. Event permissions (continued)**

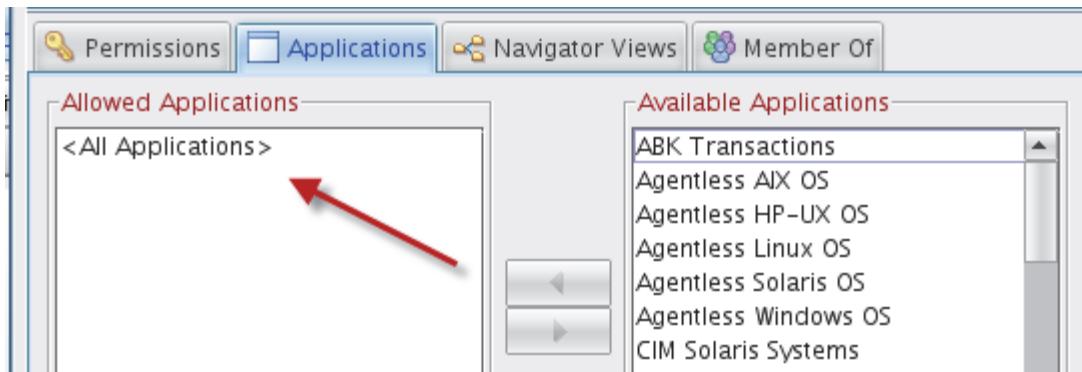
| <b>Authorities</b>  | <b>Permission</b> | <b>Yes or No</b> |
|---------------------|-------------------|------------------|
| Event               | View              | Y                |
| Event               | Acknowledge       | Y                |
| Launch Application  | Launch            | Y                |
| Launch Application  | View              | Y                |
| Policy              | View              | Y                |
| Policy              | Start/Stop        | Y                |
| Situation           | View              | Y                |
| Situation           | Start/Stop        | Y                |
| Terminal Script     | View              | Y                |
| User Administration | Logon Permitted   | Y                |
| User Administration | View              | Y                |

17. Set the Navigator view access to **Operations**.



18. Click **Apply** to populate the **Assigned Root** field.

19. On the **Applications** tab, assign <All Applications> to the Operator ID.



20. Click **Apply** to save your changes.

## Creating user groups

User groups can simplify user management. You can create groups, assign permissions to them, and connect users to the groups.

Create a user ID and a group and assign the user to the group.

21. Create another user ID named **VP**. Click **Apply** without assigning any permissions, Applications, or Navigator views. **Login Permitted** in the User Administration section is automatically added.

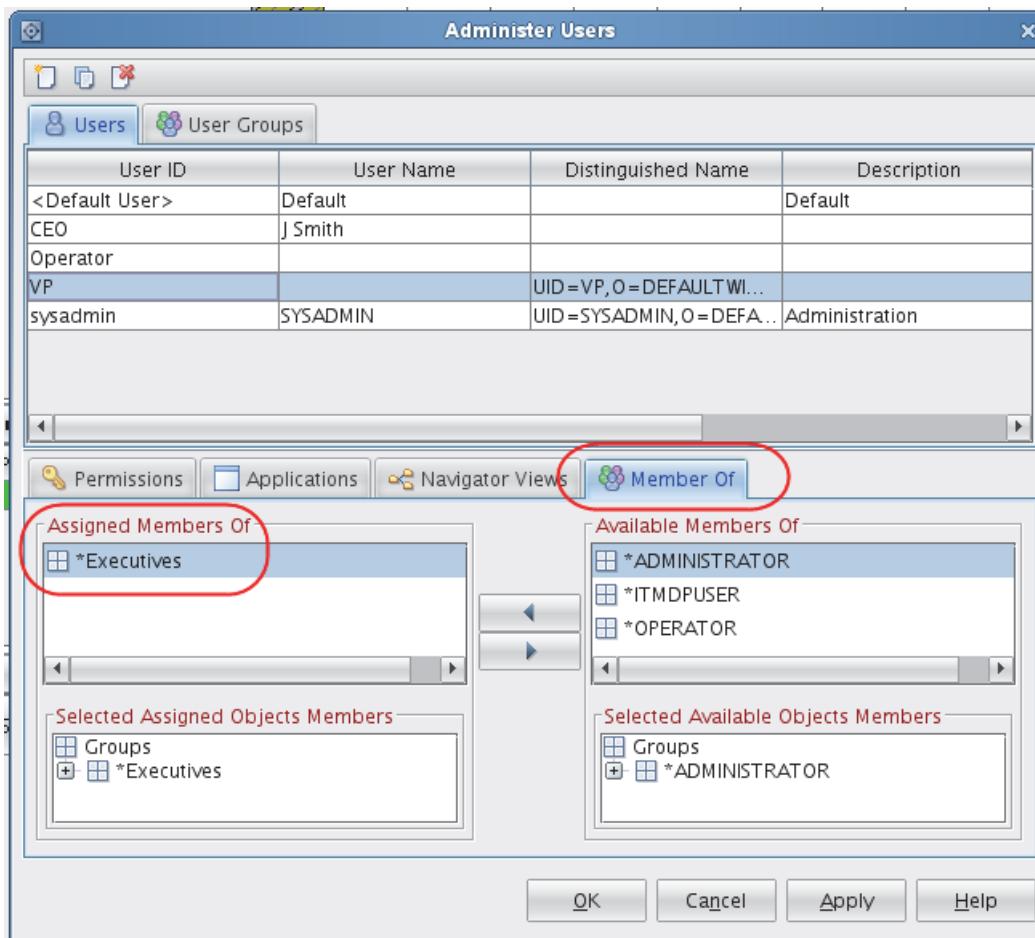
The screenshot shows a 'Create Another User' dialog box. At the top, it says 'Create Another U:'. Below that is a section titled 'User Information' with four fields: 'User ID' (containing 'VP'), 'User Name' (containing 'J Doe'), 'Distinguished Name' (empty), and 'User Description' (containing 'Vice President').

22. Create a user group called **Executives**. An asterisk automatically precedes the group ID.



23. Executives need to view events, but they do not need to acknowledge or close them. Give the **Executives** group the **View** permission in the **Events** section. Assign the **AnyCorp Navigator** view.
24. On the **Applications** tab for the **Executives** group, add <All Applications> to the allowed applications from the available applications.
25. Click **Apply** to save your changes.

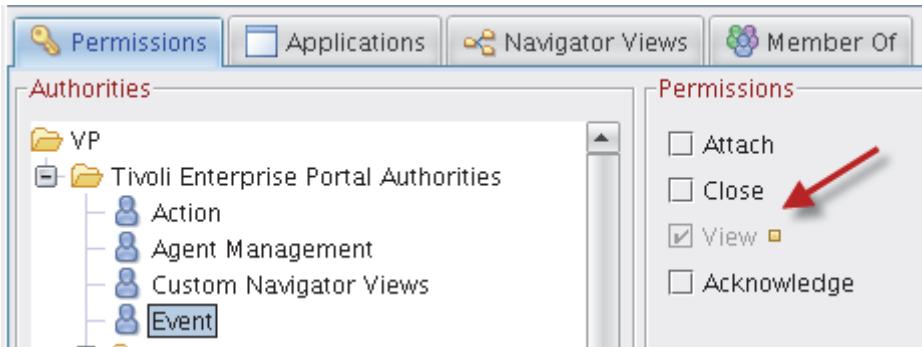
26. Add the new user ID **VP** to the **Executives** group: Click the **VP** user in the **Users** tab. Click the **Member Of** tab and move **Executives** to the **Assigned** field.



**Note:** You can also add the user to the group from the **Group Members** tab.

27. Click **Apply** to save your changes.

28. Click the **Permissions** tab for the VP user and view the permission setting for **Event**.



The yellow box indicates that permissions are inherited from a group. Someone from the user level cannot change these permissions. You can modify permissions that are not inherited from a group in the normal way.

## Exercise 2. Publishing original workspaces: Workspace Administration mode

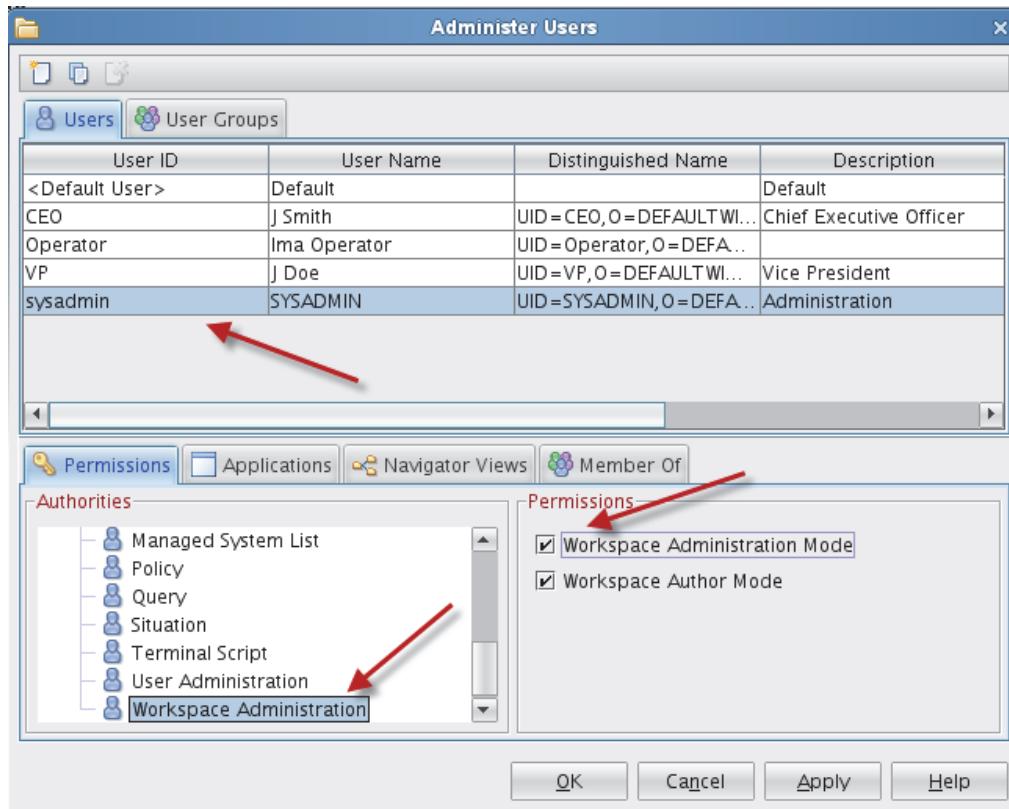
Without the next step, your customized workspaces are only available to the user ID that created them. To make the workspaces you created available to all users, use **Workspace Administration Mode** and publish them as original workspaces. If you make changes to the workspace after you initially published the workspaces, you must republish. This rule applies to view changes, workspace layout changes, association with queries, and so on.



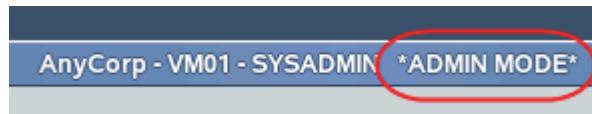
**Note:** When you work in **Workspace Administration Mode**, you see only original workspaces.

1. Ensure that you are logged on as **sysadmin**. This user ID created your workspaces.
2. Open the **AnyCorp** workspace as the first workspace you want to publish.
3. Open the **Administer Users** editor.

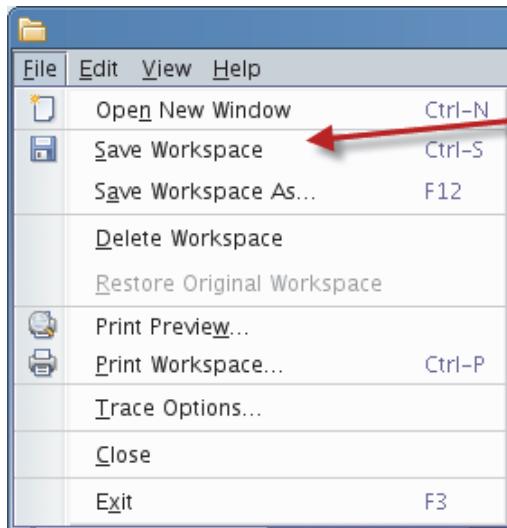
4. Click the sysadmin user ID. Click **Workspace Administration** in the **Permissions** tab, and select **Workspace Administration Mode**. Click **OK**.



The portal client window header shows the new status: **ADMIN MODE**.



5. Publish the currently shown workspace by saving it, which makes it available as the original workspace to all users.



## Activating multiple workspaces as defaults



**Note:** The steps that follow are complicated. When you go to another workspace while in Workspace Administration Mode, you do not see the workspace that you created. Instead, you see the original product-provided workspace or the workspace that you previously saved by using Workspace Administration Mode.

6. To publish multiple workspaces, exit Workspace Administration Mode first. In the Administer Users editor, clear the **Workspace Administration Mode** check box. Click **OK**.



**Note:** Ensure that you always select the user ID that was in Workspace Administration Mode when modifying this permission.

7. Open the **ABK Overview** workspace that you created with the **sysadmin** user ID.
8. Reactivate **Workspace Administration Mode**, and save the workspace.

- Repeat this procedure until you publish all workspaces listed in [Table 3](#).

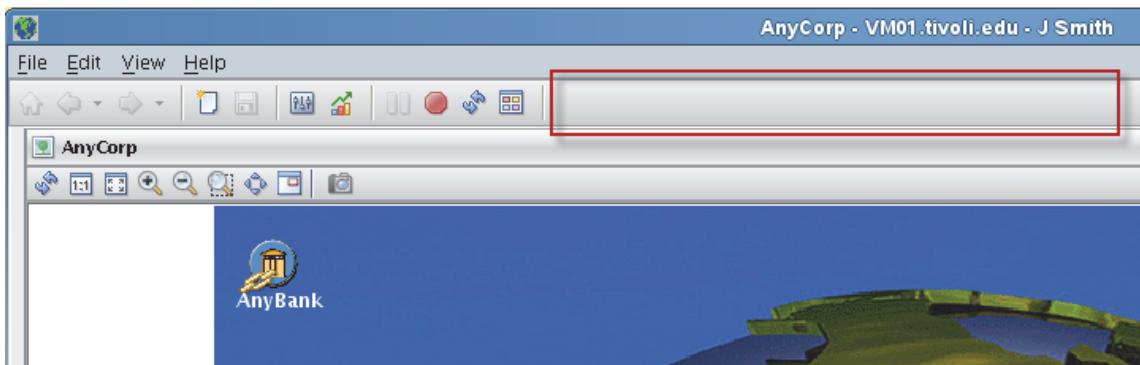
**Table 3. Workspaces and types**

| Workspaces                        | Workspace types     |
|-----------------------------------|---------------------|
| All Regions Transactions Overview | Transaction details |
| Operations                        | Dashboard           |

10. Test the new settings by logging on to another portal client with another user ID.

11. Log in using the **CEO** and **VP** user IDs. Verify that they can see the **AnyCorp** workspaces and can use all links defined for it.

User IDs that do not have Workspace Author mode selected cannot modify workspaces or views. This workspace does not have the view tool icons.



12. Log in with the **Operator** user ID. Ensure that you can view the **Operations** workspace and what is shown under the **AnyBank** Navigator item.

You do not have to log in again to refresh the workspaces. Switch to a different Navigator item and return to the one where you just published the default.

**Note:** You can also use the **editUser** line command to switch a user ID into and out of Workspace Administration Mode. Using **editUser** can save steps and time when you have numerous workspaces to publish.

## Exercise 3. Application monitoring (advanced)

This exercise uses many of the elements you learned so far, including situations, queries, views, take action, and links. The objective is to monitor for reduced transaction levels in the AnyBank application. This exercise provides requirements but little detailed instruction.

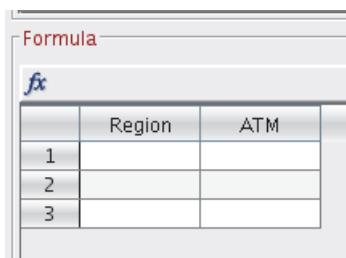
Assume that the West region is reporting erratic behavior by its web servers, and that you decide to monitor it closely to determine a pattern.

There are three batch files for this exercise in the **/labfiles/ABK** folder: **green.sh**, **yellow.sh**, and **red.sh**. Running these files varies the transaction volume for the West region, simulating a possible bottleneck or server failure.

1. Ensure that the **abk.sh** script is still running in terminal window on VM01. If not, start it now.  
This script generates simulated transaction volumes for the five geographical regions.
2. Open another terminal window on VM01 and change to the directory where the lab files are located.  
`cd /labfiles/ABK`
3. Find the three batch files **green.sh**, **yellow.sh**, and **red.sh**, but do not start them now.

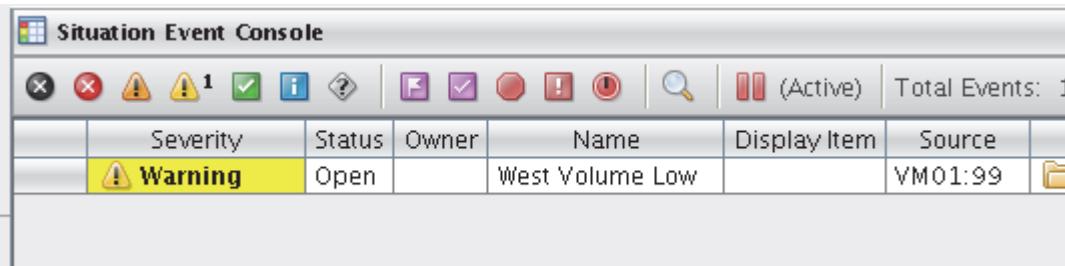
## Monitoring transaction levels for West

4. Open the Situation editor from the portal client toolbar icon. Create a situation in the **ABK Transactions group**.
  - a. Name the situation **West Volume Low**.
  - b. Assign attribute group **K99 ABK TYPE TRANSACTION BY REGION**.
  - c. Select attributes **Region** and **ATM**.
5. Always place the more restrictive attribute, the one that is most likely to fail, to the left in the formula. Drag **Region** to the left of ATM.

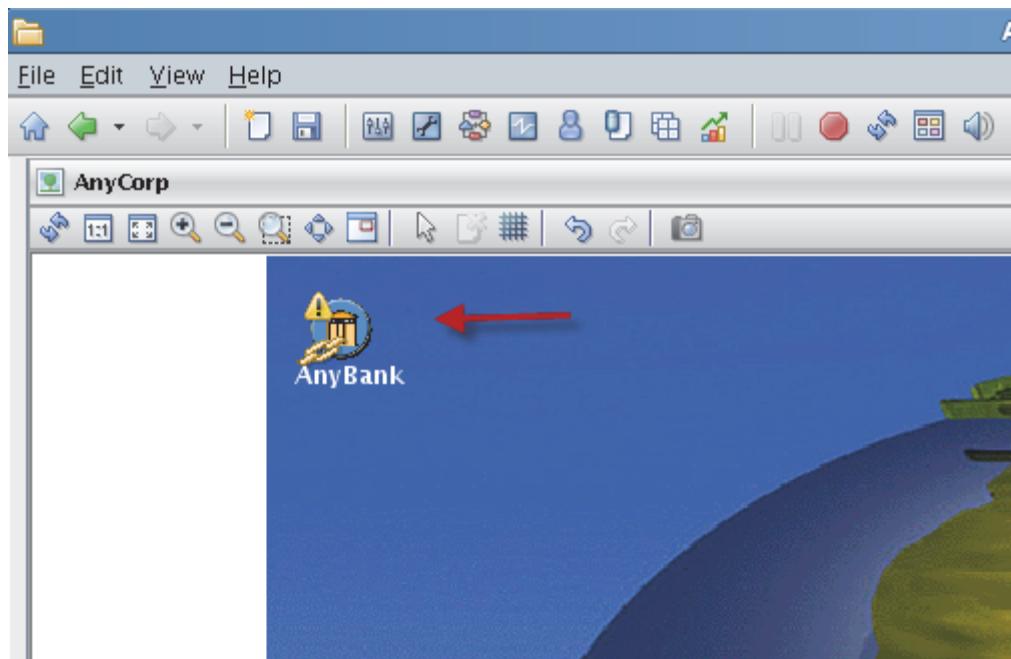


|   | Region | ATM |
|---|--------|-----|
| 1 |        |     |
| 2 |        |     |
| 3 |        |     |

6. For this exercise, assume that transaction volumes below 3,000 indicate a potential problem. Code your situation to test for the **West** region only *and* also transaction amounts less than **3,000**. Set the sampling interval to 30 seconds.
7. Distribute the situation to managed system **VM01:99**. Save the situation and close the editor.
8. Associate the new situation with the **West** Navigator item. Change the **State** to **Warning**.
9. In the terminal window that is open to directory **/labfiles/ABK**, run **yellow.sh**. This action simulates a reduction in transaction volume. Monitor the Situation Event Console until you see the West Volume Low situation event.

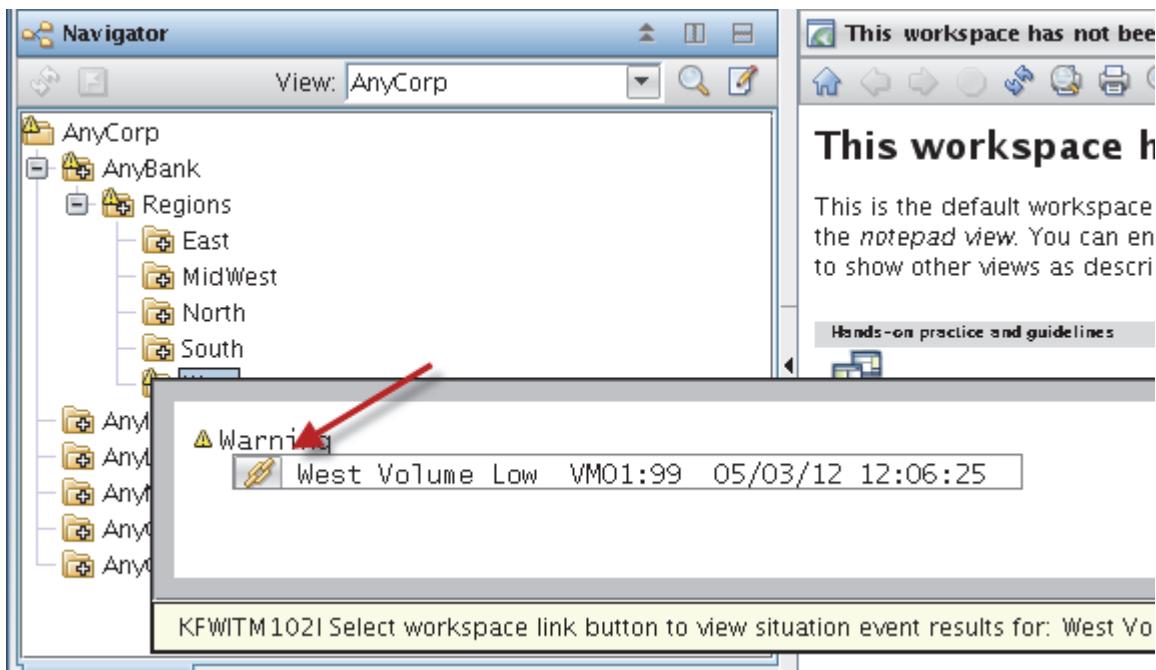


10. Open a new window on the portal client and open the **AnyCorp** Navigator item. This graphic view has icons for the business areas, where you can see event alerts that indicate a potential problem.



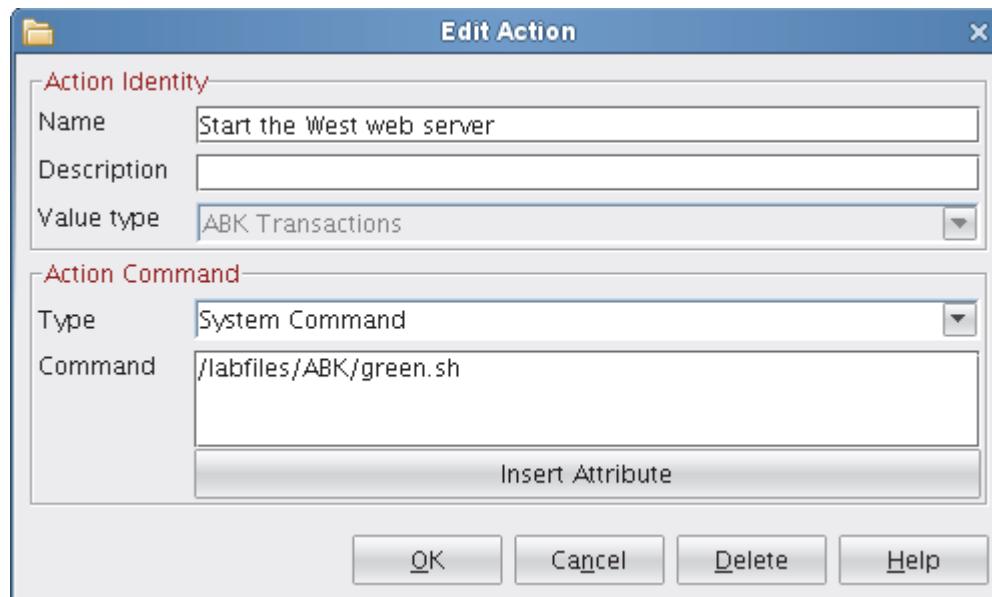
11. Look for a warning indicator on the **AnyBank** icon. Select the link on AnyBank to research the source of the problem. This link opens the AnyBank Navigator item, where you see a situation event console that shows events at the Regions level and below.

12. Locate the Navigator item with the alert. Open the Situation Event Results workspace for the situation event.



13. Examine the values and see which transaction type caused the situation to generate an alert.  
14. Create a Take Action on the West Navigator item. Label it **Start the West web server**. Have it submit this System Command:

/labfiles/ABK/green.sh



15. Submit the Take Action to VM01:99.

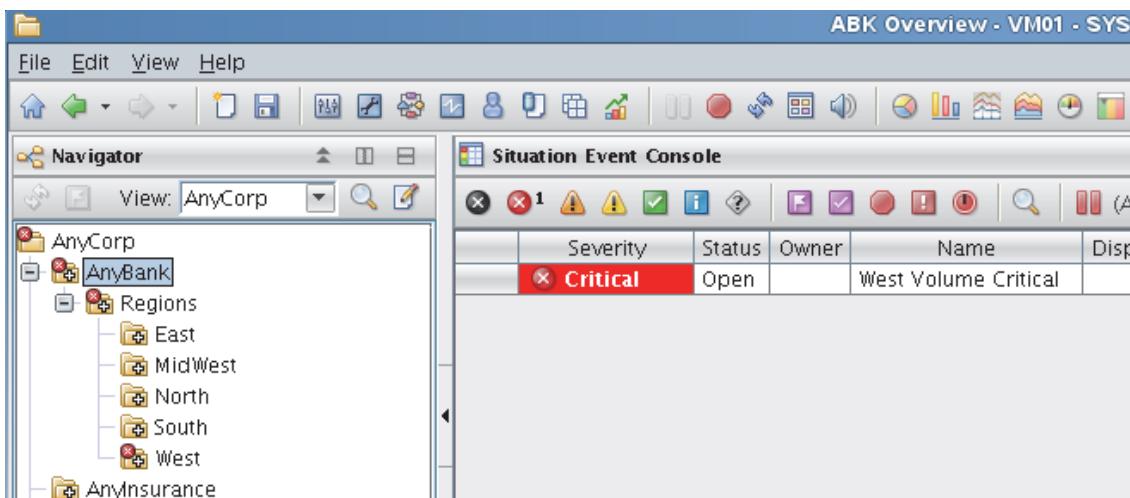
16. Watch to see if your situation closes on the next sampling interval. If it does not, examine the Take Action to see that the syntax is correct. Remove the **West Volume Low** Navigator Event item.

You are now monitoring for a low transaction volume. This condition indicates that there might be a problem, but if you see transaction volumes go to zero, you have a critical condition.

17. Create another situation on West that monitors the same transaction category for transaction volume equal to **zero** for the **West** region. Name it **West Volume Critical**. Set the severity to **Critical** and the interval to 30 seconds. Start the situation.
18. In the terminal window that is open to **/labfiles/ABK**, run **red.sh**. This action causes one of the transaction volumes to go to zero. You see your critical situation on the West Navigator item. If you coded your situations correctly, you now see both a critical and a warning situation event. Make situations in warning and critical pairs mutually exclusive. Having both the warning and critical alerts wastes computer resources and might cause confusion, depending on the condition first noticed.
19. Go to your warning situation and add logic to test for less than 3000 *and* greater than zero for the West region. This setting prevents the warning situation from being true when the critical situation is also true.

| Formula   |                         |                        |                   |
|-----------|-------------------------|------------------------|-------------------|
| <i>fx</i> |                         |                        |                   |
|           | Region                  | ATM                    | ATM               |
| 1         | <code>= = 'West'</code> | <code>&lt; 3000</code> | <code>!= 0</code> |
| 2         |                         |                        |                   |
| 3         |                         |                        |                   |

20. In the terminal window that is open to **/labfiles/ABK**, run **green.sh**, and let the situation event clear. Run **red.sh**. Watch the workspace to ensure that the warning situation does not occur but the critical situation does.



21. Run **green.sh** to reset the transactions to normal levels.

## Visualizing transaction levels for West

You are monitoring the transaction levels to cause situation alerts when conditions reached predetermined values. You can also visualize transaction volumes to determine whether there is a pattern to the behavior. You noticed that ATM transactions were being affected; so it is helpful to visualize ATM transactions in a plot chart.

22. Add a plot chart in the bottom view of the **West** Navigator item. Using the query **ABK TYPE TRANSACTION BY REGION**, have the plot chart show only data for category **ATM** in the **West** region. Add a Situation Event Console to the top view and show situation events for only the **West** region. Attempt this solution for yourself. If you need the solution, look on the next page for a screen capture that shows you the answer.

| de | Timestamp | Region   | Total | ATM                                 |
|----|-----------|----------|-------|-------------------------------------|
| 1  |           |          |       | <input checked="" type="checkbox"/> |
| 2  |           | = 'West' |       |                                     |
| 3  |           |          |       |                                     |
| 4  |           |          |       |                                     |

23. Set the plot duration to 20 minutes, and set the refresh interval to 30 seconds. Close the view properties and watch the plot for a few minutes.

Select Plot Points  
 Attribute(s) in first row  Attribute(s) across multiple rows

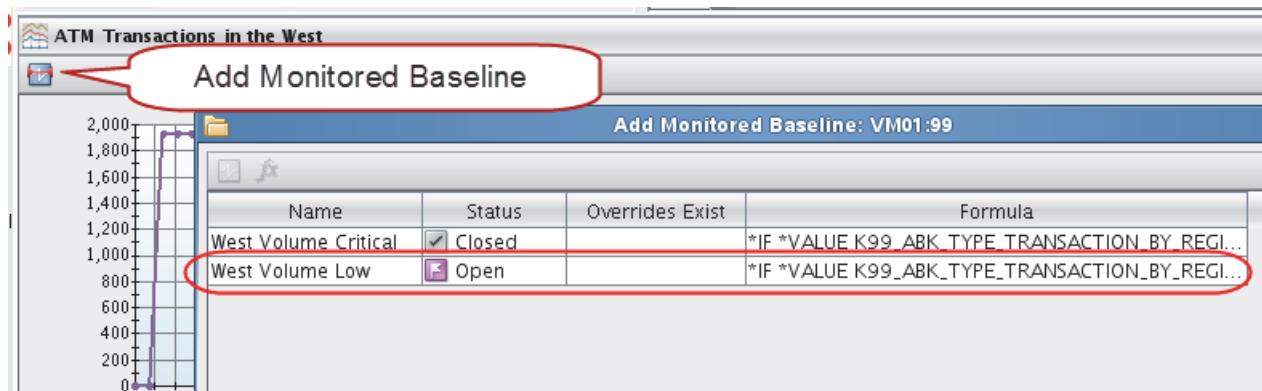
Plot Duration  
 0 Hours 20 Minutes

Refresh Rate  
 Use Refresh Rate from Workspace  
 Refresh Plot Chart Every 30 Seconds

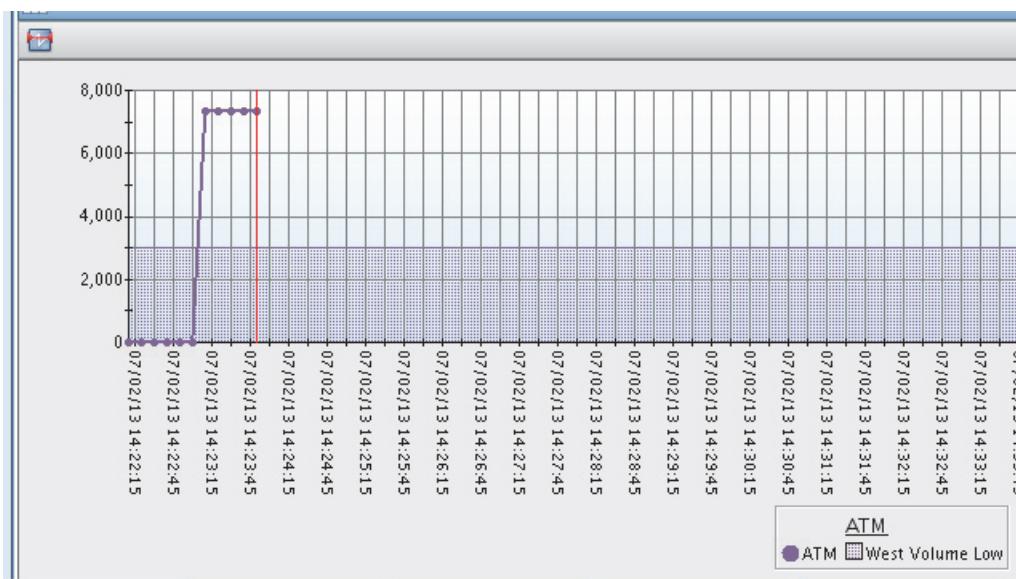
Overlay

24. Add a monitored baseline to the plot chart view by using the **West Volume Low** situation.

25. Click the **Add Monitored Baseline** icon, and click the **West Volume Low** situation. Click **OK** to return to the workspace.



The monitored baseline is displayed as the shaded area on the chart.

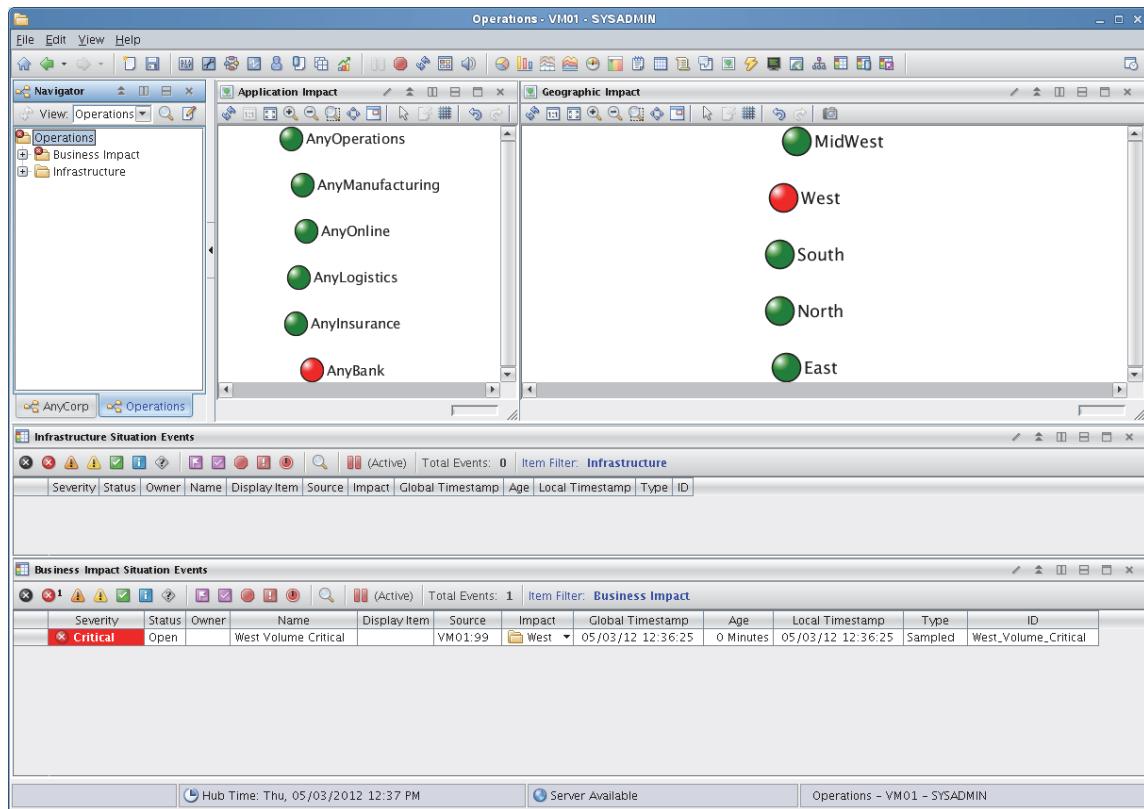


26. After you have at least 2 minutes of activity that is plotted, run **yellow.sh**. You see a situation event within 30 seconds.
27. Run **red.sh**. The ATM transaction volume falls to zero, and the critical alert shows on the workspace.

## Monitoring transaction volume with the Operations workspace

28. Open the **Operations** workspace. Run the scripts to vary the transaction levels, and observe the icons on the graphic views.

The icons for West and AnyBank turn yellow when the warning situation is open. They turn red when the critical situation is open.



29. Also, check the Situation Event consoles on the **Operations** workspace. You see a situation in the Business Impact console but not in the Infrastructure console.

Active monitoring with situations and visualizing data on workspaces is a powerful combination when you are searching for the source of a problem.



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- EMEA: [tived@uk.ibm.com](mailto:tived@uk.ibm.com)

## Cloud & Smarter Infrastructure user groups

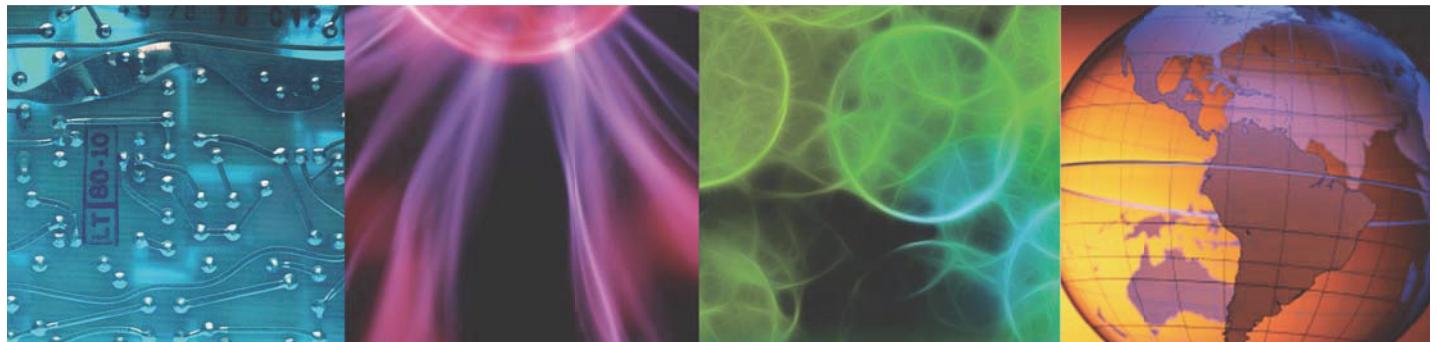
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