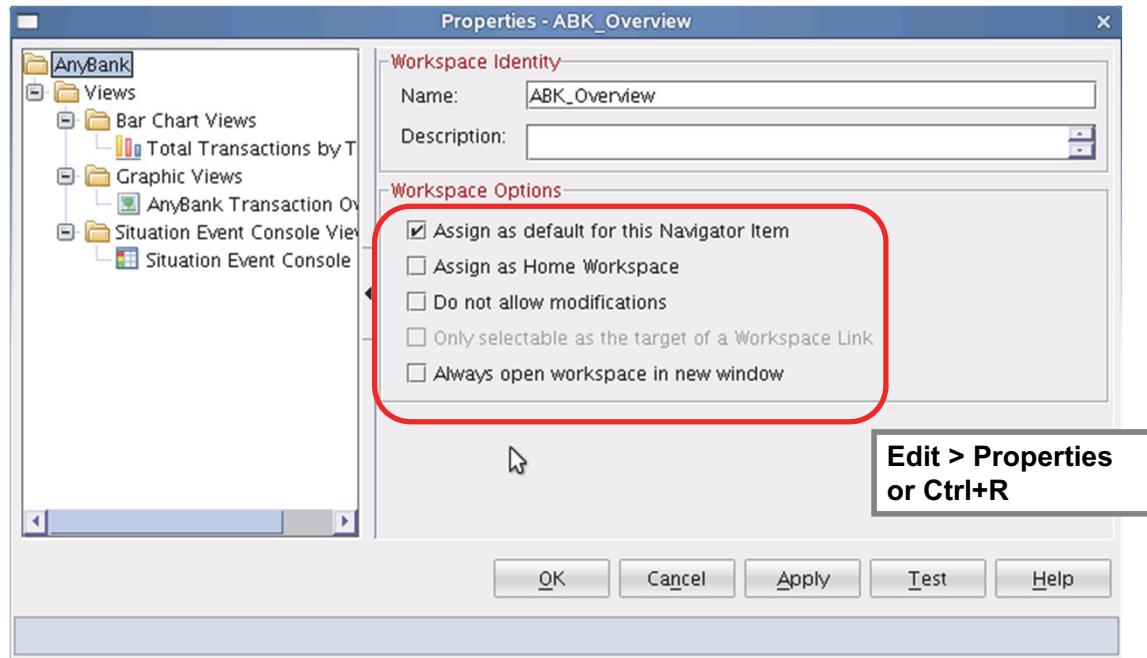


Workspace properties



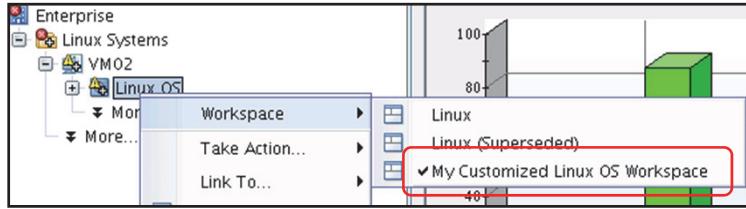
46

Workspace properties

Every workspace has a name and general characteristics that the workspace properties define. Open the workspace properties window from the toolbar **Edit** menu or press **Ctrl+R**.

Saving a workspace

- Product-provided workspaces are not modifiable.
 - You can save a modified workspace under a new name.
 - You cannot save the default configuration under the same name.
- Workspaces are saved by user ID, and are not accessible by other users unless an administrator publishes it.
- You can always discard your changes and use the product-provided default workspace.



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Saving a workspace

You can save your workspace under the same name or under a new name. You cannot modify and save product-provided workspaces.

Student exercises



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Student exercises

Open your *Student Exercises* book and perform the exercises for this unit.

Review questions

1. Which views show monitoring information?
2. What is the difference between the Navigator Physical view and the Navigator Logical view?

Review answers

1. Which views show monitoring information?

Only the data views: table, bar chart, pie chart, area chart, plot chart, linear gauge, and circular gauge.

2. What is the difference between the Navigator Physical view and the Navigator Logical view?

The Navigator Physical view represents all of the managed systems and users and administrators cannot modify them. The Navigator Logical view is empty and you can use it as a model to build a new Navigator view.

Summary

Now that you completed this unit, you can perform the following tasks:

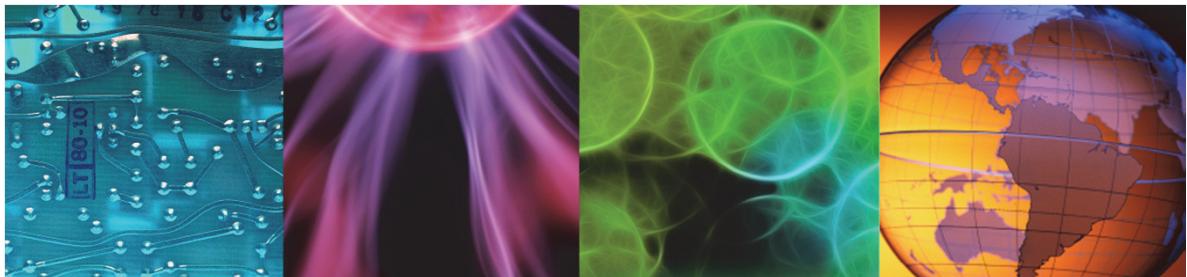
- Start the Tivoli Enterprise Portal client by using the desktop, Web browser, and Java Web Start.
- Describe the components of the application window.
- Open and navigate the online help to find information that goes beyond this course.
- Describe the purpose and use of the Navigator views.
- Use different methods to navigate workspaces.



3 Managing Tivoli Monitoring components



3 Managing Tivoli Monitoring components



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US Government Users Restricted Rights: Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
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What this unit is about

This unit shows how to manage the Tivoli Monitoring infrastructure by starting and stopping components. In addition, you learn about managed systems and managed systems groups.

How you check your progress

You can check your progress in the following ways:

- Review questions
- Lab exercises

Objectives

When you complete this unit, you can perform the following tasks:

- Start and stop Tivoli Management Services by using different options.
- Describe the purpose of managed systems and managed system groups.
- Describe the Tivoli Enterprise Monitoring Servers self-monitoring workspaces.

Lesson 1. Starting and stopping IBM Tivoli Monitoring components

Lesson 1: Starting and stopping IBM Tivoli Monitoring components

Options available to start and stop monitoring components:

- Manage Tivoli Enterprise Monitoring Services, an application available on Windows, Linux, and UNIX
- Command-line interface:
 - **itmcmd**: Start, stop, configure component on local system, UNIX or Linux only
 - **tacmd**: Start, stop, deploy components on local or remote systems
 - Requires login and authorization for remote operations
 - Cannot deploy operating system agents
- Starting agents other than operating system agents from the portal client
- Agent Management Services (AMS) to automatically restart monitoring agents

What this lesson is about

Several options are available for starting and stopping monitoring agents and other infrastructure components. This lesson shows options to start and stop components in a distributed environment.

What you should be able to do

After completing this lesson, you can start, stop, and manage monitoring components by using various methods.

Starting components: Sequence

1. Database server
2. Hub monitoring server
3. Remote monitoring servers
4. Warehouse Proxy agent. Start it before any monitoring agents.
5. Monitoring agents, local and remote
6. Portal server. Use after the monitoring agents start for best performance.
7. Portal clients. These can successfully connect only after the portal server is running and is initialized.
8. Summarization and Pruning agent

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Starting components: Sequence

The database server must be running before you start the Tivoli Monitoring Services components. Starting the hub monitoring server first is important because several other components connect to it. Otherwise, their connections might fail and timeout.

The portal server must be running for the portal client to connect.

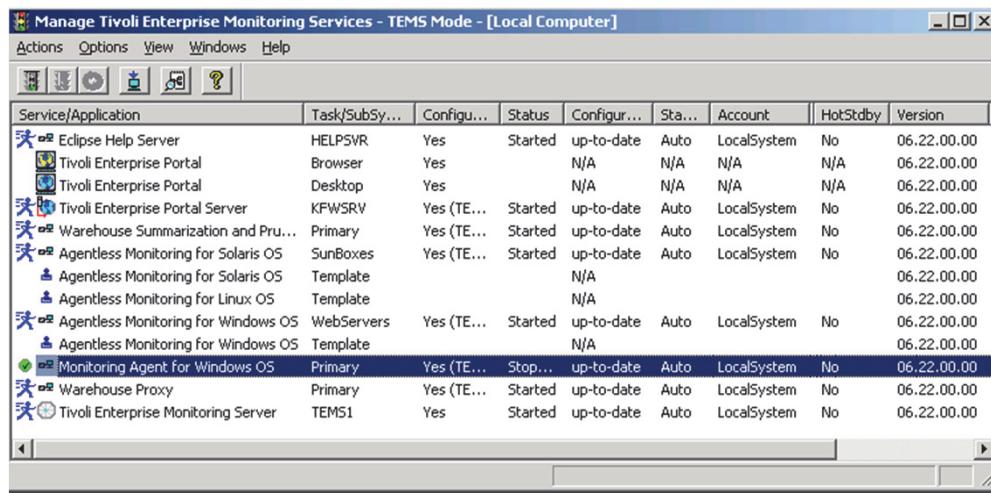
The sequence of the other components is not as critical, but you must always start an agent after the monitoring server to which it connects.



Note: Starting a Tivoli Monitoring service is sometimes not enough. The user must wait until the service is initialized and running in some cases, specifically monitoring server and portal server. In small environments, this amount of time is short, compared to the time large environments require.

Manage Tivoli Enterprise Monitoring Services on Windows

- Locally manage and maintain Tivoli Monitoring Services on a Windows or UNIX platform.
- Click Start > All Programs > IBM Tivoli Monitoring > Manage Tivoli Enterprise Services.



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Manage Tivoli Enterprise Monitoring Services on Windows

If at least one Tivoli Monitoring Services platform component is on a Windows system, you can use the Manage Tivoli Enterprise Monitoring Services feature to manage it.

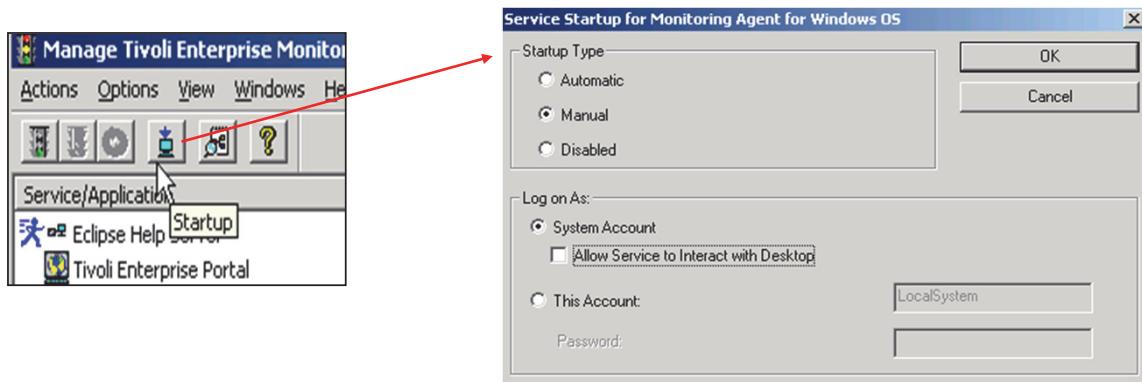
Most activities are available with the application, such as the following items:

- Starting and stopping a component
- Setting trace levels
- Modifying the startup preferences
- Configuring and reconfiguring components
- Many other services-specific options

The application is also good for viewing log and trace files on Windows because it lists the available log files for the Tivoli Monitoring components.

Changing automatic startup on Windows

- Default: Automatic startup
- At Startup Type, click Manual



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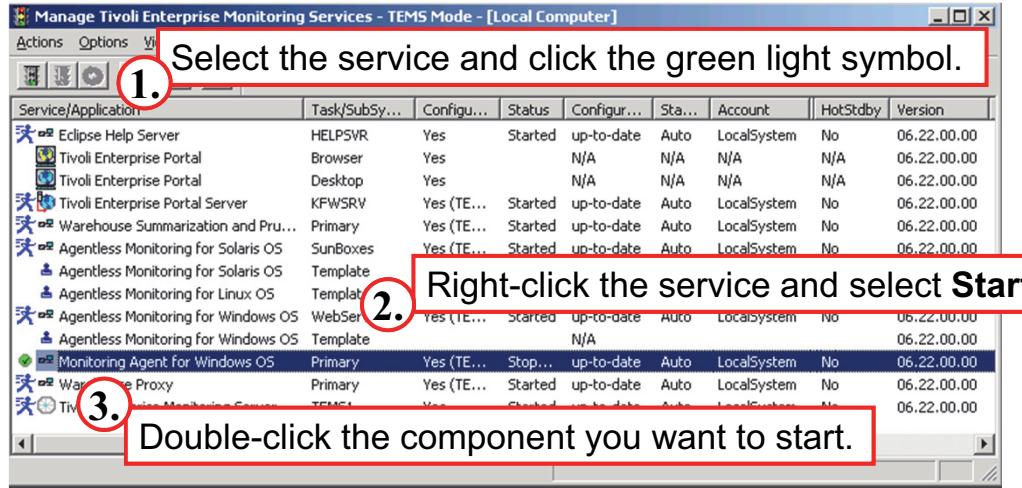
6

Changing automatic startup on Windows

For a production environment, start most components automatically with the operating system to ensure monitoring of the systems and applications, even if a system must restart. You can disable automatic startup for agents that you use sporadically or that you use in a test environment.

Manual startup on Windows

- Using **Manage Tivoli Enterprise Monitoring Services**, you can start individual services or select several by using the **Shift** or **Ctrl** key.
- For all the services you highlight, services start and perform the actions in the correct order.



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Manual startup on Windows

Before you can start a service, it must show a green check mark in the first column. This status means that the service is configured and ready to start. When you use Manage Tivoli Enterprise Monitoring Services on Windows, the three options to start a service are as follows:

- Clicking the traffic light symbol in the upper left corner
- Right-clicking the service and selecting **Start**
- Double-clicking the service

Command-line interface on Windows

tacmd.exe

- Start and stop monitoring agents on local or remote system.
 - Local use for operating system agents only
 - Log in to hub monitoring server required for remote agent start or stop, nonoperating system agents only
 - tacmd login –s <IP Address or host name> -u <user ID> -p <password>
- Use the tacmd command to start and stop monitoring agents.
 - tacmd startAgent –n Primary:VM03:NT –t lo
 - Starts Tivoli Log file agent instances on Windows system VM03.
 - Remote start or stop for nonoperating system agents only
- Default location is \<install_dir>\bin.

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Command-line interface on Windows

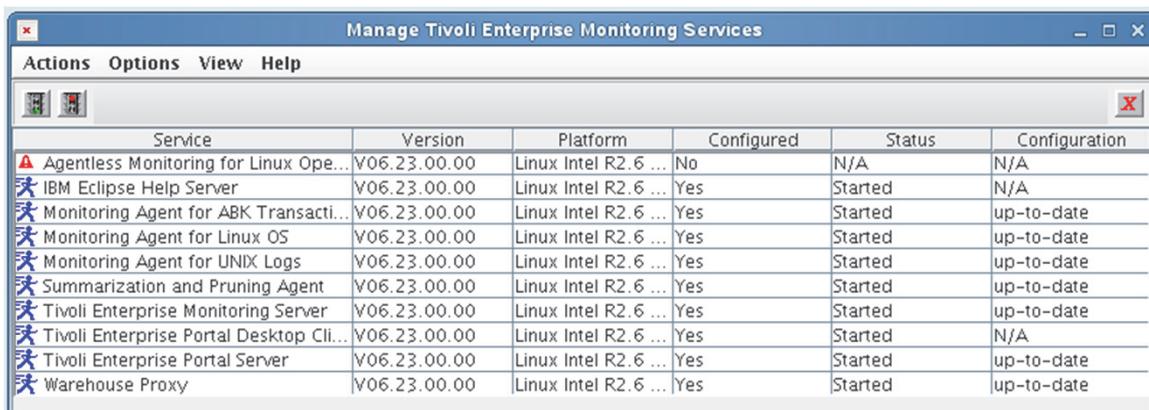
Windows supports the **tacmd** line command for starting and stopping monitoring agents. Windows does not support the **itmcmd** command.

Manage Tivoli Enterprise Monitoring Services on UNIX and Linux

- Change to installation directory.

Default is **/opt/IBM/ITM/bin**.

./itmcmd manage &



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Manage Tivoli Enterprise Monitoring Services on UNIX and Linux

On UNIX or Linux, use the **itmcmd** command with the **manage** option to start the application. The command has only limited functionality to start, stop, and configure the component.

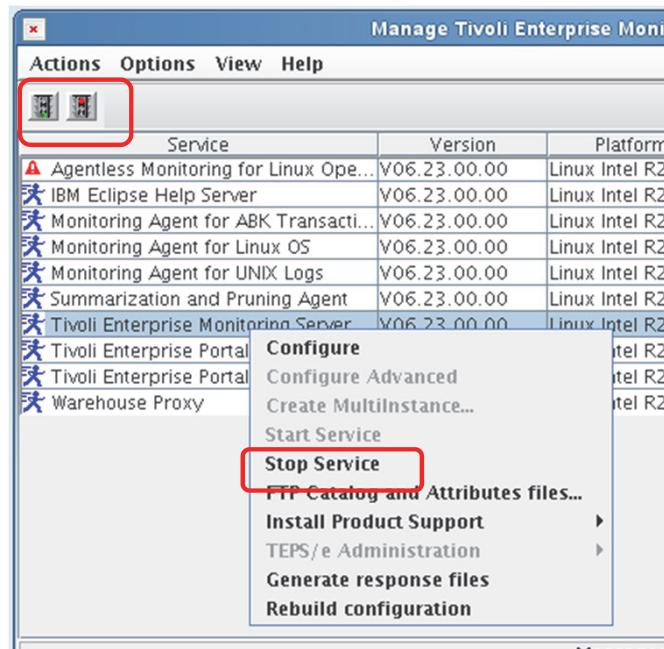
You must run the Manage Tivoli Enterprise Monitoring Services application on the local computer where the Tivoli Monitoring components are installed. If you want to run the process remotely, you must implement X Window System support.

Managing components on Linux or UNIX

- Click the component:
Click the **Start** or **Stop** button in the toolbar.

or

- Click the component:
Right-click, and click an entry from the menu.



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Managing components on Linux or UNIX



Note: With Linux or UNIX, double-clicking has no effect.

Component automatic start on Linux or UNIX

/etc/init.d/ITMAgents1 script

```
# IMPORTANT NOTE: =====
# Only commenting out a start/stop command will be preserved in this file.
# Any other user modifications will not be preserved. User ID overrides
# must be made in the config/kcirunas.cfg file to be preserved.
# IMPORTANT NOTE: =====

start_all()
{
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start 99 >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start cq >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start hd >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start kf >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start lz >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd server start VM01_TEMS >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start sy >/dev/null 2>&1'"
/bin/su - root -c "/bin/ksh -c '/opt/IBM/ITM/bin/itmcmd agent start ul >/dev/null 2>&1'"
}
```

Comment (#) the components you do not want to automatically start.

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Component automatic start on Linux or UNIX

The installation process creates the ITMAgents1 script. The script starts all Tivoli Monitoring components automatically in sequence. You can prevent the automatic start by adding a number sign (#) in the first column.

It is possible for fix packs or other maintenance to rebuild the ITMAgents1 script. Installing more components also rebuilds the script.

Command-line interface on Linux and UNIX

itmcmd

- Start and stop monitoring agents or monitoring servers on local system.
 - The command **./itmcmd server start RTEMS**
starts the monitoring server named RTEMS.
 - The command **./itmcmd agent start hd sy**
starts the Warehouse Proxy and Summarization and Pruning agents.
- No login or authorization required.

tacmd

- Start and stop monitoring agents on local or remote system.
- Log in to the hub monitoring server if working remotely:
`./tacmd login -s <IP Address or host name> -u <user ID> -p <password>`.
- Issue the **tacmd** command to start and stop monitoring agents.
The command
`./tacmd startAgent -n VM02:LZ -t lo`
starts Tivoli Log File agent on system VM02.

Default location is **/opt/IBM/ITM/bin**.

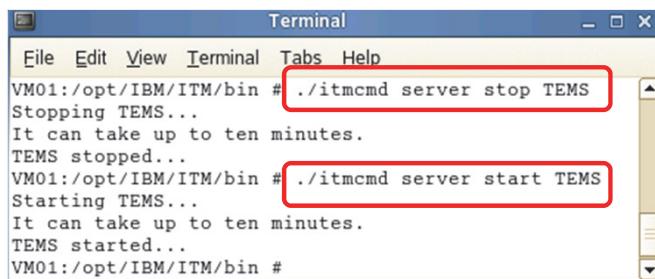
On Linux or UNIX, you cannot use a **tacmd** to start or stop operating system agents remotely. The operating system agent is the component that executes the command and must be present.

Managing monitoring servers on Linux or UNIX

Change to installation directory, default: `/opt/IBM/ITM/bin`.

`./itmcmd server start <monitoring server name>`

`./itmcmd server stop <monitoring server name>`



The screenshot shows a terminal window titled "Terminal". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area displays a command-line session:

```
VM01:/opt/IBM/ITM/bin # ./itmcmd server stop TEMS
Stopping TEMS...
It can take up to ten minutes.
TEMs stopped...
VM01:/opt/IBM/ITM/bin # ./itmcmd server start TEMS
Starting TEMS...
It can take up to ten minutes.
TEMs started...
VM01:/opt/IBM/ITM/bin #
```

Two lines of the command history are highlighted with red boxes: the command to stop TEMS and the command to start TEMS.

Run the command on the computer that hosts the monitoring server.

Managing monitoring agents on Linux or UNIX

./itmcmd agent start <pc>

- <pc> is product code
- The command **./itmcmd agent start lz hd sy** starts multiple agents.

./itmcmd agent stop <pc>



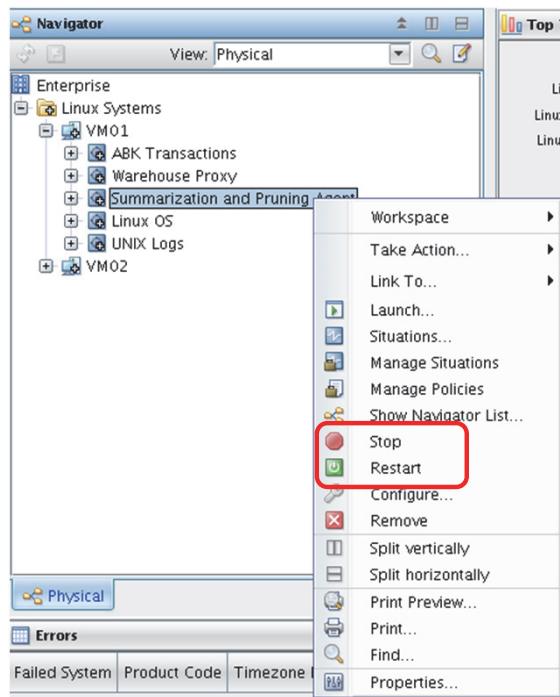
A terminal window titled "Terminal" with the following text:

```
File Edit View Terminal Help
VM01:/opt/IBM/ITM/bin # ./itmcmd agent stop lz hd sy
Multi-agent stop: lz
Processing. Please wait...
Stopping Watchdog process...
Watchdog process was stopped.
Stopping Monitoring Agent for Linux OS
Product Monitoring Agent for Linux OS was stopped gracefully.
Agent stopped...
Multi-agent stop: hd
Processing. Please wait...
Stopping Warehouse Proxy
Product Warehouse Proxy was stopped gracefully.
Agent stopped...
Multi-agent stop: sy
Processing. Please wait...
Stopping Summarization and Pruning Agent ...
Product Summarization and Pruning Agent was stopped gracefully.
Agent stopped...
Multi-agent stop completed
VM01:/opt/IBM/ITM/bin #
```

Run the command on the computer that hosts the monitoring agent.

Managing agents from the Navigator view

- Start, stop, restart, and configure agents directly from the Navigator view.
 - Right-click context menu
 - Note: Non-operating system agents only



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Managing agents from the Navigator view

Right-click a Navigator item for a nonoperating system agent to start, stop, restart, configure, or remove the agent. The Universal Agent and UNIX Logs agent are examples of nonoperating system agents. These actions are possible only for agents that are not operating system agents. An operating system agent must be present on the same system as the agent you want to manage. You can manage an agent only after the agent successfully connects to the hub monitoring server at least once.

Lesson 2. Managed systems and groups

Lesson 2: Managed systems and groups

- After a monitoring agent successfully connects with its monitoring server, the agent is shown in the portal client as one or multiple managed systems.
- A managed system is a component that Tivoli Enterprise Monitoring Agent monitors.
- A managed system can be:
 - An operating system
 - An application
 - A database
 - Hardware environment: temperature, power

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What this lesson is about

This lesson introduces managed systems and managed system groups. Monitoring agents monitor managed systems, and managed systems can be grouped for ease of distribution.

What you should be able to do

After completing this lesson, you should be able to perform the following tasks:

- Locate the status of managed systems.
- Create a managed system group
- Use a managed system group as the target of a situation distribution.

After you log in to the portal client, your agents and other components show as managed systems.

A system that has a monitoring agent in it is a managed system. You can assign managed systems to queries, situations, and policies. Such assignments enable data visualization, monitoring, and automation.

Managed systems are assigned to Navigator items to show situation events that are occurring on those systems, and to navigate to system-specific information.

For example, you distribute a situation to a managed system. If the situation becomes true, you want to see that situation event on a specific Navigator item. In that case, you assign the managed system to the Navigator item and distribute the situation to the managed system. Then, you associate the situation with that Navigator item.

Overview

View of the status of all managed systems from the Enterprise Navigator item in the Navigator Physical view.

	Status	Name	Product	Version	Managing System	Timestamp
1	*ONLINE	VM02:KUL	UL	06.23.00	RTEMS	04/04/12 03:33:28
2	*ONLINE	VM02:LZ	LZ	06.23.00	RTEMS	04/04/12 03:43:06
3	*ONLINE	VM01:KUL	UL	06.23.00	VM01 TEMS	04/04/12 04:54:43
4	*ONLINE	VM01:SY	SY	06.23.00	VM01 TEMS	04/04/12 04:55:32
5	*ONLINE	VM01:LZ	LZ	06.23.00	VM01 TEMS	04/04/12 04:56:15
6	*ONLINE	VM01:99	99	06.23.00	VM01 TEMS	04/04/12 05:01:03
7	*ONLINE	VM01 TEMS	EM	06.23.00	VM01 TEMS	04/04/12 05:02:42
8	*ONLINE	RTEMS	EM	06.23.00	VM01 TEMS	04/04/12 05:03:16
9	*ONLINE	VM01:TEPS	CQ	06.23.00	VM01 TEMS	04/04/12 05:03:28
10	*ONLINE	VM01:Warehouse	HD	06.23.00	VM01 TEMS	04/04/12 05:03:34

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Overview

To view the status of your managed systems, create a view that uses the query: **Current Managed Systems** status. This query is the default available with the portal client under the monitoring server query group. You can see the list of all managed systems in a view in the **Enterprise > Managed System Status** workspace.

Status reporting

You can view whether a managed system is offline or online in the **Managed System Status** table.

The screenshot shows the IBM Tivoli Monitoring interface. On the left is the 'Managed System Status' table, which lists various managed systems with their status, names, products, versions, managing systems, and timestamps. One row for 'VM02:KUL' is highlighted in blue and labeled 'OFFLINE'. A red box highlights this row with the text 'Offline managed systems are not available.' To the right is the 'Navigator' window, specifically the 'Physical' view under 'Enterprise'. It shows a tree structure of managed systems: 'Linux Systems' has two children, 'VM01' and 'VM02'. Each of these further branches into 'ABK Transactions', 'Warehouse Proxy', 'Summarization and Pruning Agent', 'Linux OS', and 'UNIX Logs'. A red arrow points from the 'OFFLINE' entry in the table to the 'VM02' node in the Navigator.

Status	Name	Product	Version	Managing System	Timestamp
*ONLINE	VM02:LZ	LZ	06.23.00	RTEMS	04/04/12 03:43
*ONLINE	VM01:99	99	06.23.00	VM01_TEMS	04/04/12 05:00
*ONLINE	VM01:TEPS	CQ	06.23.00	VM01_TEMS	04/04/12 05:00
*ONLINE	VM01:Warehouse	HD	06.23.00	VM01_TEMS	04/04/12 05:00
*ONLINE	VM01:KUL	UL	06.23.00	VM01_TEMS	04/04/12 05:04:43
*ONLINE	VM01:SY	SY	06.23.00	VM01_TEMS	04/04/12 05:04:43
*ONLINE	VM01_TEMS	EM	06.23.00	VM01_TEMS	04/04/12 05:04:43
*ONLINE	VM01:LZ	LZ	06.23.00	VM01_TEMS	04/04/12 05:04:43
*ONLINE	RTEMS	EM	06.23.00	VM01_TEMS	04/04/12 05:04:43
OFFLINE	VM02:KUL	UL	06.23.00	RTEMS	04/04/12 05:04:43

- On the Navigator Physical view

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Status reporting

You can observe managed systems that go offline in either the **Managed System Status** table or in the Navigator Physical view. If a managed system is offline, it is shown in an unavailable state in the Navigator. The time stamp column shows the time that the hub monitoring server last received a heartbeat signal from the agent or other infrastructure component.

Adding and removing managed systems

- When new agents connect to their monitoring server, added managed systems are shown in the Navigation Physical view.
- You can remove offline managed systems in the Navigator view or the Managed System Status view.

You can remove only offline managed systems.

Status	Name	Product	Version	Managing
*ONLINE	VM02:LZ	LZ	06.23.00	RTEMS
*ONLINE	VM01:99	99	06.23.00	VM01_TE
*ONLINE	VM01:TEPS	CQ	06.23.00	VM01_TE
*ONLINE	VM01:Warehouse	HD	06.23.00	VM01_TE
	VM01:KUL	UL	06.23.00	VM01_TE
	VM01:SY	SY	06.23.00	VM01_TE
	VM01_TEMS	EM	06.23.00	VM01_TE
	VM01:LZ	LZ	06.23.00	VM01_TE
	RTEMS	EM	06.23.00	VM01_TE
	VM02:KUL			EMS

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Adding and removing managed systems

Whenever an agent or component connects to its monitoring server for the first time, added managed systems are automatically visible in the Navigator Physical view. After the initial connection, the managed system status is shown as unavailable for offline or solid black for online. New managed systems require that you click the blue refresh icon in the upper left corner of the Navigator view. You can also click the blue message below the Navigator view.

You can remove offline managed systems from your **Managed System Status** view. This action cleans up your Navigator and Managed System Status view. After you rename systems, they connect with new managed system names.

Managing situations for a managed system

Manage Situations view

- Situations that are defined for a managed system
- Active situations

The screenshot shows two windows. The top window is titled "Managed System Status" and lists various managed systems with their status, product, version, managing system, and timestamp. A context menu is open over the first row, with the option "Manage Situations" highlighted and enclosed in a red box. A red arrow points from this menu option down to the "Manage Situation at Managed System: VM02:LZ" dialog window below. This dialog lists several active situations with their names, statuses, and descriptions, each accompanied by a green checkmark.

	Status	Name	Product	Version	Managing System	Timestamp
1	*ONLINE	VM02:LZ	L7	06.3.00	RTEMS	04/04/12 03:43:06
2	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:05:32
3	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:06:15
4	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:11:03
5	*ONLINE	RTEM	TEMPS	3.00	VM01_TEMPS	04/04/12 05:12:16
6	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:13:28
7	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:13:34
8	*ONLINE	VM01	TEMPS	3.00	RTEMPS	04/04/12 05:14:14
9	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:14:42
10	*ONLINE	VM01	TEMPS	3.00	VM01_TEMPS	04/04/12 05:14:43

Manage Situation at Managed System: VM02:LZ

Name	Status	Description
Linux_AMS_Alert_Critical	Started	Agent Management Critical Alert
Linux_Fragmented_File_System	Stopped	The percentage of i-nodes to used disk space is high. This ...
Linux_High_CPU_Overload	Started	Percentage of processor time in idle state low warning. ...
Linux_High_CPU_System	Stopped	High percentage of processor time is used for system ca...
Linux_High_Packet_Collisions	Started	Percentage of transmitted packet collisions is high. This...
Linux_High_RPC_Retransmit	Stopped	The percentage of retransmits for RPC Server calls is hig...
Linux_High_Zombies	Started	The number of processes in zombie state is high. This ...
Linux_Low_Pct_Inodes	Started	Percentage of available i-nodes is low. This situation is ...
Linux_Low_percent_space	Started	Percentage of space available on a filesystem is low. Th...

Select an option from the **Managed System Status** view.

Managing situations for a managed system

You or your customers might want to know which situations are active or inactive on a managed system. You can determine this status directly in the Navigator or by right-clicking a managed system entry in the managed system status table. You can see all situations and all their settings. You can also start and stop situations from this view or open the situation editor.

Grouping managed systems

- Combine multiple managed systems into a group to manage them as one entity.
- You can distribute situations and policies or assign Navigator items to managed system groups.
- By managing multiple managed systems as one entity, you simplify the setup and maintenance of a monitoring solution.
- Each agent type comes with one product-provided managed system group.
 - An asterisk-marked name, such as ***LINUX_SYSTEM** or ***NT_SYSTEM**, indicates such a group.
 - A group contains all managed systems of the same type.

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Grouping managed systems

Managed system groups simplify the configuration and maintenance of your enterprise monitoring solution. By grouping managed systems as one entity, you can manage new systems in the same way as previously configured ones.

You can group as follows:

- Situations running on a system
- Navigator items representing a system
- Policies running for a specific system
- Queries to pull data from the group

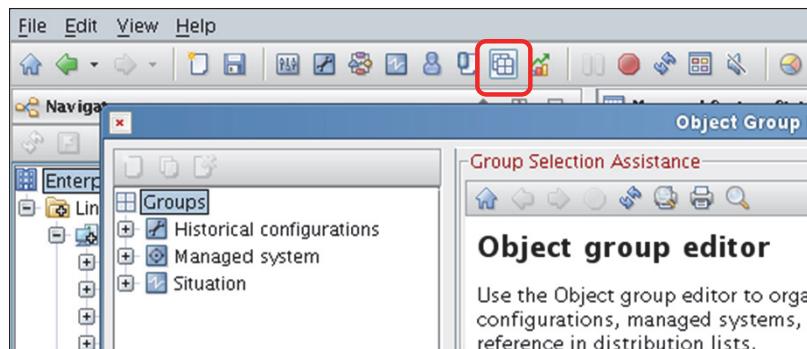
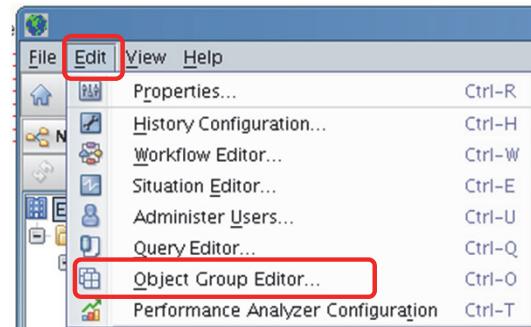
You can assign all those functions to a new managed system by adding the system to an existing managed system group.

Using managed system groups helps the performance of administrative tasks. Manipulating a situation or a query that is assigned to a managed system group with 100 managed system members is much better than manipulating an object with thousands of members. Product-

provided managed system groups *ALL_UNIX or *LINUX_SYSTEM are often too large to use effectively when a customer has many thousands of monitored servers.

Working with managed system groups

- Access managed system groups with the object group editor.
- To open the object group editor:
 - Press **Ctrl+O**.
 - Select it from the **Edit** menu.
 - Click the icon on the toolbar.



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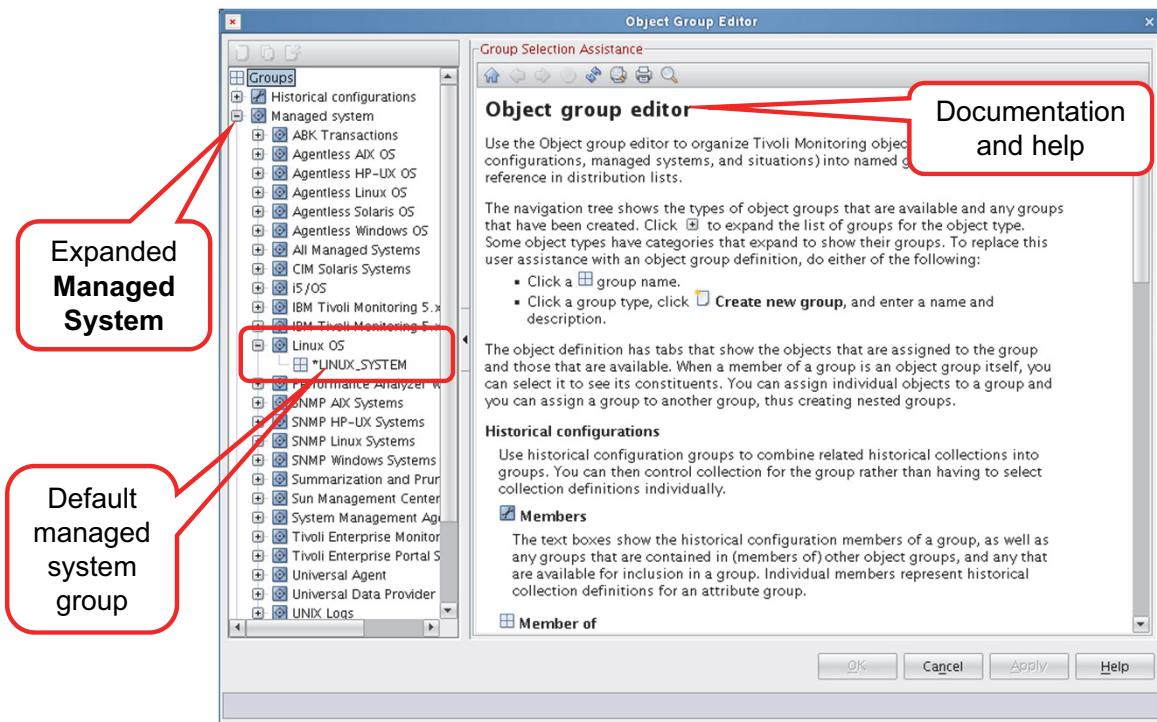
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Working with managed system groups

You can open the Object Group editor from the portal client **Edit** menu.

The application provides some managed system groups, marked with an asterisk (*) and not modifiable. All systems of a specific type are automatically added to those groups. For example, all Windows agents are placed in *NT_SYSTEM.

The object group editor



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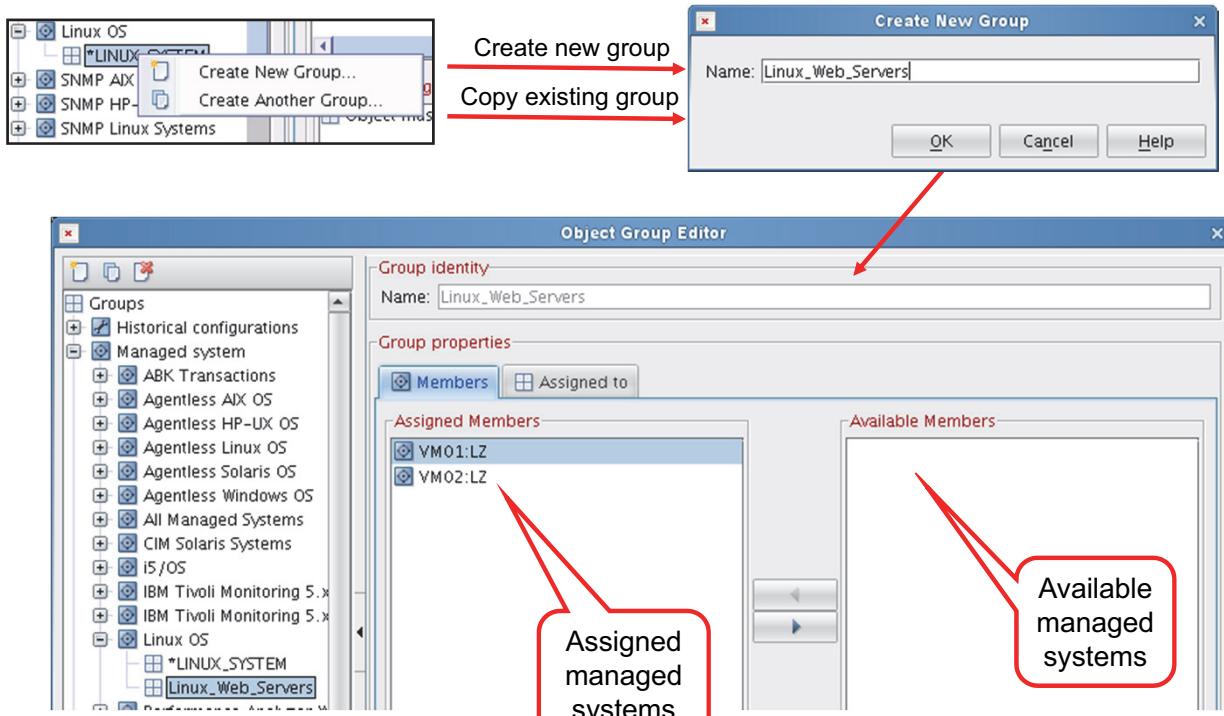
23

The Object Group editor

Start the Object Group editor from the menu or press **Ctrl+O**. Use the Object Group editor to create and manage three types of groups as follows:

- **Historical configuration** groups define attribute groups that are collected and stored to provide historical data.
- **Managed system** groups organize managed systems into named groups that you can assign to Navigator items or use as targets for situation distribution.
- **Situation** groups organize situations into named groups for easier distribution to managed systems.

Creating a new managed system group



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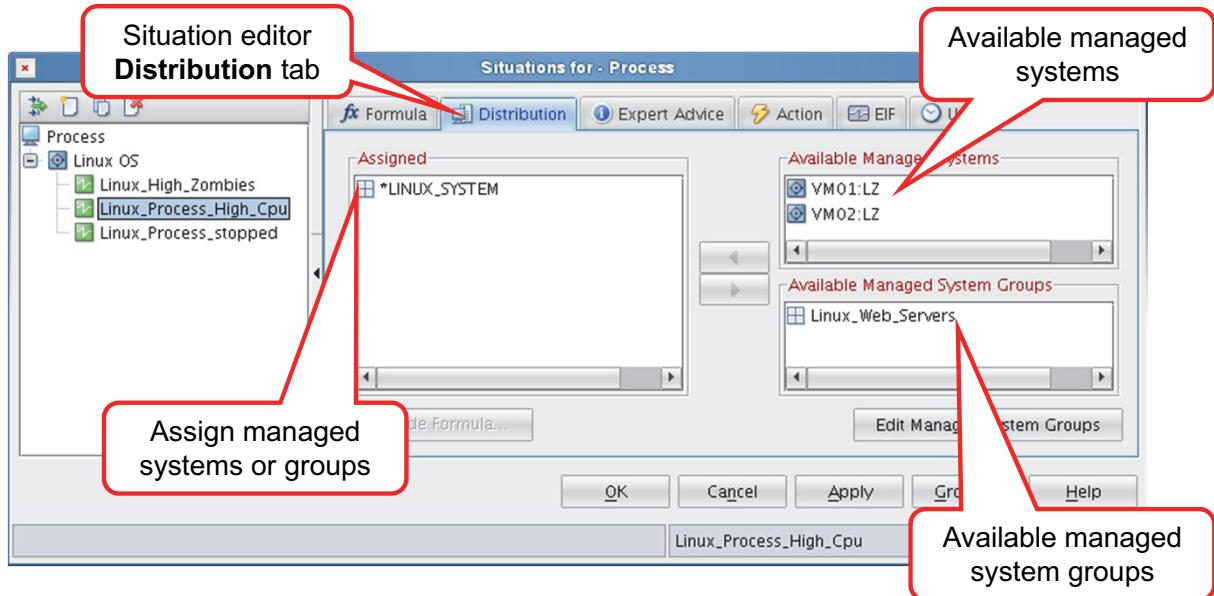
24

Creating a new managed system group

When creating a new managed system group, select the type of agents you want to include. All agents of that affinity are shown in the **Available Managed Systems** field and are assignable. You can create heterogeneous managed system groups that contain different types of monitoring agents. For example, you can create a group that represents all of your web servers, even if they are on different types of servers. You must create such a group in the All Managed Systems category.

Using managed system groups

Situation or policy distribution, or to associate them with Navigator items



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Using managed system groups

You can also assign managed system groups to manage multiple managed systems together.

You can, for example, distribute a situation to all managed systems within one managed system group by assigning it in the situation editor. When adding managed systems in the future, you need only to assign them to the managed system group. They automatically have all situations that are distributed to the managed system group.

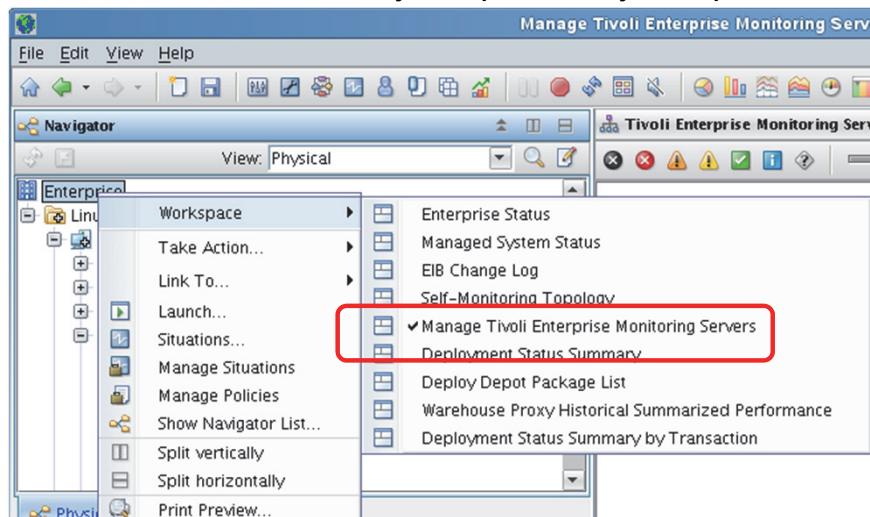
The only potential drawback is that you might lose some level of detail in the Navigator view. One benefit is that your Navigator is more manageable in large enterprise installations.

Lesson 3. Self-monitoring workspaces

Lesson 3: Self-monitoring workspaces

Manage Tivoli Enterprise Monitoring Servers

- Information for diagnosing and correcting typical monitoring server configuration issues
- Quick health check whenever you update any components



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What this lesson is about

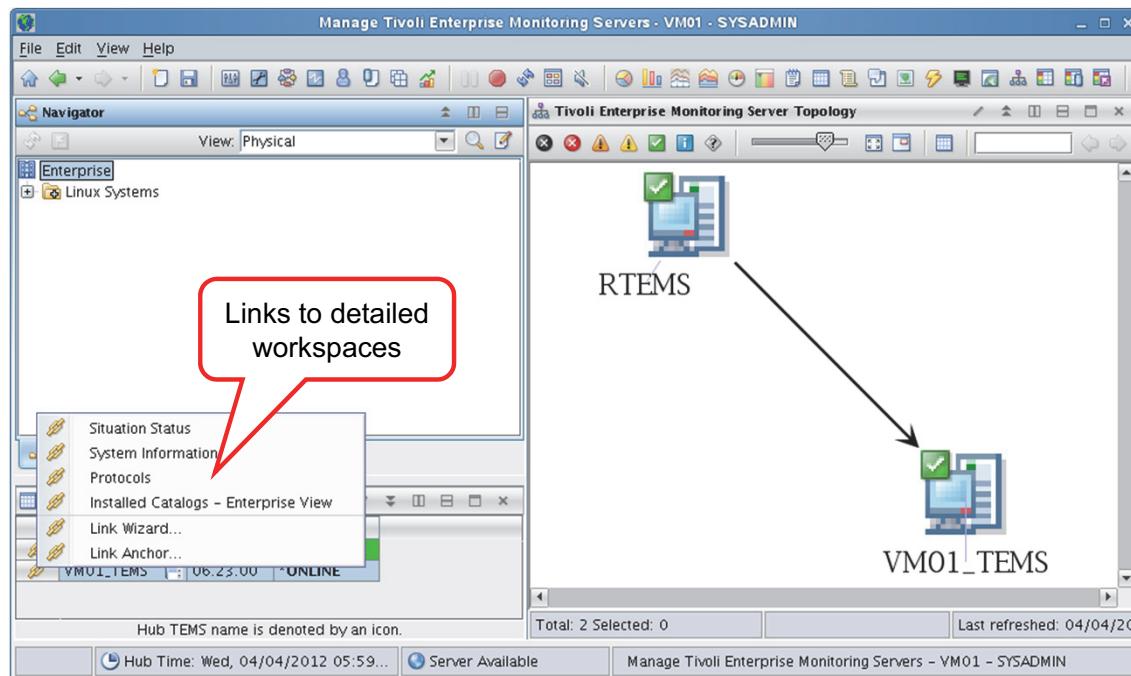
Self-monitoring workspaces provide information about the status and health of the Tivoli Enterprise Monitoring Servers. Product-provided situations monitor for availability of key components such as remote monitoring servers. You open the self-monitoring workspaces from the Enterprise Navigator item.

What you should be able to do

After completing this lesson, you should be able to use the self-monitoring workspaces to obtain information about the health and status of hub and remote monitoring servers.

Self-monitoring workspaces provide information about the health of the Tivoli Monitoring Services components. Product-provided situations monitor for availability of key components such as remote monitoring servers. You open the self-monitoring workspaces from the Enterprise Navigator item.

Managing Tivoli Enterprise Monitoring Servers workspace



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Manage Tivoli Enterprise Monitoring Servers workspace

The **Manage Tivoli Enterprise Monitoring Servers** workspace provides a high-level view of monitoring server status. The Monitoring Servers view has links to more detailed workspaces, such as the following items:

- Situation Status workspace
- System Information workspace
- Protocols workspace
- Installed Catalogs workspace

These workspaces are documented in Chapter 13 of the *IBM Tivoli Enterprise Portal User's Guide*.

Situation Status workspace

- Situation Status Summary
 - Number started
 - Number closed

- Situation Status Detail
 - Situation name
 - Status
 - Total number

The screenshot shows the Situation Status workspace with two main tables:

Situation Status Summary

Status	Total Number
Started	28
Closed	6

A red callout bubble points to the "Started" row with the text: "Number of situations that are running".

Situation Status Detail

Name	Status	Total Number
KHD_DB_Connectivity	Started	3
KHD_Error_Critical	Started	1
KHD_Error_Fatal	Started	1
KSY_DB_Connectivity_Fail	Started	1
KSY_Pruning_Failures	Started	1
KSY_Summarization_Failures	Started	1
KSY_TEPS_Connectivity_Fail	Started	1
Linux_AMS_Alert_Critical	Started	1
Linux_High_CPU_Overload	Closed	1

VM01 TEMS

Manage Tivoli Enterprise Monitoring Servers – Situation Status – VM01 – SYSADM

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Situation Status workspace

The Situation Status workspace shows all situations in the enterprise. You can tell how many monitoring servers a situation is distributed to by looking in the **Total Number** column of the Situation Status Detail view.

System Information workspace

- Process Information
 - ITM Home:
Installation directory
 - ITM Process:
Name of running process
 - More
- Server Configuration:
System variables and values

The screenshot shows two tables within the System Information workspace:

Process Information

System Attribute	Value
AS Limit	2801M
Core Limit	None
CPU Limit	None
Data Limit	None
Executable Name	/opt/IBM/ITM/li6263/ms/bin/kdsmain
Fsize Limit	None
ITM Home	/opt/IBM/ITM
ITM Process	vm01_ms
MAC1_ENV Macro	0xE316
Nofile Limit	8192
Process ID	4655
Program Name	kdsmain
Service Point	root.vm01_ms
Stack Limit	None

Server Configuration

System Variable Name	Value
CMS_FTO	NO
CMS_NODEID	VM01_TEAMS
KBB_ENVPATH	KBBENV

Both tables have their last row highlighted with a red box.

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System Information workspace

This workspace supplies detailed information about the monitoring server processes and system configuration. It is available for monitoring servers from Version 6.2.2 and later.

Protocols workspace

- Local communications Protocol Entries

Entry Type	Protocol	IP Address	Port Number	Annotation
GLB	ip.pipe	192.168.100.101	1,918	non-replicated GLB
EIB	ip.pipe	192.168.100.101	1,918	VM01 TEMS
HUB	ip.pipe	192.168.100.101	1,918	VM01 TEMS
TEMS	ip.pipe	192.168.100.101	1,918	VM01 TEMS
WAREHOUSE	ip.pipe	192.168.100.101	63,358	Candle_Warehouse_Proxy

VM01 TEMS

- Global Communications Protocol Entries

Entry Type	Protocol	IP Address	Port Number	Annotation
EIB	ip.pipe	192.168.100.101	1,918	VM01 TEMS
HUB	ip.pipe	192.168.100.101	1,918	VM01 TEMS
TEMS	ip.pipe	192.168.100.101	1,918	VM01 TEMS
WAREHOUSE	ip.pipe	192.168.100.101	63,358	Candle_Warehouse_Proxy
TEMS	ip.pipe	192.168.100.102	1,918	RTEMs

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Protocols workspace

The Local and Global Communications Protocol entries for the monitoring servers are in the Protocols workspace. These entries are created during installation for connections between components, such as the protocol, IP address, and port number.

Installed Catalogs workspace

Installed Catalogs - Enterprise View:
Catalog at hub monitoring server is compared to the catalog at every remote monitoring server in the enterprise.

Remote Server Catalogs: Catalog at hub monitoring server that is compared to the catalog at a selected remote monitoring server.

Note: Agent K99 is not installed at remote monitoring server.

Catalog	Status	Server Name	HUB Timestamp	Server Timestamp	HUB Column Count	Server Column Count
ABA	OK	RTEMPS	10/07/05 15:54:26	10/07/05 15:54:26	351	351
ABH	OK	RTEMPS	10/07/05 15:54:26	10/07/05 15:54:26	347	347
AMA	OK	RTEMPS	10/07/05 15:54:26	10/07/05 15:54:26	56	56
AMB	OK	RTEMPS	10/07/05 15:54:26		83	
AMD	OK	RTEMPS	10/07/05 15:54:26		14	
AMN	OK	RTEMPS	10/07/05 15:54:26		32	
AMS	OK	RTEMPS	10/07/05 15:54:26		30	
AMW	OK	RTEMPS	10/07/05 15:54:26	10/07/05 15:54:26	205	205
AMX	OK	RTEMPS	10/07/05 15:54:26			
BIW	OK	RTEMPS				
BIX	OK	RTEMPS				
CTD	OK	RTEMPS				
CTO	OK	RTEMPS				

Catalog	Status	HUB Timestamp	Server Timestamp	H Col Ct
IUD	OK	10/07/05 15:54:26	10/07/05 15:54:26	11
IUI	OK	10/07/05 15:54:26	10/07/05 15:54:26	26
IVD	OK	10/07/05 15:54:26	10/07/05 15:54:26	20
IVI	OK	10/07/05 15:54:26	10/07/05 15:54:26	75
IXA	OK	10/07/05 15:54:26	10/07/05 15:54:26	16
IXB	OK	10/07/05 15:54:26	10/07/05 15:54:26	10
IXT	OK			
IYM	OK			
IZY	OK			
K99	Missing At RTEMS	10/07/05 15:54:26	10/07/05 15:54:26	
KA4	OK	08/11/05 11:39:28		
KDY	OK	05/26/10 11:39:28	05/26/10 11:39:28	16
KFA	OK	08/15/96 13:58:14	08/15/96 13:58:14	8
KFW	OK	03/20/99 12:34:00	03/20/99 12:34:00	18
KHD	OK	08/16/11 18:56:44	08/16/11 18:56:44	97
KLZ	OK	08/02/11 05:47:12	08/02/11 05:47:12	90
KMS	OK	03/21/95 14:16:02	03/21/95 14:16:02	4

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Installed Catalogs workspace

The hub and remote monitoring servers tend to have similar or identical sets of catalogs as follows:

- **Installed Catalogs - Enterprise View**

Compares the application catalogs that are installed on every remote monitoring server in the enterprise with catalogs on the hub monitoring server. The application highlights discrepancies in the Status column. The time stamp reflects the last time the configuration file was edited.

- **Remote Server Catalogs view**

Compares the application catalogs on the selected Remote Tivoli Enterprise Monitoring Server with catalogs on the hub monitoring server. This view shows all catalog synchronization issues.

In this example, the agent code K99 is not installed at the remote monitoring server. K99 is the Agent Builder ABK agent that is created for this class. This condition is not a problem in the example, but if you see other catalog entries that show up as missing, you can investigate the cause.

Student exercises



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Student exercises

Open your *Student Exercises* book and perform the exercises for this unit.

Review questions

1. Which line command do you use to start and stop operating system agents on a remote system?
2. Which component must you start first: the monitoring agent or the monitoring server?
3. How can you see all situations that are defined on a managed system?

Review answers

1. Which line command do you use to start and stop operating system agents on a remote system?

*You cannot use line commands such as **tacmd** to start operating system agents on a remote system. The operating system agent is the component that processes the **tacmd**, the operating system agent must run there.*

2. Which component must you start first: the monitoring agent or the monitoring server?

The monitoring server must start before the monitoring agents that connect to it.

3. How can you see all situations that are defined on a managed system?

*From the managed system Navigator item, right-click and click **Manage Situations**. This action opens the Manage Situations at Managed System window.*

Summary

Now that you completed this unit, you can perform the following tasks:

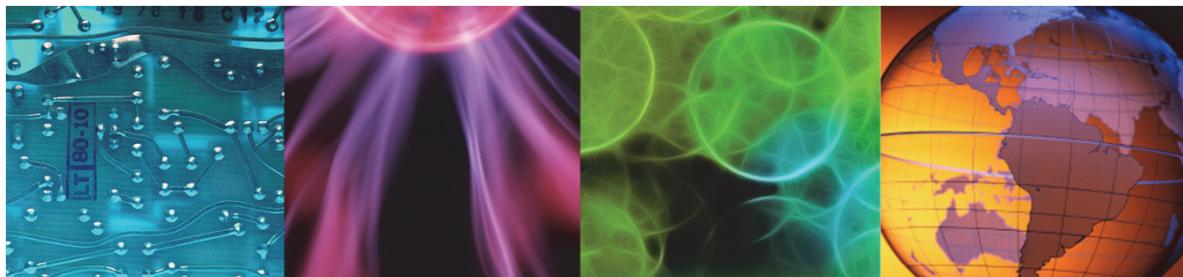
- Start and stop Tivoli Management Services by using different options.
- Describe the purpose of managed systems and managed system groups.
- Describe the Tivoli Enterprise Monitoring Servers self-monitoring workspaces.



4 Monitoring your enterprise



4 Monitoring your enterprise



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What this unit is about

This unit shows how to monitor the enterprise through situation events. You monitor your enterprise resources by generating situations to trigger situation events when a condition occurs that requires attention. You learn about the different settings you can apply to situations, and what effect they have.

How you check your progress

You can check your progress in the following ways:

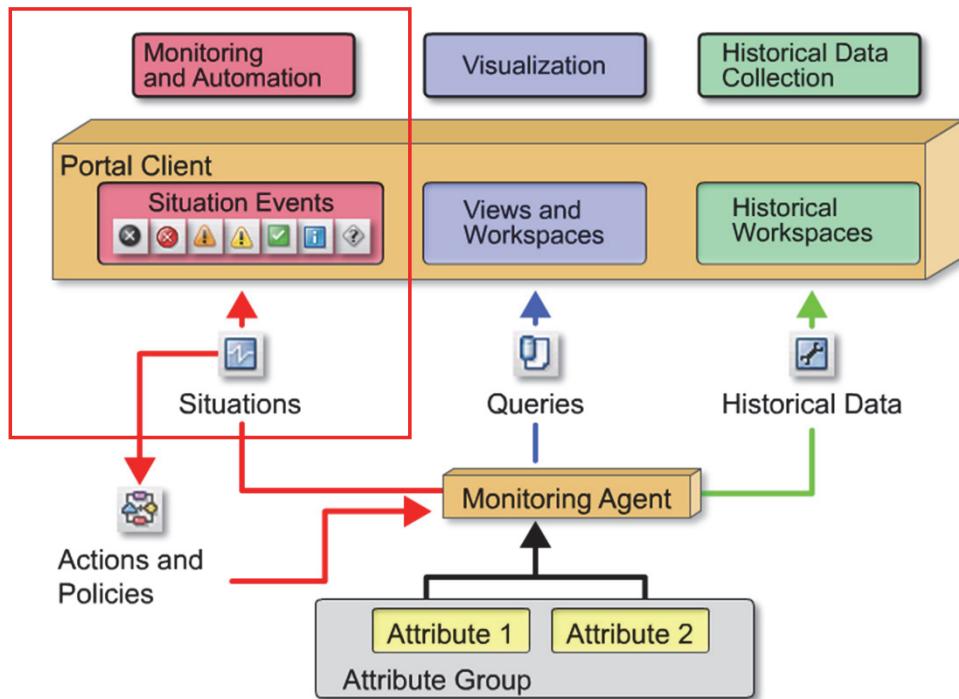
- Review questions
 - Lab exercises
- 

Objectives

When you complete this unit, you can perform the following tasks:

- Describe the relationship between situations and situation events.
- Use the Situation editor to generate situation events in the portal client.
- Use all situation settings.
- Manage where and when situations run.
- Build various situations for different types of agents.

Monitoring and situation event management



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Monitoring and situation event management

This slide presents the different areas where Tivoli Monitoring stores data. During this unit, you learn about monitoring and automation. You build situations and trigger situation events. To solve discovered problems, you use different automation options that Tivoli Monitoring provides.

Lesson 1. Introduction to situation events

Lesson 1: Introduction to situation events

Visualizing data versus situation events:

- Data visualization
 - Data is shown in workspaces and views.
 - The portal client drives data collection.
 - Data is a snapshot with no indication of problems.
 - User interest can influence data.
- Monitoring with situations
 - Situations that trigger situation events generate data.
 - Agents drive situation events and disseminate the information to the clients.
 - Data describes a resource or enterprise problems that require attention.
 - Data shown for all users at the same time and in the same way.

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What this lesson is about

You worked with workspaces and views to see reports of the monitored systems. That data is collected upon request and does not contain any information about problems that occur in resources, except possibly highlighted entries in table views, which are specific to user IDs.

Situation events indicate problems in resources that might have an impact on performance or on the availability of resources, applications, or business operations. The monitored resources, not users, trigger situation events.

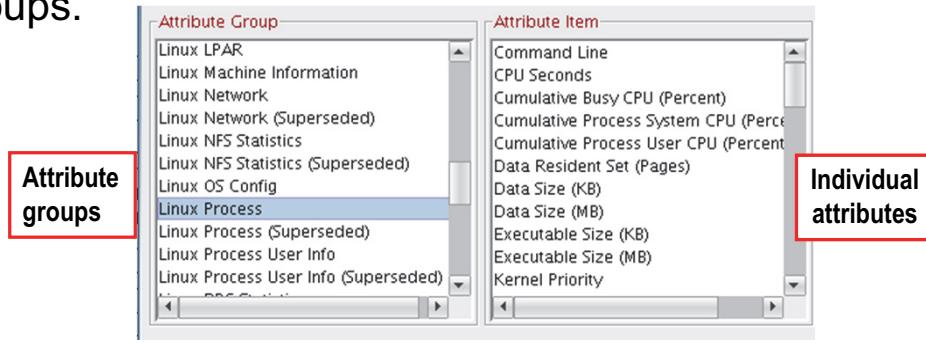
What you should be able to do

After completing this lesson, you should be able to perform the following tasks:

- Identify attributes and attribute groups.
- Identify situations and situation events.

Attributes

- Attributes are data items that the agents collect and send to the portal client for display or event generation.
- When creating a situation, use one or more attributes in your condition.
- When you evaluate the situations, actual values replace the attributes.
- The resource assigns individual attributes logically into attribute groups.



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Attributes

Attributes are data items that are obtained from the monitoring agents and are the basis of monitoring. An attribute can have different characteristics, such as the following items:

- A number, such as disk bytes
- A percentage, such as percent of processor usage
- A name or label, such as system name or disk drive name
- A date and time value

You can derive attributes over successive monitoring intervals to determine rates of change. To simplify working with them, attributes are grouped logically. These attribute groups are the same across the enterprise, whether you work with situations, queries, or other functions.

Situations

- Situations are conditions that are evaluated to verify if a problem occurs.
- Use a condition in the situation to compare attribute values with predetermined values.
- If a value exceeds a predetermined value, thereby meeting a condition, the situation event is shown in the portal with the assigned severity.
- **Example:** If USED_DISK_SPACE is greater than 90%, display a critical situation event (red).
- Use the Situation editor to create situations.
- All Tivoli Monitoring products provide situations, which you can use as monitoring guidance.



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Situations

Do not modify product-provided situations because changes might be overridden with the next product update. Situations can detect conditions such as the following items:

- Low disk space, such as less than 5 percent available
- Missing process, such as httpd process not present
- Website not accessible

Situation events

- Situation events describe incidents that require attention.
- These incidents typically affect a resource, application, or business operation area performance or availability.
- At the agent, on an internal, sampled, basis, situations trigger situation events.
- Situation event states can have the following severities:

Color	Severity	Color	Severity
 Black	Fatal	 Green	Harmless
 Red	Critical	 Blue	Informational
 Orange	Minor	 Gray	Unknown
 Yellow	Warning		

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Situation events

Before you see a situation event in the portal client, someone must create a situation. The situation contains a condition that describes a problem that you are monitoring for. The application compares this condition to attributes with thresholds. The condition must be true before a situation event is shown.

Each monitoring agent (product) provides situations. These product-provided situations can automatically be distributed, or an administrator can distribute them.

Lesson 2. Situation event notification

Lesson 2: Situation event notification

- Situation events can be shown in the following places:
 - On Navigator items using an event flyover
 - On graphic view icons using an event flyover
 - In the Situation Event Console
 - In the Message Log
- Audio alerts (sounds) can also notify users of events.

What this lesson is about

Situations that are associated with Navigator items show an icon when a situation event occurs. This lesson shows you various ways to obtain information about the cause of a situation event.

What you should be able to do

After completing this lesson, you should be able to perform the following tasks:

- Describe the locations where you see situation events.
- Describe where you can find information about a situation event
 - Situation Event Results workspace
 - Situation Event console view
 - Event Details workspace

Users can receive visual notifications of situation events that include the following methods:

- On Navigator items
- In the Situation Event Console
- On graphic view icons

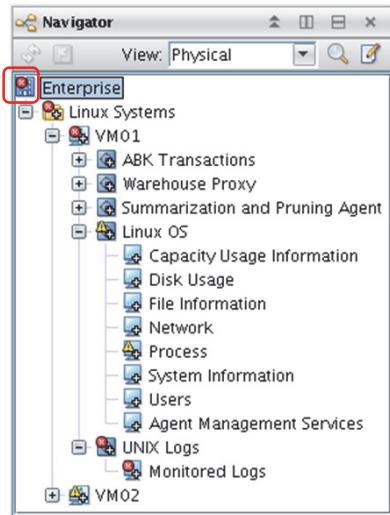
Another notification option is setting an audio alert so that operators do not need to constantly view a monitor.

To make situation events visible or audible, the situations they are based on must be associated with Navigator items. Association is the default for all product-provided situations. If you do not want to see a particular situation event, you can dissociate that situation from the Navigator item for which it is created.

Another notification option is setting an audio alert so that operators do not need to constantly view a monitor.

Navigator item situation event display

- The severity of a situation event ranges in descending order as follows: fatal, critical, minor, warning, harmless, informational, or unknown.
- The *state* is important when multiple situation events are shown for the same item.
- Situation events with higher severity overlay those with lower severity.



For situation events to show in Navigator view, the situation must be associated with a Navigator item.

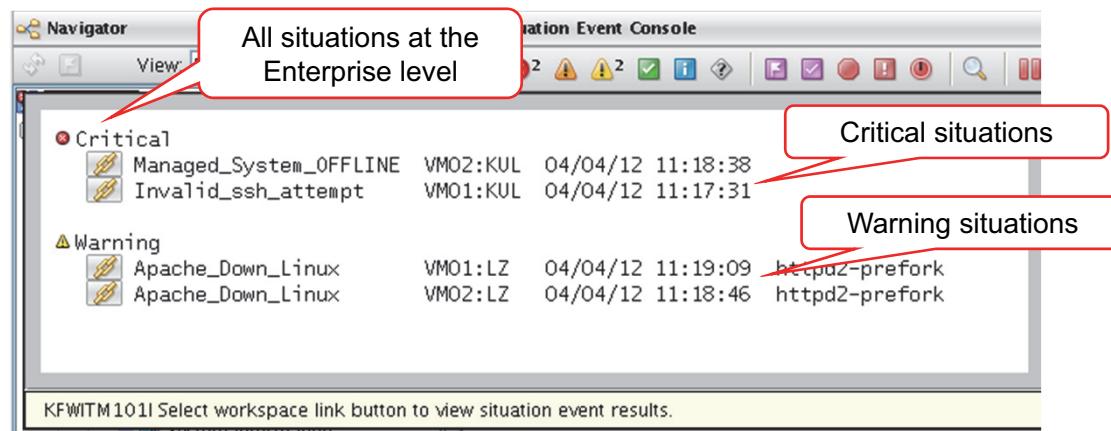
Navigator item situation event display

Navigator items can show other icons in addition to the situation event icons. Some examples include Acknowledged, Expired, Stopped, Resurfaced, and Problem.

Higher in the enterprise hierarchy, situation events are consolidated. This consolidation means that the enterprise Navigator item in the Navigator Physical view contains all active situation events on any installed systems. Because one Navigator item can show only one state at a time, the state with the highest severity is shown. A red icon overlays yellow icons and blue icons, followed by all other indicators.

Situation event flyover

- A situation event flyover is shown when you hold the mouse pointer over a situation event in the Navigator or on a graphical view icon.
- The flyover presents a list of situation events that are currently active for that item.



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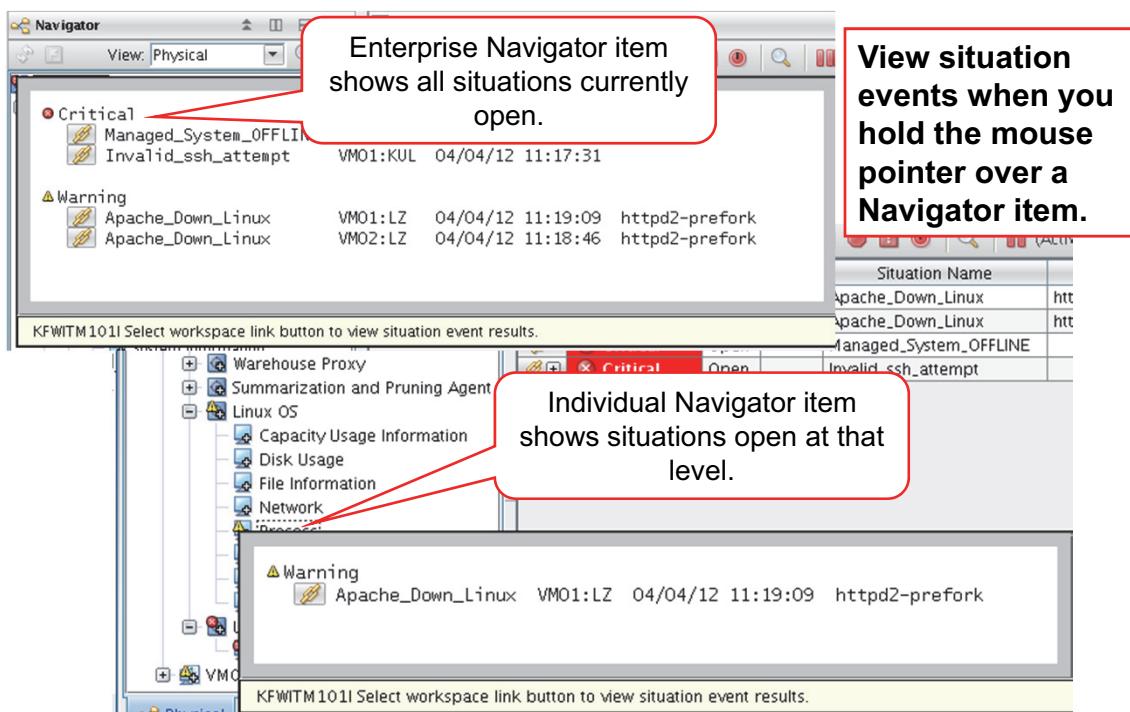
Situation event flyover

When a situation event is shown on the Navigator, learn the details. Position your mouse pointer over the situation event icon to open a flyover list.

The flyover list shows more information about the situation event. It also presents all other situation events that might be hidden because they have the same or lower severity. For each situation event, the following items are shown:

- Name of the situation that triggers a situation event
- Managed system where the situation event occurs
- Date and time when the situation event happens
- Optional shown item

Situation event flyover (continued)



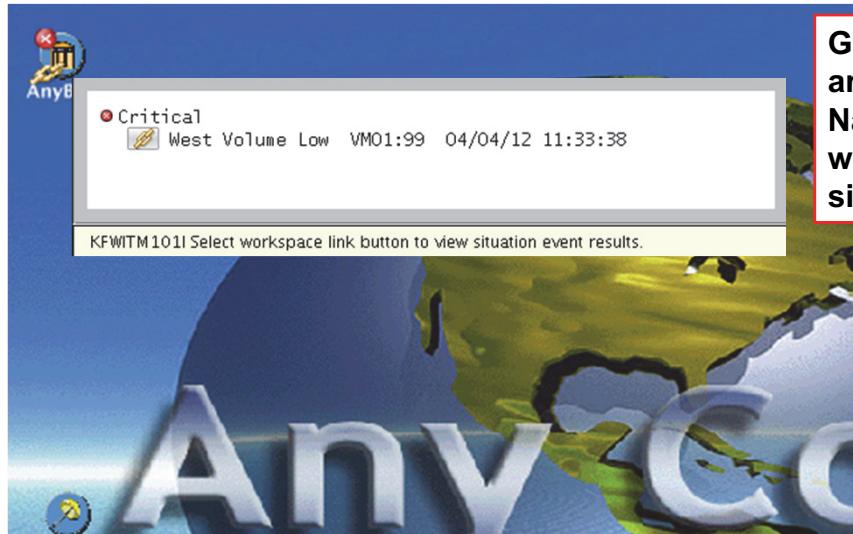
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When you position the mouse pointer over a situation event in a lower level of the Navigator, only situation events that apply to the Navigator item level and lower levels are shown. When you hover your mouse over the Enterprise Navigator item, all active situation events are shown.

When the situation event flyover is shown, click the link indicator, a chain symbol. You can then access more information in a Situation Event Results workspace. You also can right-click the text of the situation event to view situation event management options.

Graphic view icons



Graphic view icons are equivalent to Navigator items when showing situation events.

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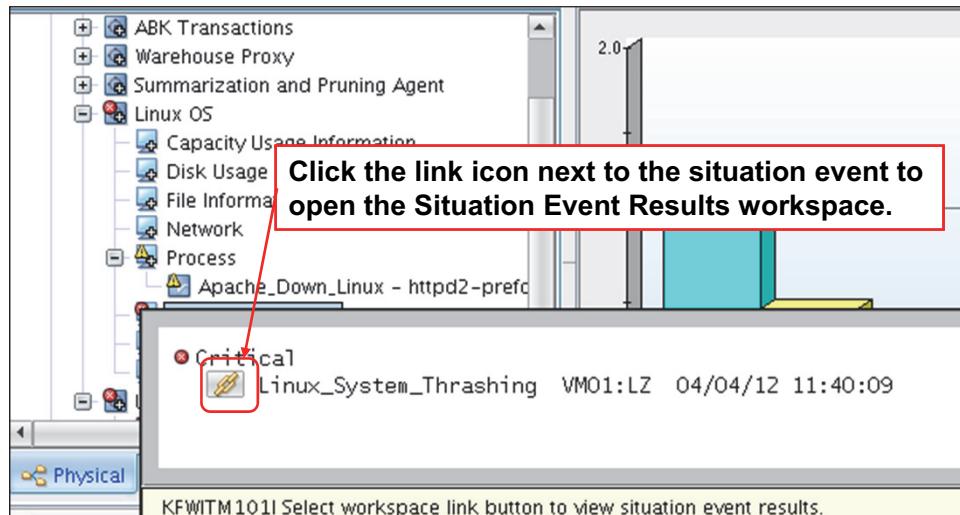
12

Graphic view icons

Situation events can be visible as graphic view icons. Graphic view icons are equivalent to Navigator items that are placed on a canvas with a map or drawing in the background. These icons also show the most severe state of one or more currently active situation events and provide access to the situation event flyover.

Opening situation event results

- When users receive notification of situation events, they initially research the situation event cause.
- One place to start is the Situation Event Results workspace, opened from the situation event flyover or using the Situation Event Console.



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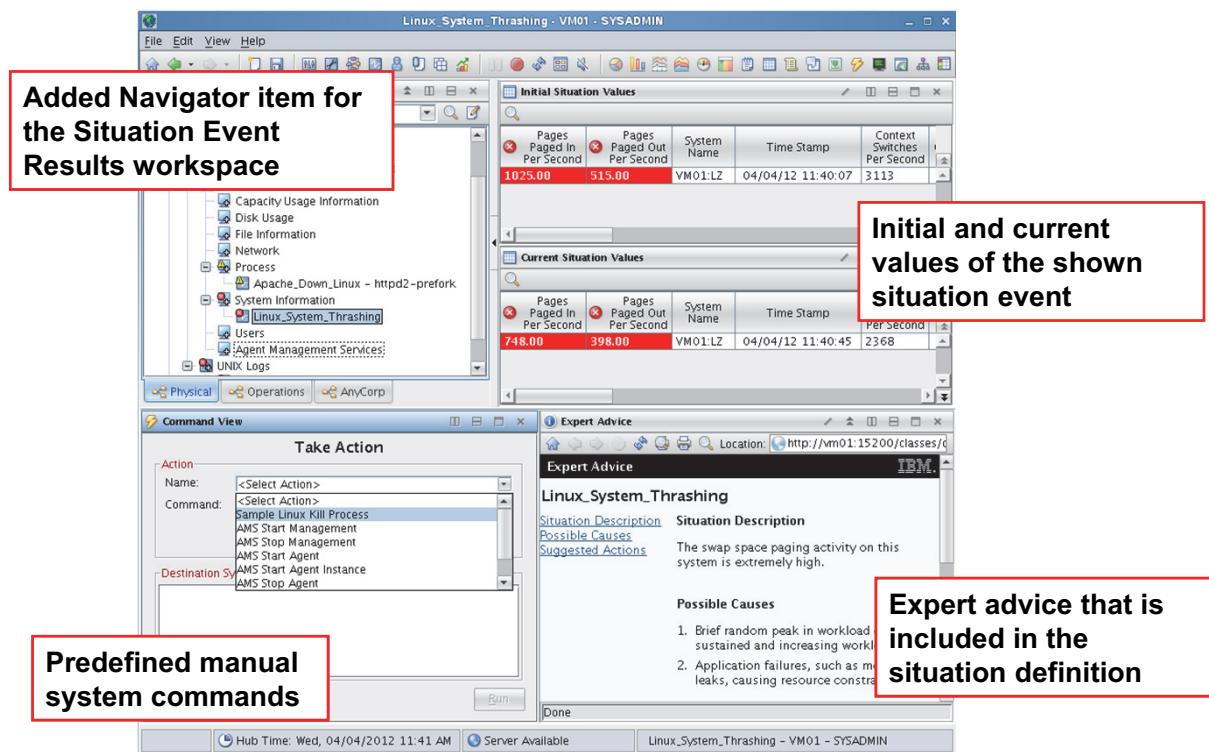
13

Opening situation event results

There are three primary locations where you can get more information about the conditions that caused the situation event:

1. Situation event results workspace
2. Situation event console view
3. Situation event details workspace

Situation event results workspace



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Situation event results workspace

The Situation Event Results workspace shows more information about a single situation event. A new Navigator item is shown under the Navigator item from which the situation is created. The new Navigator item provides easy access to the Situation Event Results workspace after you open the workspace for the first time.

The Situation Event Results workspace shows several default views:

- **Initial Situation Values** shows the values at the time when the situation event occurs. The visible attributes are part of the same attribute group as the one that triggers the situation event.
- **Current Situation Values** shows the values at the time when you open or refresh the situation event workspace.

You can compare the fields in the two views to determine whether the problem worsens or improves after the situation event occurs. The views highlight the fields for which the situation is created, together with the color of the situation event state.

- **Expert Advice** shows information about possible problem resolutions. The administrator who creates the trigger situation for this situation event sets up this advice.

- **Command View** provides access to commands that you can run manually. Those commands are typically related to the situation event that occurs. The administrator can provide guidance in this view on which command to run and what might result.

Situation event console: Overview

- The Situation Event Console is a view type within the portal client.
- It shows situation events in relation to the Navigator item level for which it is included and all levels below it.
- It provides easy access to situation event management options.

A screenshot of the Situation Event Console interface. At the top, there's a toolbar with various icons. Below it is a header bar with tabs like 'Active' and 'Total Events'. A red callout box labeled 'Situation counters by status' points to the top right of the interface. The main area contains two tables. The first table lists five situation events with columns for Severity (Critical or Warning), Status (Open), Situation Name, Display Item, Source, Impact, and Opened date/time. The second table, located below the first, shows five rows of detailed information for each event, including Opened, Age, Local Timestamp, Type, and Situation ID. A red arrow points from the left side towards the bottom table.

	Severity	Status	Owner	Situation Name	Display Item	Source	Impact	Opened
	Critical	Open		Linux_System_Thrashing		VM01:LZ	System Information	04/04/12 11:40:09
	Warning	Open		Apache_Down_Linux	httpd2-prefork	VM01:LZ	Process	04/04/12 11:19:09
	Warning	Open		Apache_Down_Linux	httpd2-prefork	VM02:LZ	Process	04/04/12 11:18:46
	Critical	Open		Managed_System_OFFLINE		VM02:KUL	Enterprise	04/04/12 11:18:38
	Critical	Open		Invalid_ssh_attempt		VM01:KUL	Monitored Logs	04/04/12 11:17:31

Opened	Age	Local Timestamp	Type	Situation ID
04/04/12 11:40:09	9 Minutes	04/04/12 11:40:08	Sampled	Linux_System_Thrashing
04/04/12 11:19:09	30 Minutes	04/04/12 11:19:09	Sampled	Apache_Down_Linux
04/04/12 11:18:46	31 Minutes	04/04/12 11:18:46	Sampled	Apache_Down_Linux
04/04/12 11:18:38	31 Minutes	04/04/12 11:18:38	Sampled	Managed_System_OFFLINE
04/04/12 11:17:31	32 Minutes	04/04/12 11:17:31	Pure	Invalid_ssh_attempt

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Situation event console: Overview

The Situation Event Console provides an effective way of monitoring multiple situation events. It provides access to many situation event management options. You can keep an overview of currently active, multiple-situation events for one Navigator item.

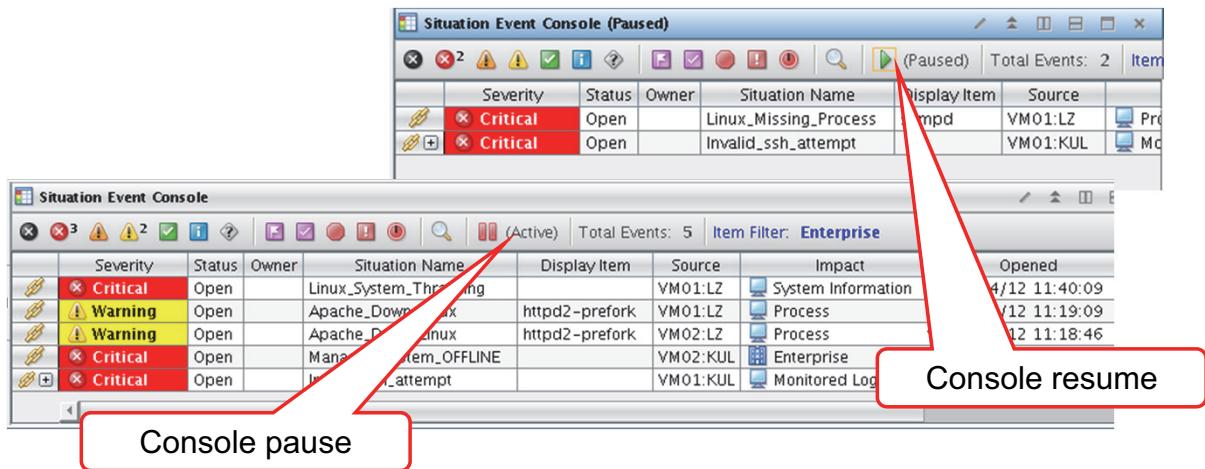
Without specifying filters, this Situation Event Console shows all situation events that are currently active on any resource in your Navigator Physical view. By default, the Enterprise workspace of the Navigator Physical view includes the Situation Event Console and contains all situation events in the current Navigator.

Situation events are shown in a tabular form, with the most severe situation event shown highest. The columns show information about each situation event, such as the following items:

- State
- Name of the situation that triggers the situation event
- The system or resource it triggers on
- The time the situation event occurs

Pausing the situation event console

- If you want to stop the flow of events to the situation event console so you can work with an event, click the Pause icon.
- To resume the flow of events, click the Active icon.
- Scrolling the situation event console to the right or the left causes a temporary pause of the situation event console.



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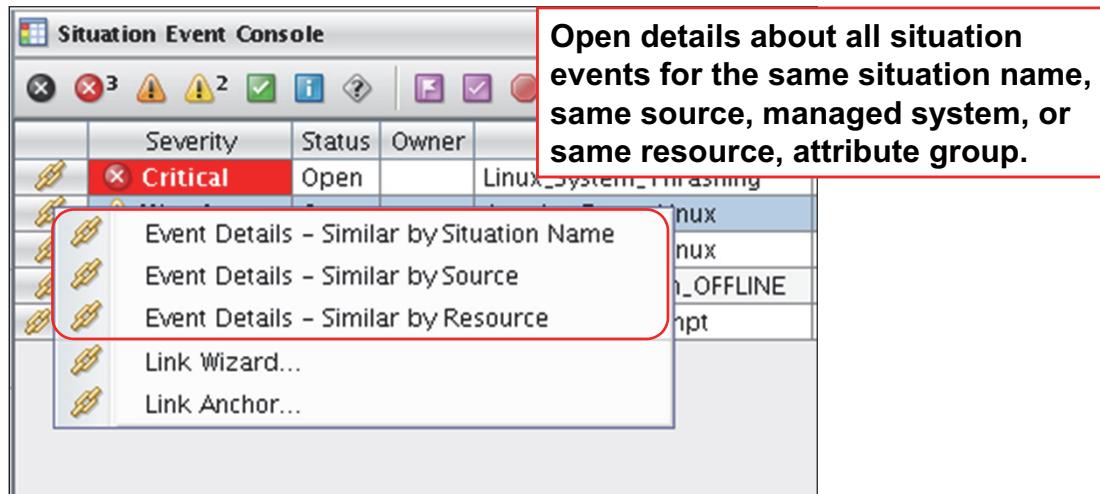
16

Pausing the situation event console

In IBM Tivoli Monitoring 6.2.2 and earlier releases, scrolling the situation event console causes it to pause. In order to make it active again, you must select the Play icon. That case is no longer true. After a minute, the situation event console becomes active after scrolling. Selecting pause functions as before and prevents new situation events from showing until you select the Play icon.

Links to Event Details

Click the link icon Link to > Event Details – Similar by Situation Name to access a workspace that provides more details about the particular situation.



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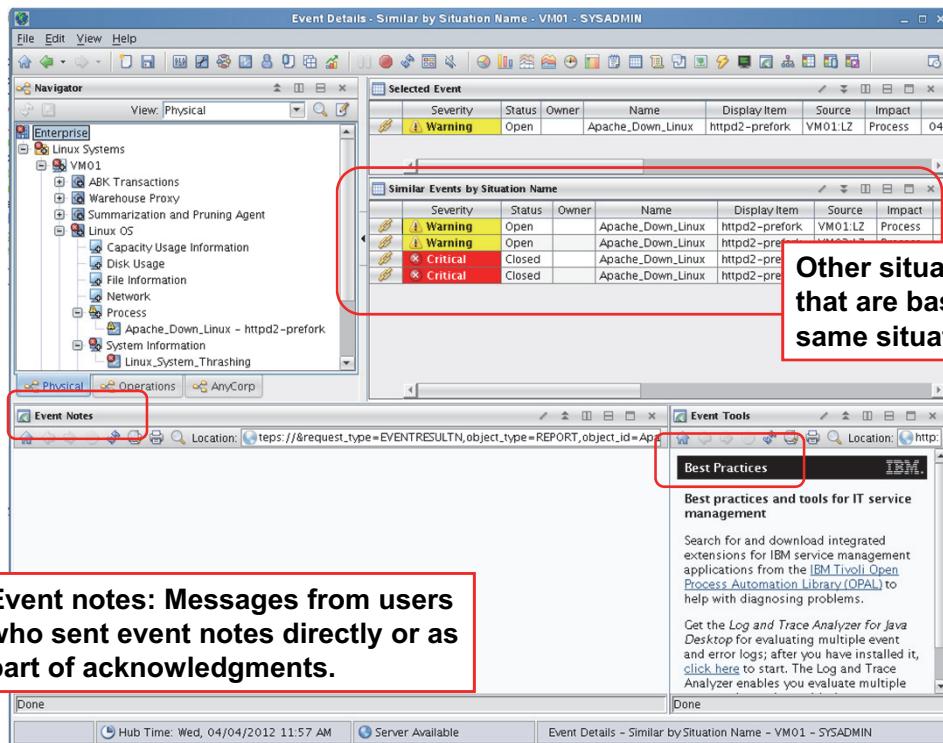
Links to Event Details

You can access the details workspace and filter information in three different ways, as shown in the slide. For more information about managing situation events, link to the Event Details workspace. This workspace shows more information about the situation that triggers the situation event.

The product-provided default link presents all situation events that are based on the same situation. Other options that are shown are as follows:

- All situation events that are running on the same managed system (source)
- All situation events that belong to the same resource, attribute group or Tivoli Monitoring application

Event Details workspace



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Event Details workspace

Besides showing the situation event from where the Event Details workspace is accessed, you can see similar situation events, depending on the filter you select.

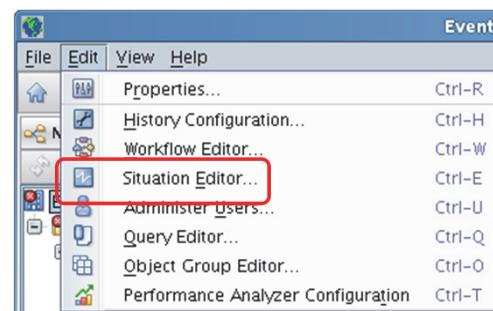
Later you learn how to attach notes to the situation events, which are also shown in this workspace. You also learn how to use event tools that the administrator provides.

Lesson 3. Opening the Situation editor

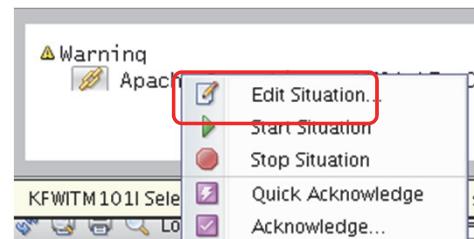
Lesson 3: Opening the Situation editor

You can open the Situation editor from the following locations:

- The portal client toolbar
- A Navigator item with an assigned managed system



- A situation event:
 - Flyover
 - Situation event console
 - Situation event Navigator item



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What this lesson is about

This lesson shows you how to open the Situation editor from the toolbar, from a Navigator item, and from a situation event. The point at which you open the Situation editor determines situation association and context.

What you should be able to do

After completing this lesson, you should be able to perform the following tasks:

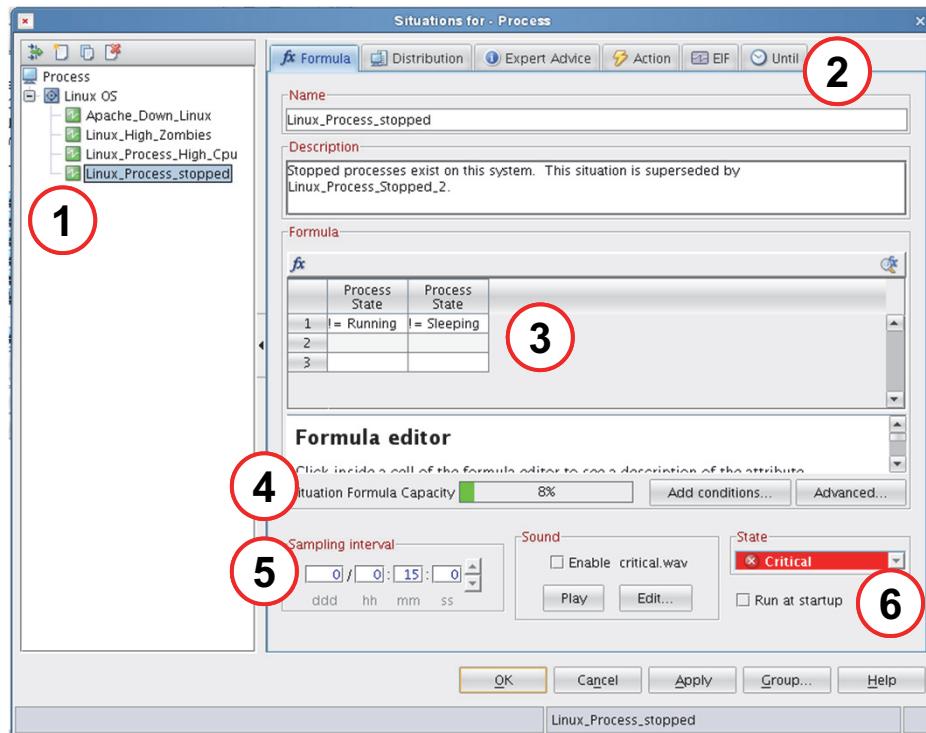
- Open the situation editor in context.
- Describe the situation editor layout.
- Describe situation editing and filtering options.

Some situations can run without showing a situation event in the portal client when they are true.

You can use those types of situations to log messages or start automation. To create this type of situation, you can open the Situation editor from the toolbar.

You can open the situation editor only from a Navigator item if the item is associated with one or more managed systems or managed system groups. You know that you opened the situation editor from a Navigator item if the situation severity field is visible.

The Situation editor layout



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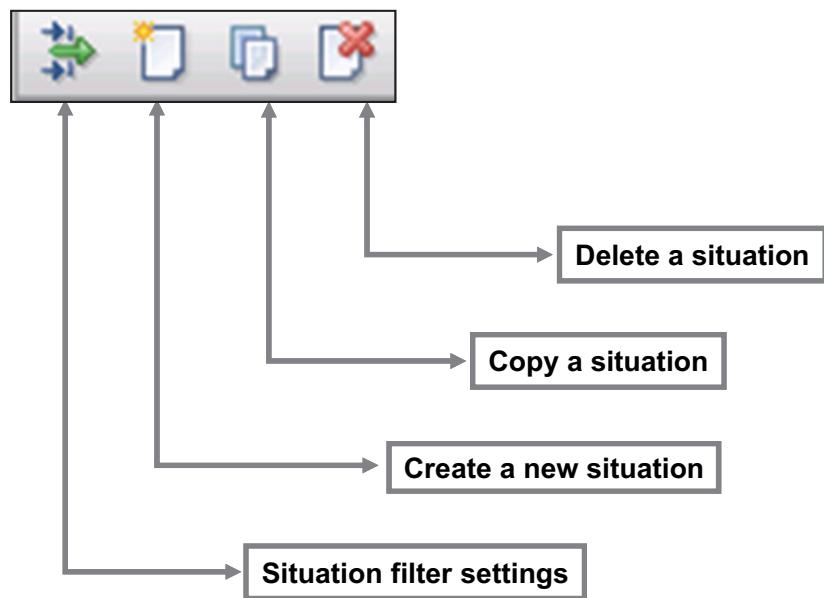
20

The situation editor layout

The situation editor consists of the following items:

1. A list of all situations that are associated with the same Navigator item. In the upper left corner, you see buttons to modify the filter for showing or hiding situations from the view. Use buttons to create new situations and modify or delete existing situations.
2. Tabs on the top of the editor. These tabs provide access to settings such as places the situation is distributed, expert advice, or an action.
3. The work area that changes, depending on which tab is active. It includes a **Formula** field where you specify the formula of the situation. This expression is evaluated at intervals, for sampled situations.
4. A green bar indicating the storage capacity of the situation with its currently defined formula. The two buttons on the right are for adding attributes to the formula and to access advanced settings.
5. An area to modify the sampling interval and the audio notification when the situation event occurs.
6. The state or severity, and whether the situation runs or not when the agent starts.

Editing options



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Editing options

Four buttons are for managing situations:

- Filter the situations to show.
- Create new situations.
- Copy existing situations.
- Delete situations.

Situation filtering



- You can decide the situations that are shown in the Situation editor.
- You have three available options:
 - Situations that have been created with attributes from the selected application
 - Situations based on attributes for the selected Navigator item and that are already distributed to the same managed system
 - Situations that are already associated with the Navigator item



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Situation filtering

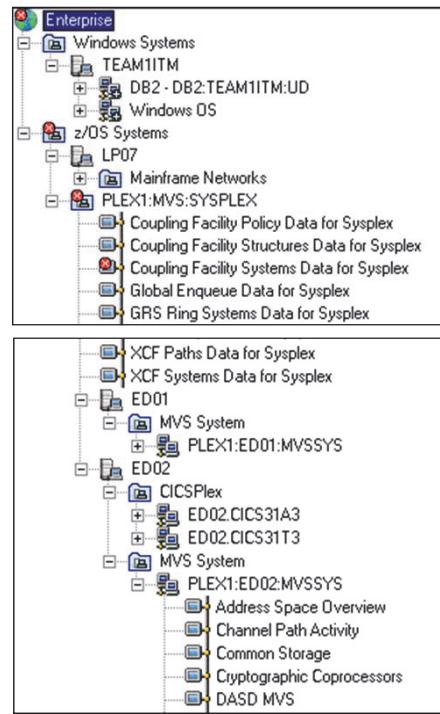
You can specify a filter to show or hide situations in the situation editor. What is visible also depends on where you open the situation editor. If you open the situation editor from a Navigator item, the situations that currently associate with the Navigator item are shown by default. All situations that are listed in the editor are created from the specific Navigator item and associate with the Navigator item from the situation menu.

- The filter option **Associated with this object** controls what is visible.
- The option **Eligible for Association** shows all situations that distribute to the managed system that you assigned to the Navigator item.
- The last option, **Associated with Monitored Application**, shows situations that are available for the same managed system affinity. Associating those situations is possible only after you distribute the individual situations to the managed system.

Lesson 4. Product-provided situations

Lesson 4: Product-provided situations

- Tivoli Enterprise Portal is the universal interface to Tivoli monitoring products.
 - OMEGAMON XE product family
 - Tivoli Monitoring product family
 - IBM Tivoli Composite Application Manager (ITCAM) product family
 - More
- You use the Situation editor to manage all IBM-provided situations for the Tivoli monitoring products. Appearances might vary slightly among releases, but the functions are the same.
- You can use the same portal client to see and manage situations that are running on many types of managed systems.



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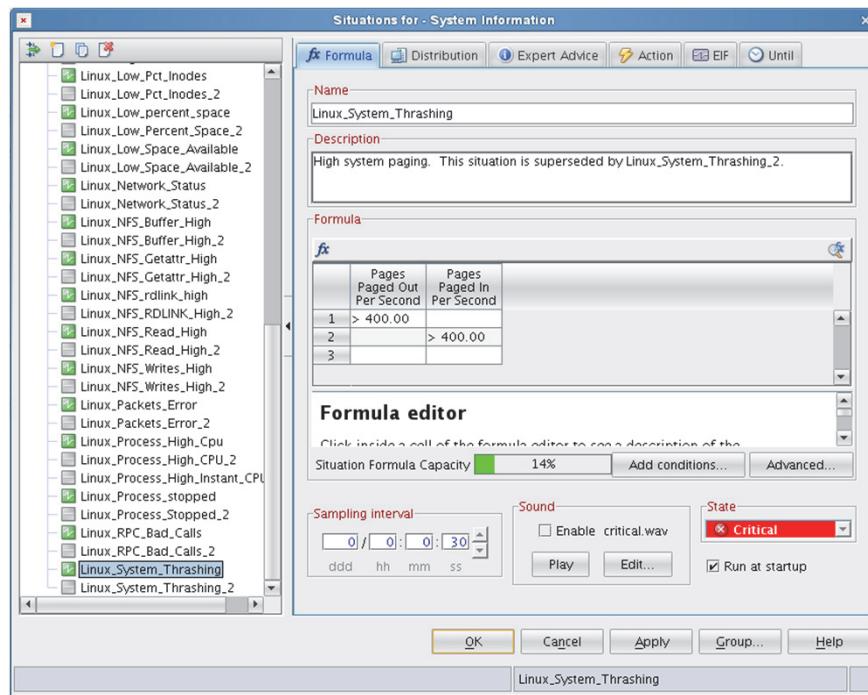
What this lesson is about

Except for Agent Builder agents, all Tivoli Monitoring, OMEGAMON, and IBM Tivoli Composite Application Manager products supply their own situations. This lesson shows examples of these products to emphasize the use of the Tivoli Enterprise Portal client to manage all situations.

What you should be able to do

After completing this lesson, you should be able to name some Tivoli monitoring products that provide situations for monitoring.

Tivoli Monitoring: Linux OS agent



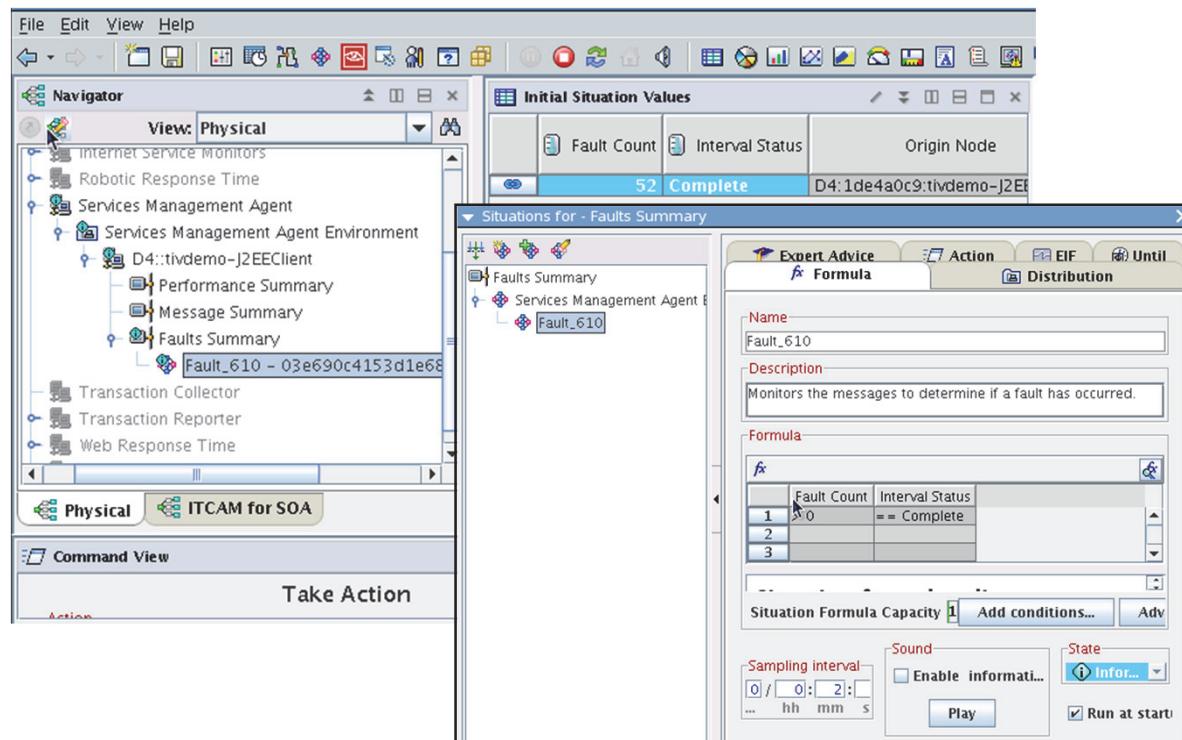
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Tivoli Monitoring: Linux OS agent

The student exercises for this course are based on Linux, with several Linux OS and UNIX log situations.

IBM Tivoli Composite Application Manager for SOA



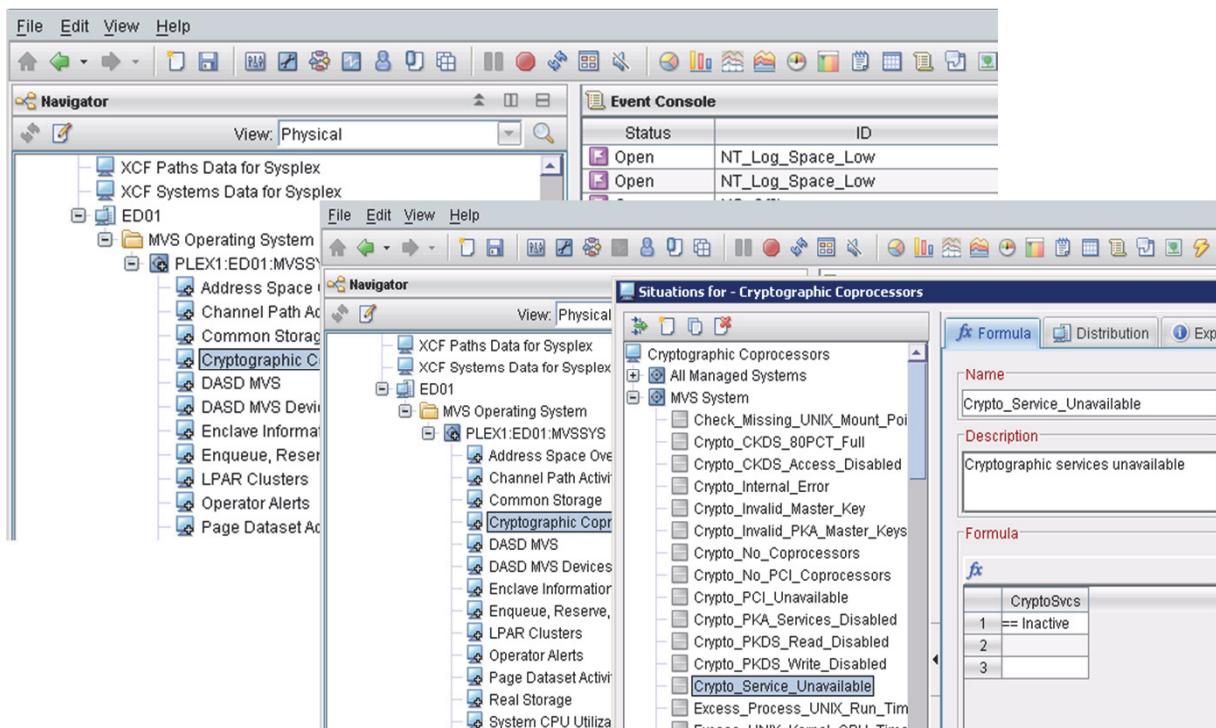
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IBM Tivoli Composite Application Manager for SOA

IBM Tivoli Composite Application Manager for SOA (ITCAM for SOA) provides situations that primarily monitor web services flows.

OMEGAMON XE for z/OS



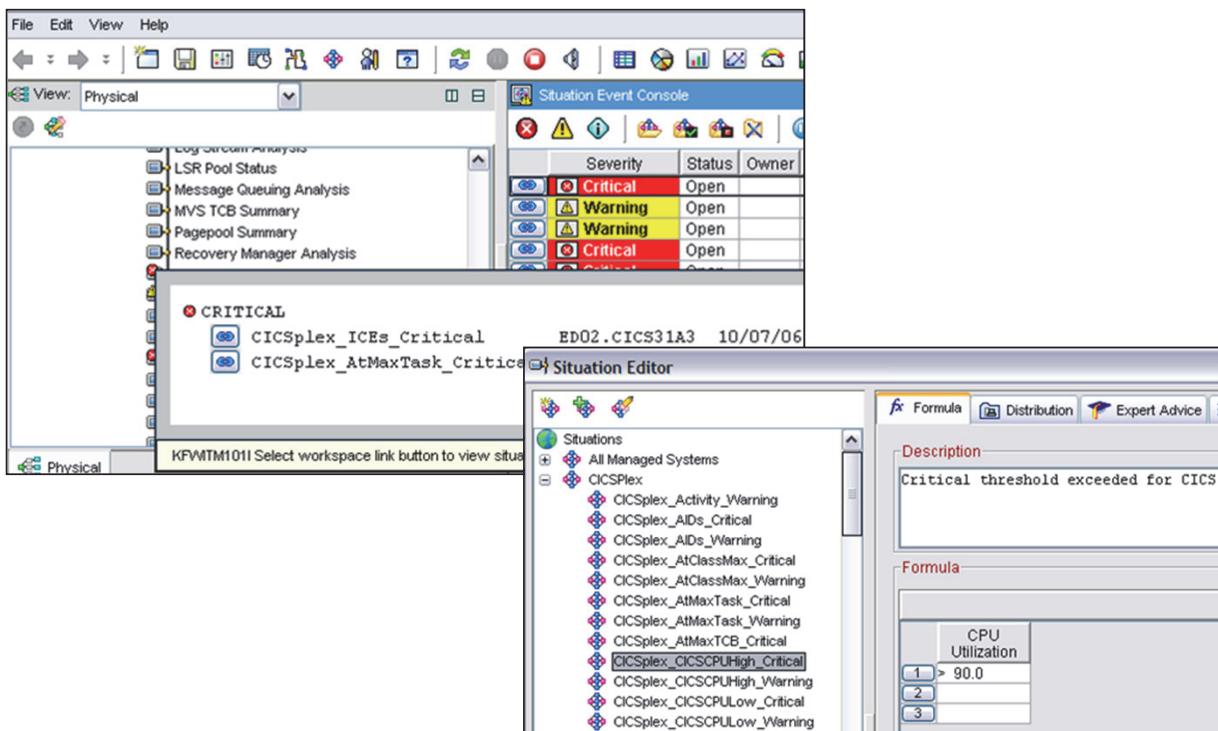
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OMEGAMON XE for z/OS

OMEGAMON XE for z/OS monitors Parallel Sysplex® and system attributes. Most of the product-provided situations do not automatically distribute or start. Many z/OS customers were using OMEGAMON II for MVS, and they can migrate situations from that product into OMEGAMON XE for z/OS.

OMEGAMON XE for CICS on z/OS



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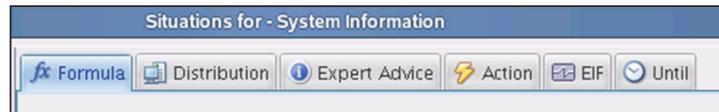
OMEGAMON XE for CICS on z/OS

OMEGAMON XE for CICS on z/OS situations monitor all types of CICS Transaction Server regions. These situations can monitor application-owning regions, terminal-owning regions, and file-owning regions. Product-provided situations monitor communications between the CICS Transaction Server and databases or other transaction systems.

Single interface to situation management

After you learn to manage situations on one platform, you know how to manage them on all platforms.

- Formula
- Distribution
- Expert advice
- Action
- EIF
- Until



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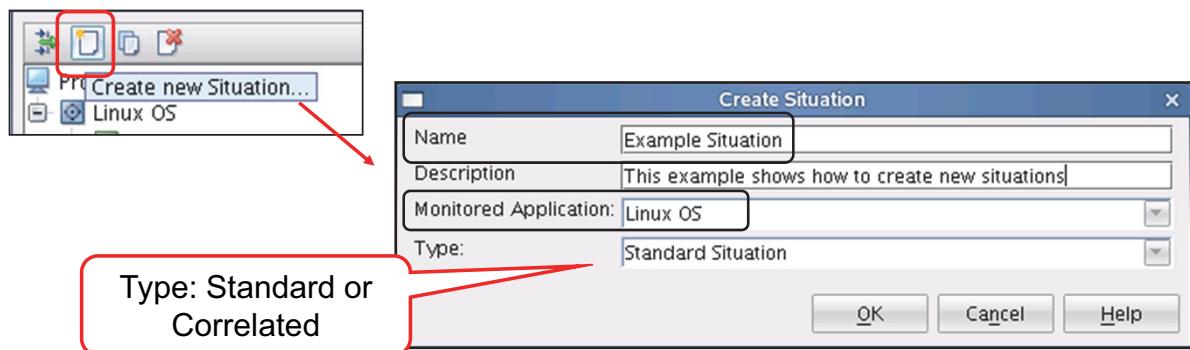
Single interface to situation management

All situations have the same format and same controls. If you configure event forwarding, the situation editor has a tab for managing the Enterprise Integration Facility.

Lesson 5. Building situations

Lesson 5: Building situations

- When creating a new situation, specify a name, provide an optional description, and select the monitored application.
- Only attributes from the selected application are available except for correlated situations.



What this lesson is about

This lesson shows you how to build new situations for performance and availability monitoring.

What you should be able to do

After completing this lesson, you should be able to create new situations.

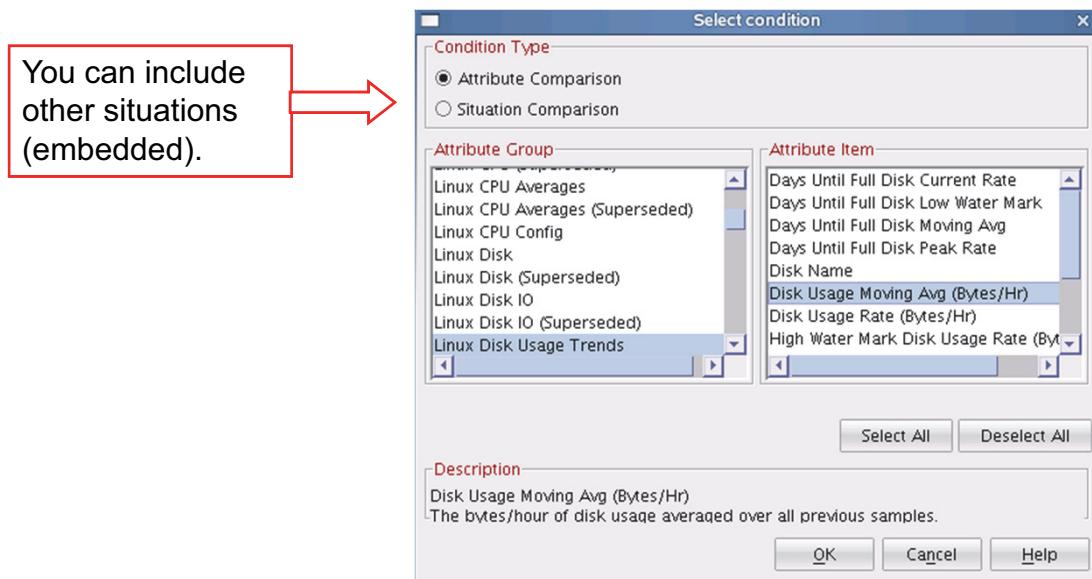
The situation name can contain any UTF-8 characters and can be up to 256 bytes in length. The number of characters that are allowed varies, depending on the characters that are used because some UTF-8 characters require more than 1 byte. The description can be up to 64 characters long. The description is shown in the situation editor and in the Manage Situations window.



Important: Make the situation name as meaningful as possible so the situation event describes the problem to the user. This name provides users with some information about the problem even before someone does more research on the problem cause. It is a good idea to adopt a naming convention before you begin to create your own situations.

Select attributes

Select one or more attributes from an attribute group to include in the situation expression.



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Select attributes

The first option is selecting the attribute group and individual attributes that you want to include in your situation formula. This selection is just the starting point, and you can delete or add attributes directly from the situation editor later. The monitored application determines attribute availability. Hold down the **Shift** or **Ctrl** key to select multiple attributes.

Formula tab



At the Formula tab, specify the condition that describes the problem you want to monitor.

The screenshot shows the 'Formula' tab in a software interface. At the top, there are three tabs: 'Formula' (selected), 'Distribution', and 'Expert Advice'. Below the tabs, there are sections for 'Name' (containing 'Linux Network Traffic Busy') and 'Description'. The main area is titled 'Formula' and contains a table with three columns: 'Bytes Received Per Second' and 'Bytes Transmitted Per Second', plus an empty fourth column. The first column has three rows labeled 1, 2, and 3. Red annotations include a callout box pointing to the first column with the text 'Click a field in the attribute column to add a condition.', and arrows pointing from the words 'AND' and 'OR' to the first and second columns respectively.

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Formula tab

After you select the attributes, each attribute is shown in a separate column in the **Formula** pane. All fields under the column headers are empty.

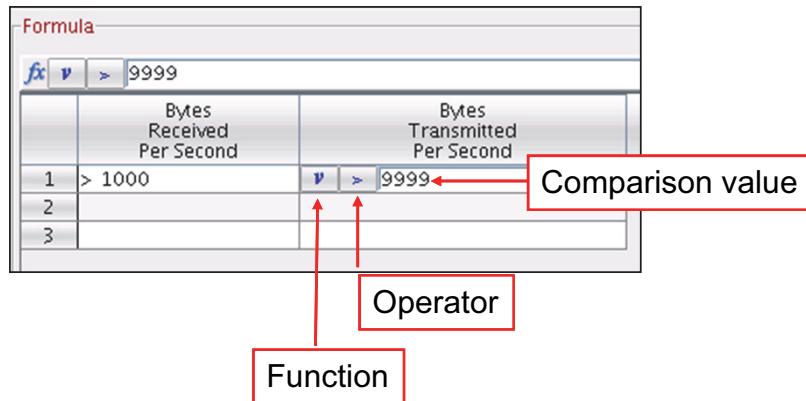
Before you create your formula, understand that you can connect multiple expressions with AND and with OR. Enter Boolean AND expressions, where all the conditions must be met, in the same row. Enter Boolean OR expressions, where one or more conditions must be met, in different rows. To connect expressions from two different attributes as OR, specify them in different columns and different rows.



Important: Always place the condition that is most likely to fail first. The formula is evaluated from left to right, and evaluation ends at the first false result. For example, if the situation monitors for condition only on a certain managed system, put the managed system name first, and processing only continues if the managed system matches the comparison value.

Situation formula

Create a formula for the situation and enter the function.



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Situation formula

To start creating a formula, click the first field below the first attribute. You see **v** and **==**, which represents **value equals**. If you specify a comparison value in the empty portion of the field, the situation compares an actual attribute value with this threshold. If the actual attribute value equals the specified value, the situation condition is true. Modify the function and the operator by selecting them.

Function

Numeric

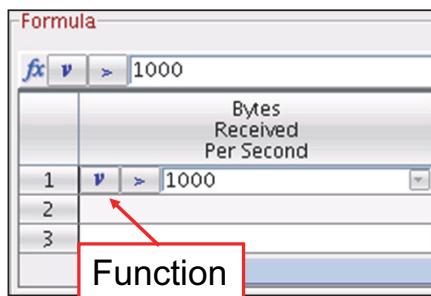
	Value of expression
	Minimum in group
	Maximum in group
	Count of group members
	Sum of group
	Average of group

String

	Value of expression
	Count of group members
	Return a subset of the string
	Scan for string within a string
	Check for Missing Items

Time

	Value of expression
	Count of group members
	Return a subset of the string
	Scan for string within a string
	Compare Date and Time
	Compare Time to a time + or - delta



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Function

This slide shows the options that you can have for string, numeric, or time attributes. Depending on the type of attribute you work, clicking **Function** presents different options. String functions take more processing than numeric functions. Reduce the processing load by selecting the simplest function that meets your needs.

Operator

Click the **Operator** button to view six choices.

The screenshot shows the 'Formula' editor window. At the top, there's a toolbar with buttons for 'fx', 'v', and '>'. Below the toolbar is a text input field containing '1000'. To the right of the input field is a dropdown menu labeled 'Bytes Received Per Second'. Below this is a table with three rows, each containing a column with a dropdown menu and a value '1000'. The third row is highlighted with a red box and has the word 'Operator' written below it. A red arrow points from the word 'Operator' to the third row. To the right of the table is a vertical list of operators:

= =	Equal
!=	Not equal
>	Greater than
> =	Greater than or equal
<	Less than
< =	Less than or equal

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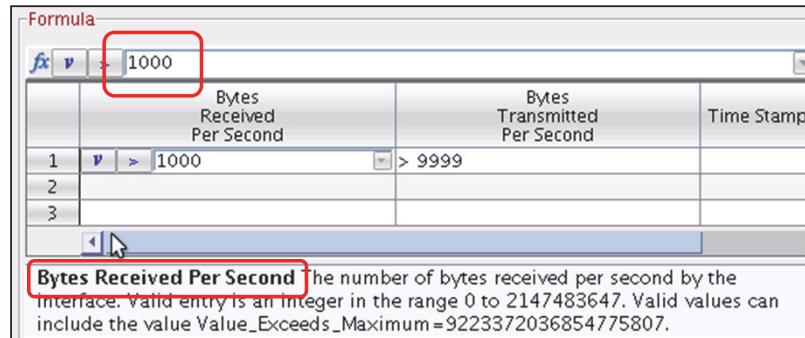
34

Operator

You can use an operator to generate elaborate formulas. Only the available storage of the situation limits the number of items that you can put into a formula. The default value for the operator is **equal (==)**.

Comparison value

Enter the comparison value in your expression.



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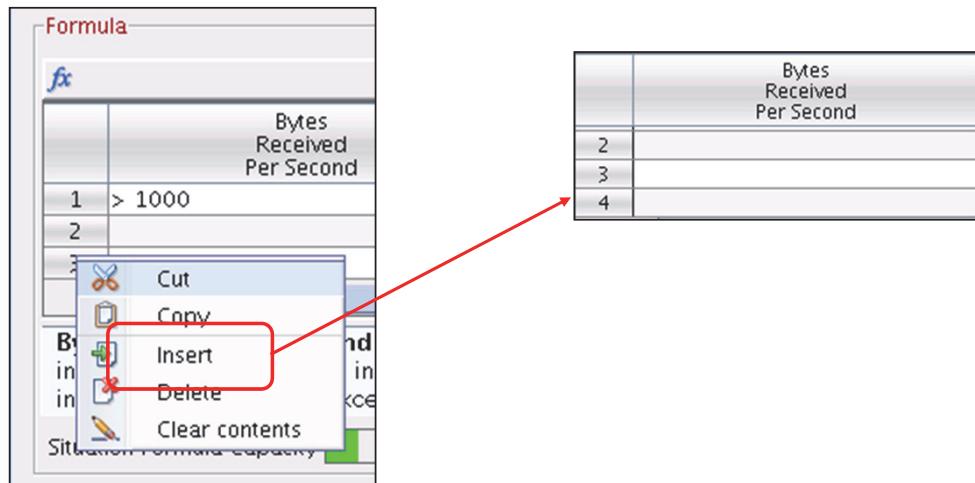
Comparison value

Click the column header to see an explanation of the attribute and the allowed values, which might be numeric, string, or time formats. The name of the attribute itself typically indicates how you must specify values. To see the exact spelling of an attribute name, open a workspace that contains the attribute.

Be sure to type the value exactly. String values are case-sensitive even on systems where case does not matter, for example, Windows. For some values, you must specify them as percentages or as absolute values.

Adding OR operators

To connect more than three expressions with OR, you must add additional rows by right-clicking the row number and clicking **Insert**.



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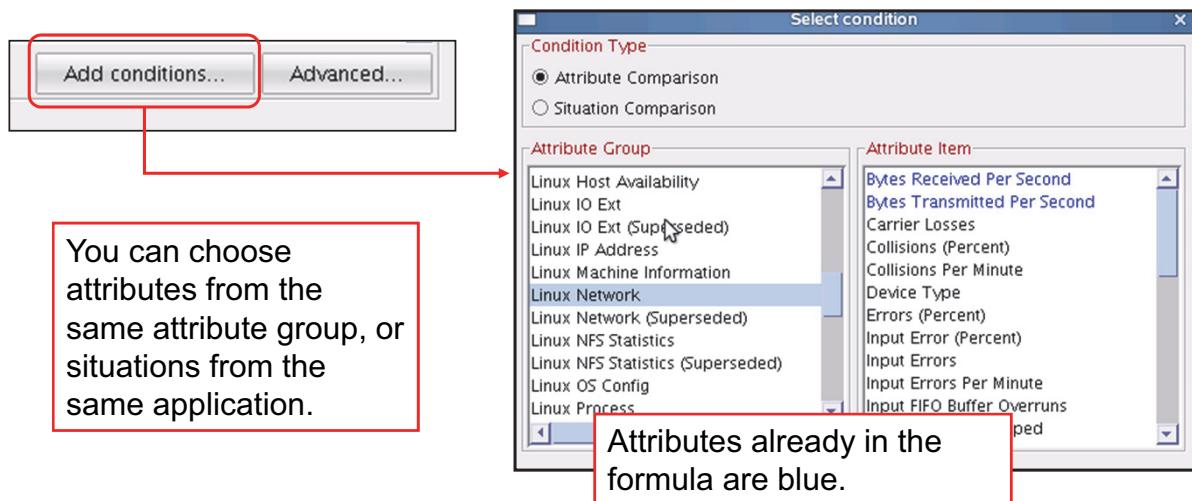
36

Adding OR operators

Besides inserting values, you can also add and delete rows, clear the context, and use the cut, copy, and paste keyboard options.

Adding more conditions

Click **Add conditions** to insert a new column and create **AND** or **OR** conditions for the situation.



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Adding more conditions

You can add attributes to the situation by clicking the **Add conditions** button and selecting the attribute that you want to use. You can add new attributes or attributes that you already included in your formula. You can add the same attribute multiple times to build AND expressions, such as value is greater than x AND less than y.

Creating a range

Add the same attribute twice to create a range.

	Bytes Transmitted Per Second	Bytes Transmitted Per Second
2	> 9999	<= 19999
3		
4		

Bytes transmitted per second greater than 9,999
AND less than or equal to 19,999

Creating a range

You can add an attribute to the situation multiple times to create a range. In this example, you are testing the Bytes Transmitted Per Second attribute to see whether the range is more than 9,999 and up through 19,999.

Combining attributes from different groups

- Only in the same monitored application
- Not all attribute groups combinable, determined by the number of situation event result rows
- Single-instance groups versus multiple-instance groups
 - Single plus single: Possible
 - Single plus multiple: Possible
 - Multiple plus multiple: Not possible

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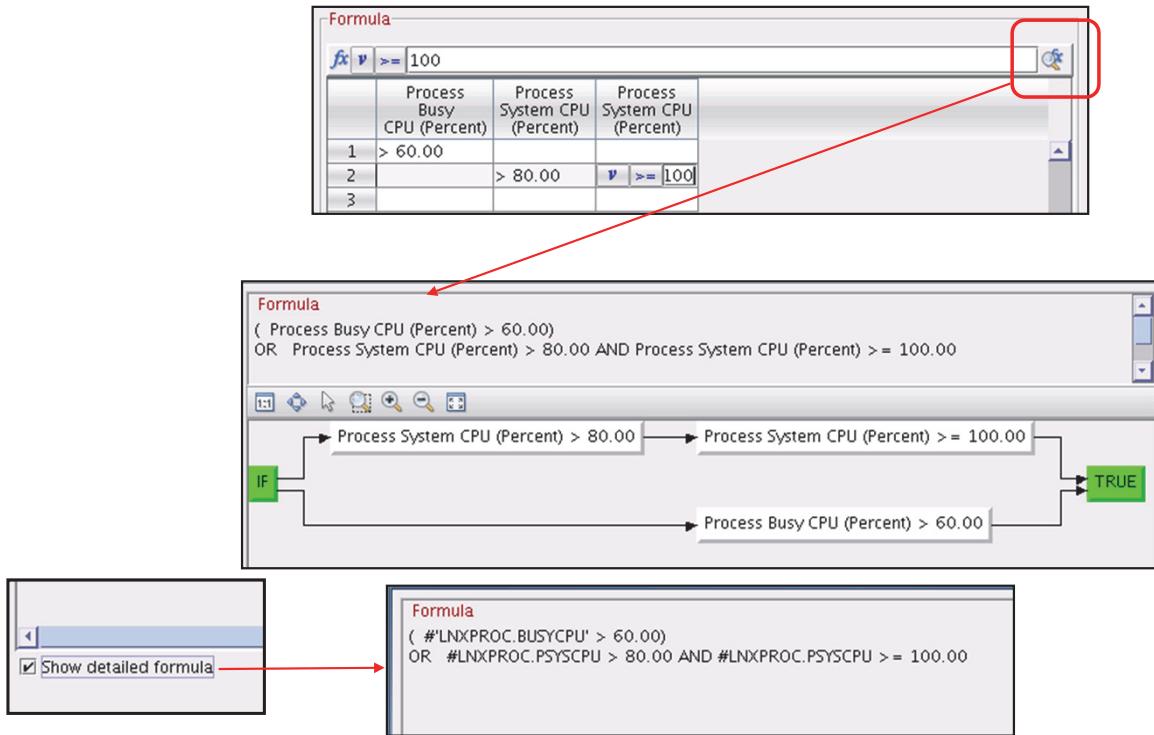
Combining attributes from different groups

When you create situation formulas, you might typically embed attributes from the same attribute group. In some cases, you might combine attributes from different groups, such as combining attributes from single instance groups with attributes from other single instance groups.

For example, you can combine Windows cache attributes with domain name server memory attributes. You can combine single instance groups with one multiple instance group, such as a process or logical disk.

For example, you cannot build a situation formula that has a process attribute and a logical disk attribute. The situation editor controls the attribute groups that are available for selection, and that option is not available when you select your second attribute.

Showing the formula



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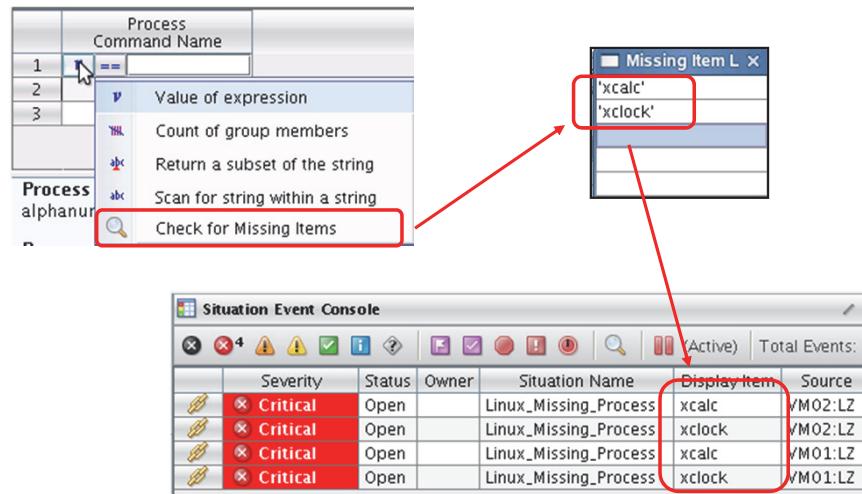
40

Showing the formula

Click the **Show formula icon** to verify the situation formula that you create. Checking **Show detailed formula** translates the situation attributes into their table names as stored in the monitoring server.

Using the Check for Missing Items function

For certain string values, you can use the **Check for Missing Items** function. This function triggers a situation event when one or more of the items is missing.



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Using the **Check for Missing Items** function

Use the **Check for Missing Items** function to scan the list of instances. If one or more items are missing, a situation event occurs.



Note: This option is available only for string attribute values. In an AND sequence, it must be the last entry in the AND. OR logic is not supported.

Lesson 6. Situation settings

Lesson 6: Situation settings

- Sampling interval
- State (severity)
- Audio alert settings (sounds)
- Advanced options:
 - Situation persistence
 - Shown items

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What this lesson is about

Situations have various settings that you can use to control monitoring behavior.

What you should be able to do

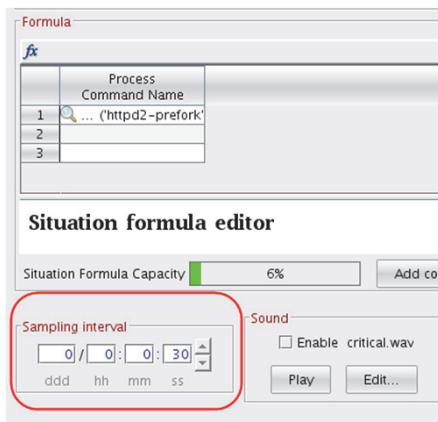
After completing this lesson, you should be able to perform the following tasks use the settings to control:

- Sampling interval.
- Situation state or severity.
- Situation persistence.
- Display items.

Sampling interval

Sampling interval

- Default interval: 15 minutes
- Minimum interval: 30 seconds



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Sampling interval

The monitoring interval specifies the period between evaluations of the formula. The default interval is 15 minutes, and the minimum is 30 seconds. **Run at startup** starts the situation both during startup of the monitoring agent and when you save the situation through **Apply** or **OK**. When you save a situation, the application evaluates it *immediately*. If the condition is true and the situation is associated with a Navigator item, you see the situation event.

Sampled versus pure situations

- The characteristics of the attributes determine whether a situation is *sampled* or *pure*.
 - Most situations are sampled.
 - Examples include memory usage, disk utilization, and process running.
- The sampling interval setting is in the Situation editor.



- Pure situations monitor one-time occurrences, such as log file entries.



- Situations without sampling intervals trigger pure situation events.

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Sampled versus pure situations

Most situation events are *sampled* situation events. Conditions are evaluated at regular sampling intervals. When the situation is true, it triggers a situation event. When it returns to false, the event closes automatically.

Examples of pure situation events include a printer that is out of paper or an entry that is made to the system log. Some monitoring agents have attributes that report pure situation events, such as the Windows situation event log or Windows file change attribute groups. A situation that uses one of these attributes can monitor for pure situation events.

Run at startup and State

- Run at startup:
 - At the time the agent starts
 - At OK or Apply



- State:

- Fatal
- Critical
- Minor
- Warning
- Harmless
- Informational
- Unknown



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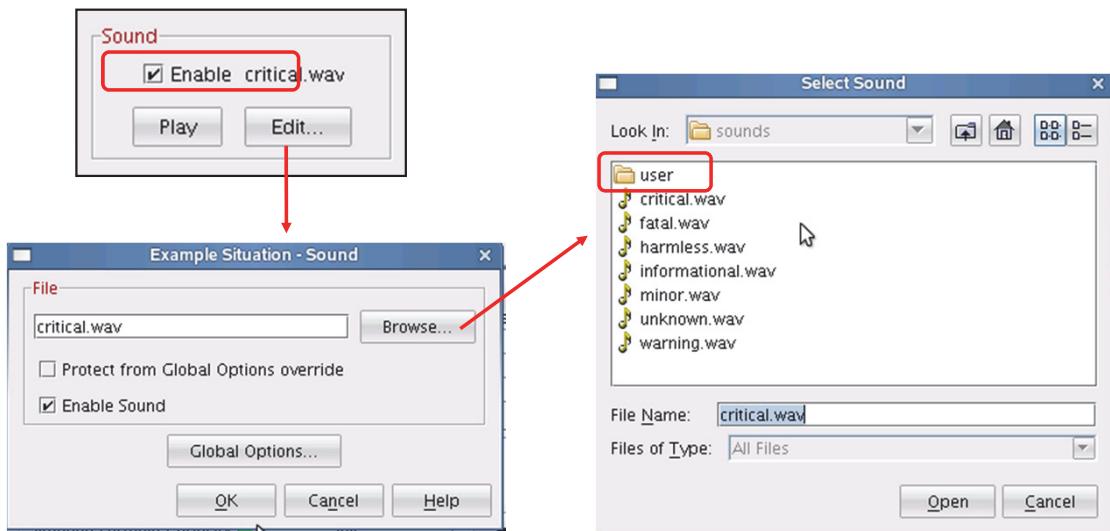
45

Run at startup and State

Situations have seven severity states. Six of the states correspond to the severity supported by Tivoli Enterprise Console, which does not have an **Informational** state.

Audio alerts (sounds)

You can select a sound that plays when the situation condition becomes true.



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Audio alerts (sounds)

Sound files in the Select Sound window can be any .wav file. You can create your own files, which might even be a spoken message that you record. You can add custom sounds as .wav files in the following directories on the portal server computer:

- Windows: <install_dir>\CNB\classes\candle\fw\resources\sounds\user
- Linux: <install_dir>/li6263/cw/classes/candle/fw/resources/sounds/user

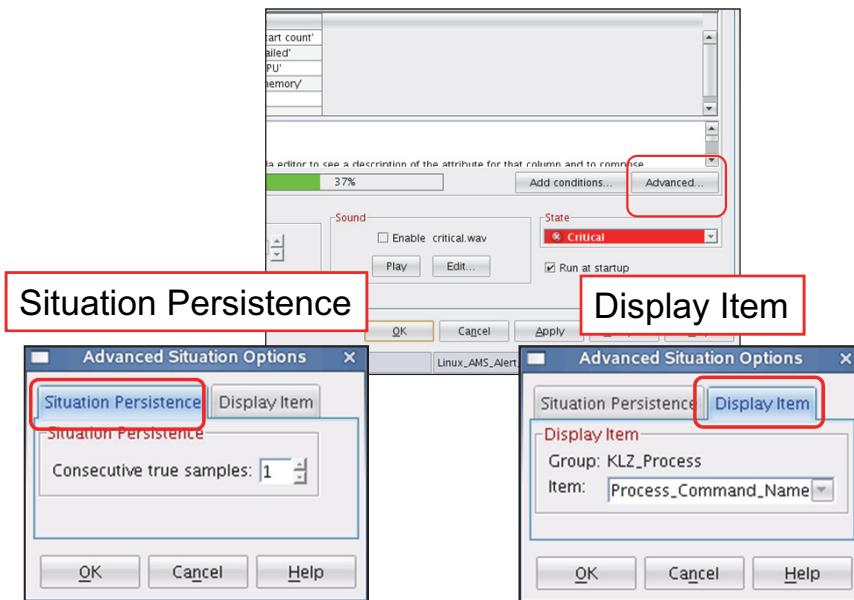
For each situation, use the global options for playing sounds or override them with situation-specific options.

The global options that you can select for playing a sound are as follows:

- The specific situation
- All situations that are associated with the same application
- All situations that are associated with the same application and the same state
- All situations that are associated with the same state
- All situations

Advanced situation options

Two **Advanced Situation Options** are available for modifying the situation condition.



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Advanced situation options

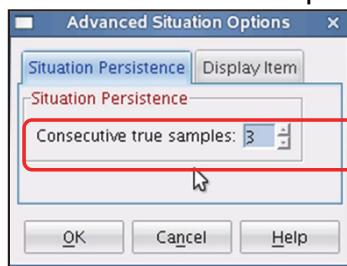
The **Advanced** button provides access to more options to modify the behavior of a situation. The two options are as follows:

- Situation persistence
- Display item

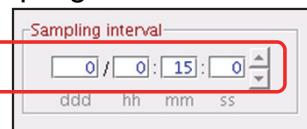
Situation persistence

- Use situation persistence to filter out spikes during condition monitoring.
- Specify the number of consecutive intervals for which a situation must be true before a situation event opens.

Consecutive true samples = 3



Sampling Interval = 15 minutes



Effective Monitoring Interval:
 $3 * 15 \text{ minutes} = 45 \text{ minutes}$

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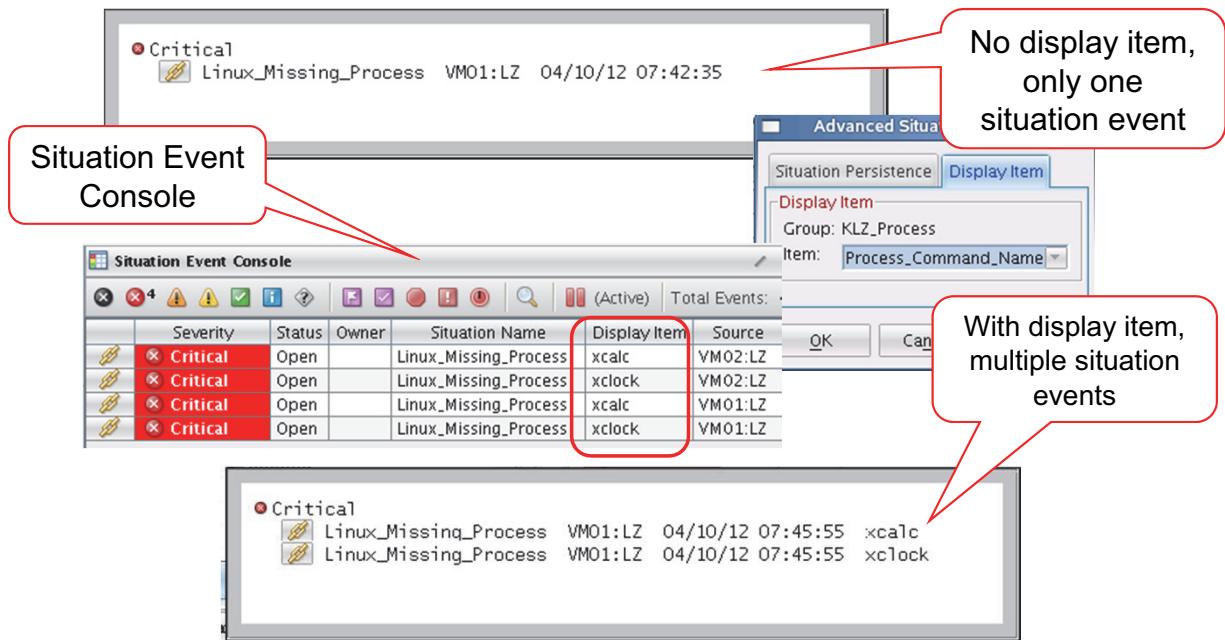
Situation persistence

Reduce unneeded situation events whenever possible. One method is filtering out spikes when processor usage goes to 100% for a short time. This behavior is normal and does not indicate a problem. You can prevent this situation event from showing immediately by using situation persistence. The situation event is viewable only when the processor usage stays at 100% over several consecutive samples.

Multiplying the sampling interval, specified in the situation editor **Formula** tab, by the number of consecutive true samples results in the effective sampling interval. In this example, the actual interval might be as large as 59 minutes, depending on when in the interval the situation becomes true.

Display item for granular situation event

Situation events might be valid for multiple items.



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Display item for granular situation event

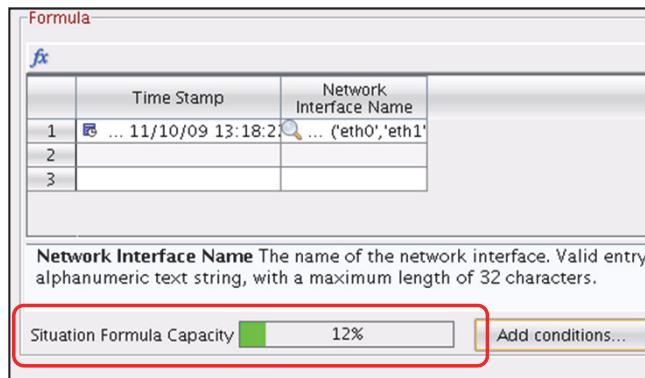
Situations can return multiple results. In the slide example, the situation event console shows multiple rows of results for the same situation event. Those types of situations monitor multiple items, such as multiple central processors on one system, multiple logical disks, multiple processes, and so on. The situation condition can be true for multiple items or instances of a problem.

An example is a situation that evaluates if a process is using more than 10% processor usage on a system. This condition might be true for multiple processes, in which case, multiple situation event results are shown in the situation event results workspace. You see only one situation event in the situation event console or in the situation event flyover.

To create a separate situation event that is visible for each process that uses more than 10% processor usage, select **Process_Command_Name** as the display item.

Storage indicator

- The storage indicator in the Situation editor shows how many more items you can include in a formula.
- The situation storage capacity limit is 1020 characters.



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Storage indicator

To see the exact formula of the situation and the number of characters it contains, open the **show formula** menu. Click the lower left corner of that menu to show the detailed formula.