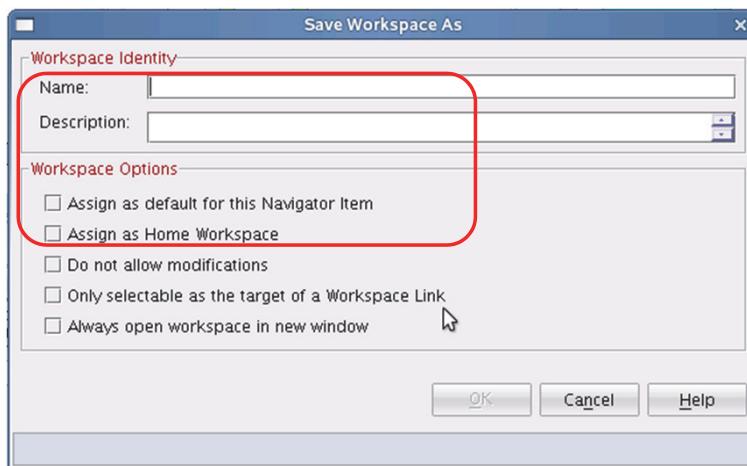


## Saving the workspace

- Save a new or modified workspace under the same name (Ctrl+S).
- Save the workspace under a different name (F12).
- Note: You can save a modified product-provided workspace only if you save it under a new name.



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### Saving the workspace

The software saves all workspaces for a specific user ID. Only the user who changes a workspace sees those changes in the portal client. For other users to see the change, an administrator must publish that workspace by using **Workspace Administration** mode.

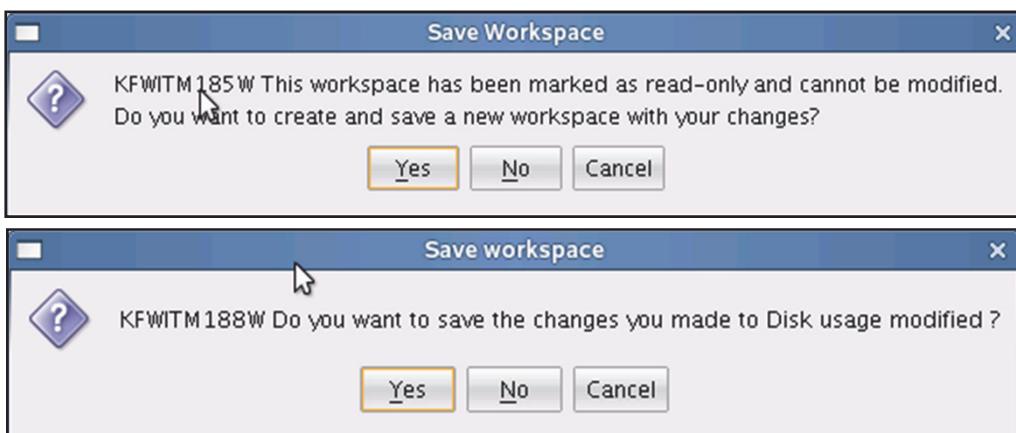


**Note:** Always rename workspaces when you modify them from product-provided workspaces.

A newly saved workspace is accessible as another workspace on the Navigator item for which it is created. The exception is if you specify it as accessible only as a link target. This feature is useful for advanced links that pass parameters to a workspace. The target workspace might not show meaningful data if someone opens it from a Navigator item.

## Saving the workspace (continued)

If you do not save the workspace, one of the following prompts opens:



Selecting the **x** in the upper right corner is equivalent to selecting **Yes**.

You can save a workspace or discard changes by opening a new workspace. Whether you open it directly from the Navigator or through a link, you receive a prompt to save or discard your changes.

# Lesson 4. View types

## Lesson 4: View types



View types show data in different ways or from different sources, such as

- Current data from enterprise resources
- Different representations of enterprise resources
- Situation events or situation event status changes
- Areas outside of Tivoli Monitoring, such as system consoles and websites
- Operational data, such as data from external databases

### What this lesson is about

This lesson introduces several view types, both data views and special purpose views. It presents the available properties for each view type.

### What you should be able to do

After completing this lesson, you should be able to choose a view type that is appropriate for the data that you want to show in a workspace.

You can use many types of views to build workspaces. Some view types are specifically for viewing and managing situation events. Others are for displaying data, which an agent directly returns when someone issues a query.

## Data views



Data views show current and historical data from enterprise resources.

- Pie charts show portions of a whole, such as percentage.
- Bar, plot, area, and gauge charts show values of each attribute.
- A table shows detailed data for the selected resource.

### Data views

Six chart views and a table view are available to show current data. An agent or other data source collects the data when a user opens or refreshes a workspace. Use these views to perform the following tasks:

- Optimize system performance.
- Pinpoint and avoid problem areas.
- Recognize usage trends.
- Decide what attribute values to use in situations.

## Table view

Shows detailed data for a specific resource.

Process Overview					
	Process Name	ID Process	Priority Base	% Processor Time	% Privileged Time
Idle	0	0	37	37	37
System	4	8	3	3	3
smss	616	11	0	0	0
csrss	688	13	0	0	0
winlogon	752	13	0	0	0
services	796	9	0	0	0
lsass	816	9	0	0	0
svchost	1044	8	0	0	0

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### Table view

A table view shows the attribute values in rows and columns. Column headings are attribute names.

You can use filters to show a view of only a subset of information. Thresholds highlight certain entries with a differently colored background for critical, warning, or informational data values.

## Table view: Filters tab

The screenshot shows the Table view: Filters tab interface. It consists of three main sections:

- Preview:** Shows a preview of the data based on current filter selections. The table header is "Process Information Detail" and the columns are: Process Command Name, Process ID, Process Parent ID, Process State, Process System CPU (Percent), Process User CPU (Percent), Cumulative Process System CPU (Percent). The data shows two processes: "init" and "ksoftirqd/0".
- Filters:** A grid where you can select or deselect data to show. The columns are the same as the preview. Row 1 has all checkboxes checked. Rows 2 and 3 are empty.
- Data Snapshot:** Shows the actual output of the query. The columns are: Process Command Name, Process ID, Process Parent ID, Process State, Process System CPU (Percent), Process User CPU (Percent). The data shows five processes: "init", "ksoftirqd/0", "events/0", "khelper", and "kthread".

Annotations with red boxes and arrows point to each section:

- A box labeled "Preview the effect of the filters." points to the Preview section.
- A box labeled "Select or deselect data to show." points to the Filters section.
- A box labeled "View the output of the query." points to the Data Snapshot section.

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### Table view: Filters tab

Table view contains the following sections:

- **Preview** section: See how your view appears, based on your filter selections.
- **Filters** section: Select data that you want in your view.
- **Data snapshot** section: View the output of the query, what the data looks like.

## Table view: Thresholds tab

The screenshot shows a monitoring application interface with three main sections:

- Preview:** A button labeled "Preview" is highlighted with a red box. A callout box with a red border and a black background contains the text: "Preview the effect of the thresholds." An arrow points from this box to the "Preview" button.
- Thresholds:** A tab labeled "Thresholds" is highlighted with a red box. A callout box with a red border and a black background contains the text: "Set values to color-code data based on thresholds." An arrow points from this box to the "Thresholds" tab.
- Data Snapshot:** A table titled "Data Snapshot" is shown below the thresholds. It has columns: Kernel Priority, Nice Value, Total Size (Pages), Resident Set Size (Pages), Shared Memory (Pages), and Text Resident Set (Pages). The first row has a red border and contains icons for "Critical" and "Warning". A callout box with a red border and a black background contains the text: "View the output of the query." An arrow points from this box to the "Data Snapshot" table.

**Color-coded table entries to categorize potential problems.**

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Figure 1. Table view: Thresholds tab

The slide shows how you can define thresholds. Thresholds apply only to the fields for which you create them, not to the full data record.

Thresholds provide the capability to flag a data item based on its value. If the flagged data item is out of sight, the scroll bar arrows change color to indicate the existence of the item. Click the scroll arrow to go directly to the item in the table.

Thresholds are available only for table views and consoles, which include the Situation Event Console, common event console, and the message log. With this capability, you can highlight fields that contain values that fit certain characteristics. Color the cells where the threshold is true or place an icon in them. Background colors and state options are the same as for situations.

## Viewing table thresholds

The colors in the column headers correspond to the colors you set as threshold criteria.

Process Command Name	Total Size (Pages)	Process ID	Process Parent ID	Resident Set Size (Pages)	Process State	Process System CPU (Percent)	Process User CPU (Percent)	Cumulative Process System CPU (Percent)	Cumulative Process User CPU (Percent)
init	551	1	0	159	Sleeping	0.00	0.00	0.09	0.54
java	<b>104612</b>	25389	25380	48812	Sleeping	0.09	0.86	0.00	0.00
java	<b>139982</b>	14196	14055	5510	Sleeping	0.00	0.00	0.00	0.00
java	<b>174319</b>	5644	1	86081	Sleeping	0.01	0.14	0.00	0.00
java	<b>143007</b>	4987	4973	9405	Sleeping	0.01	0.03	0.00	0.00
java	<b>139232</b>	4973	4972	3687	Sleeping	0.00	0.00	0.00	0.00
k9agent	25599	14055	1	2963	Sleeping	0.00	0.00	0.00	0.00
kacpi_hotplug	0	17	0	0	Sleeping	0.00	0.00	0.00	0.00
kacpi_notify	0	16	0	0	Sleeping	0.00	0.00	0.00	0.00
kacpid	0	15	0	0	Sleeping	0.00	0.00	0.00	0.00
kauditfd	0	1553	0	0	Sleeping	0.00	0.00	0.00	0.01
kblockd/0	0	14	0	0	Sleeping	0.00	0.00	0.00	0.00
kcawd	10539	27689	1	1641	Sleeping	0.00	0.00	0.00	0.00
kdmain	38326	4404	4403	12276	Sleeping	0.01	0.01	0.00	0.00
KfWServices	<b>64694</b>	5124	1	18516	Sleeping	0.00	0.05	0.00	0.00
khdprij	<b>164529</b>	5582	0	10680	Sleeping	0.00	0.00	0.00	0.00
khelper	0	7	0	0	Sleeping	0.00	0.00	0.00	0.00
khungtaskd	0	21	0	0	Sleeping	0.00	0.00	0.00	0.00
kinTEGRITYd/0	0	13	0	0	Sleeping	0.00	0.00	0.00	0.00

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### Viewing table thresholds

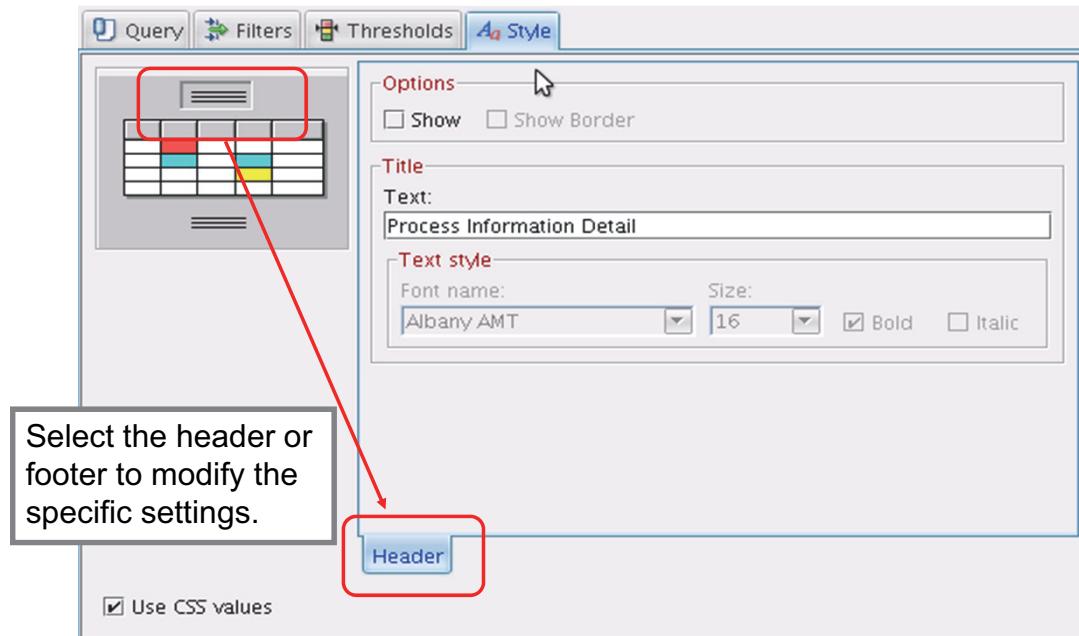
This example illustrates thresholds. In a production environment, do not monitor for trivial results, unless you have a good reason. Monitoring for trivial results wastes computer resources and can cause operators to become complacent if an alert is always on and the situation is normal.

This example shows critical, warning, and informational thresholds in the Linux OS Process Information Detail view.

If the software highlights multiple entries within a table view, the scroll arrow points in the direction where more highlighted entries are found. The arrow shows the most severe state for all entries, for example, critical over warning.

## Table view: Style tab

Set the header and footer in the Style tab.



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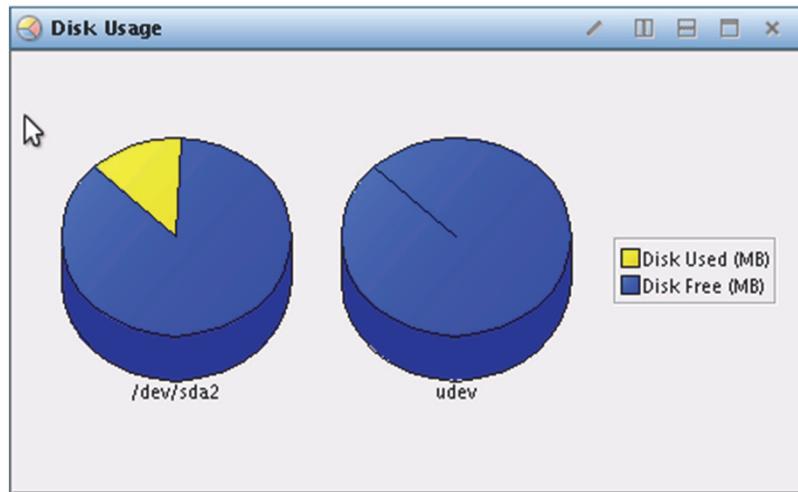
43

### Table view: Style tab

The **Style** tab for tables contains settings for the header and the footer of a table. You can specify the text font, text size, and borders around the text.

## Pie chart view

Best used for values that total 100%, showing the percentage of each component



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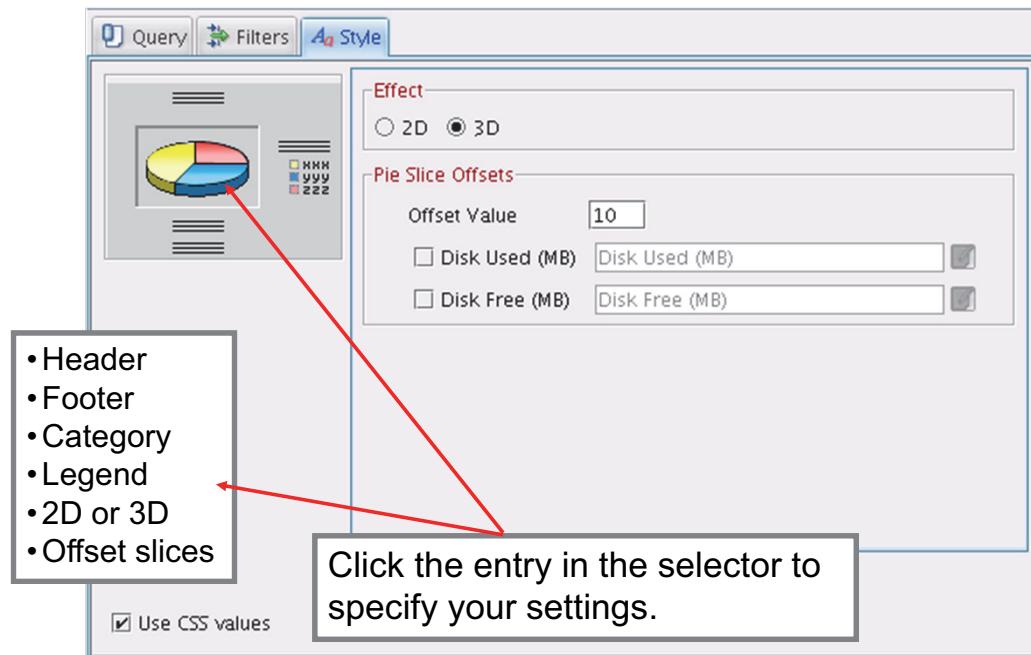
44

### Pie chart view

Pie charts are useful to show multiple values that total 100%. An example is the amount of available disk space or the amount of processor utilization.

## Pie chart: Style tab

Many pie chart varieties



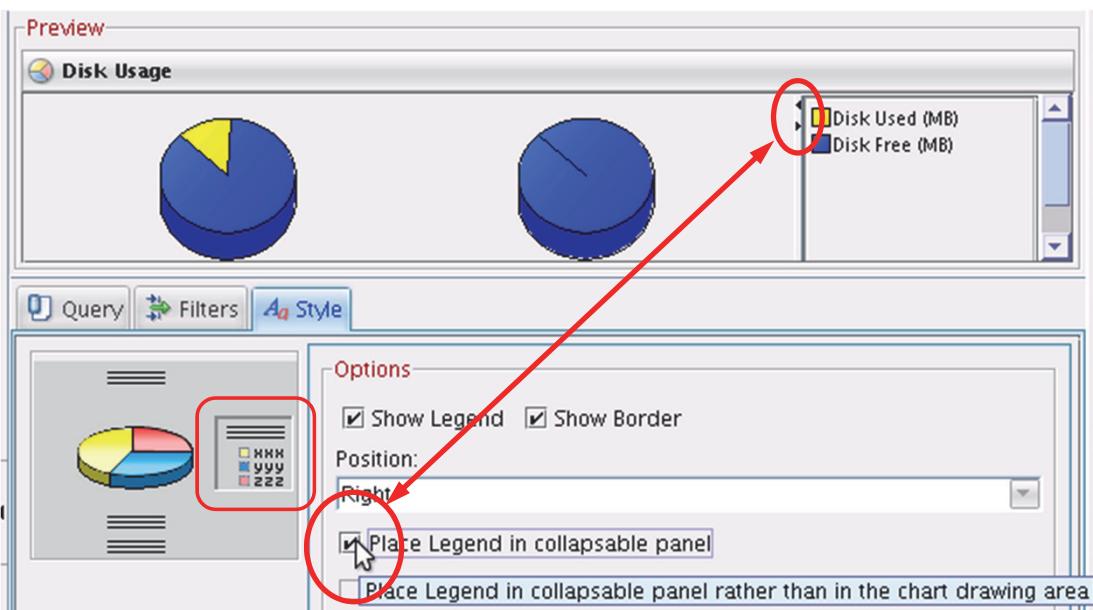
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### Pie chart: Style tab

When working with pie charts, you can adjust the header, footer, and a category. You can include or exclude the legend. You can also modify the default view colors. A new option allows you to select a pie slice from a segment and offset it to draw attention to the slice.

## Pie chart style tab: Collapsible legend



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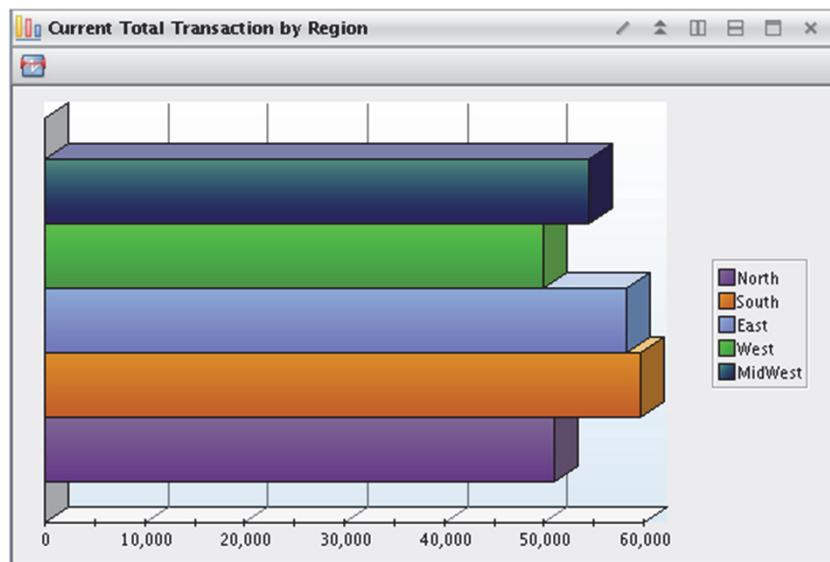
46

### Style tab: Collapsible legend

If a chart has many segments, the legend takes up much of the available view space. Select the **Place Legend in a collapsible panel** check box to hide or show the legend. Bar chart and plot views also have the collapsible legend feature.

## Bar chart view

The most commonly used chart



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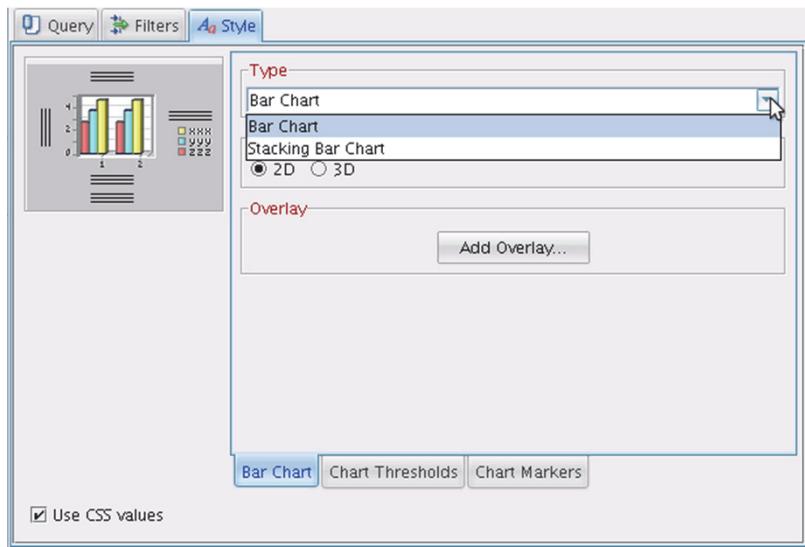
47

### Bar chart view

The bar chart is the most commonly used chart view type and has the most options for modifying its appearance.

## Bar chart: Style tab

- Bar chart or stacking bar chart
- Two-dimensional or three-dimensional
- Horizontal or vertical
- Grids, legends, scale



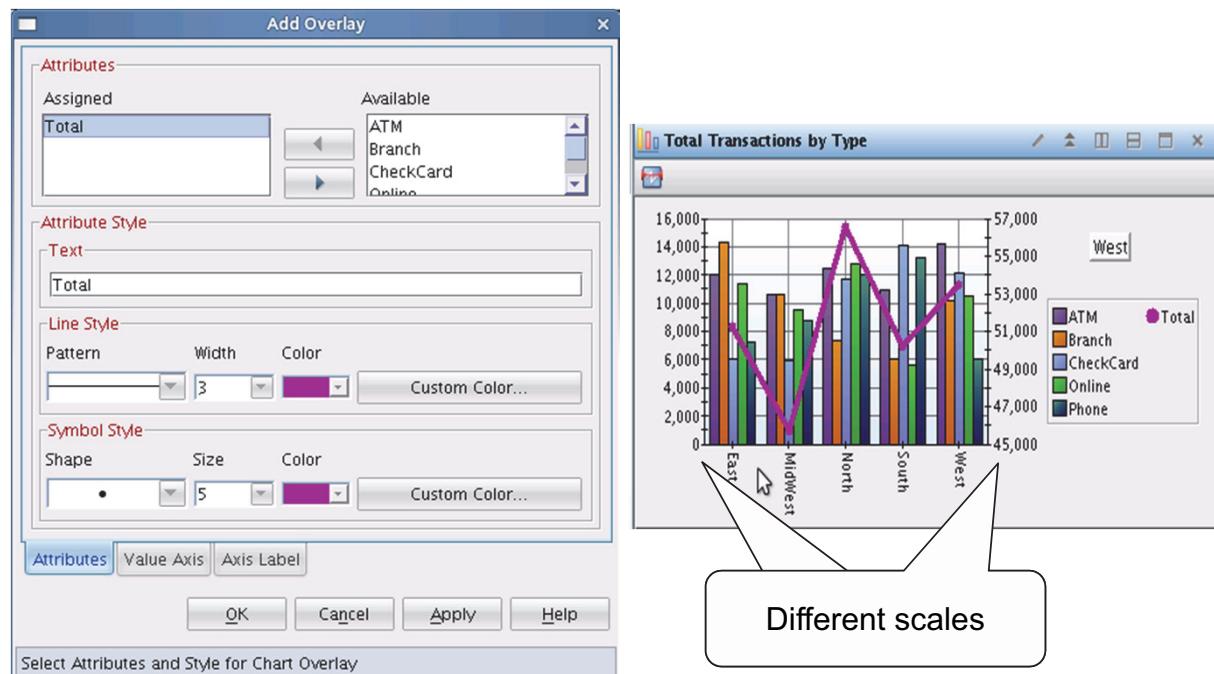
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### Bar chart: Style tab

You can choose between two types of bars, stacked or side-by-side, specify axis values, invert the value and category axis, or specify a legend. With a little practice and frequent use of the **Test** button, these options become familiar. The example shows how you can convert the bar chart from vertical to horizontal bars and vice versa.

## Bar chart style tab: Overlay line



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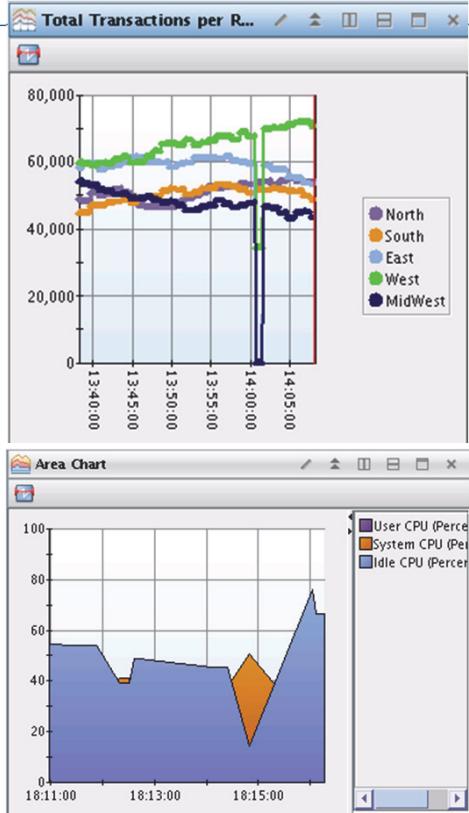
### Bar chart style tab: Overlay line

You can add a line chart to a bar chart as an overlay. Select the attribute from the list of available attributes. Overlays are also available for plot chart views.

This example shows the *total* attribute laid over the *detail* attributes, which provides a trend line. You can also select an attribute that is already in the bar chart to emphasize that value visually.

## Other data views

- Plot chart
  - Show changes over a time period among related attributes, refresh rate independent of the workspace
  - One data point for each data sample
  - One line per attribute
  - Can be primed with historical data
- Area chart
  - Similar to plot charts
  - Common usage for showing trends among related attributes over time
- Linear gauge and Circular gauge
  - Monitoring of individual attribute values
  - Customizable range and color-coded thresholds



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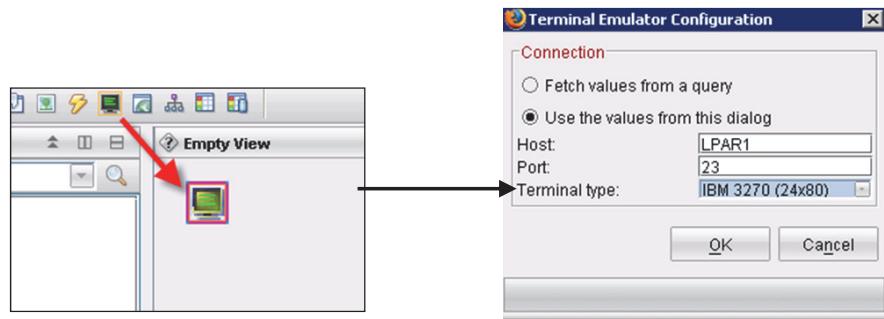
### Other data views

Two more data views are the plot chart and gauge views. The notepad view is useful for describing a customer workspace.

## Terminal Emulator view

Put it on any workspace:

- Terminal types 3270, VT100, or 5250
- Does not require installing a 3270 emulator program
- Connect to any available VTAM application, telnet, or ftp



Drop a terminal view in any workspace.

Specify host name or IP address, port, and terminal type,

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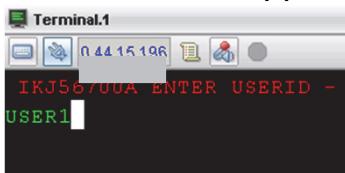
### Terminal Emulator view

Mainframe users can use a terminal view directly within a workspace. When you select the terminal view, it prompts you to specify the host name or IP address of the target system, the listening port, default is 23, and the terminal type. Supported terminal types are IBM 3270 models 2, 3, 4, 80 column screen, and 5, 132 column screen. You can also select two models of 5250 terminal or VT100 for telnet use.

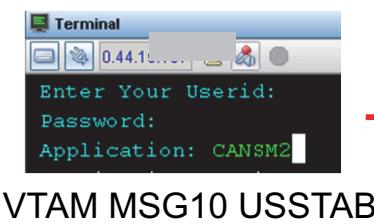
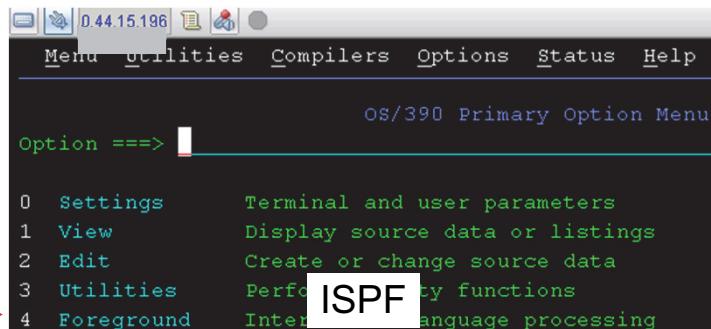
If you save a workspace with an active terminal session and then navigate to another workspace, the session remains active. If you close the portal client, you terminate any active terminal sessions. The next time that you go to that workspace, you must log in again.

## Enter TSO user ID or VTAM APPLID

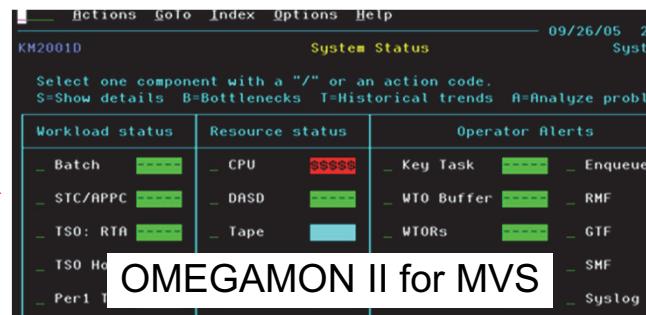
- CICS region
- OMEGAMON II (CUA)
- OEMGAMON (classic)
- Other VTAM application



TSO logon



VTAM MSG10 USSTAB



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Enter TSO user ID or VTAM APPLID

This page shows examples of accessing the z/OS Time Sharing Option (TSO) and starting an Interactive System Productivity Facility (ISPF) session. The same ISPF functions are available as with a 3270 terminal emulator program such as IBM Personal Communications. You can right-click the view and click **Keypad** to show the program function keys at the bottom of the screen.

The example on the bottom shows the use of a standard Virtual Telecommunications Access Method (VTAM) message table. You can enter a VTAM application ID (APPLID), such as the one for OMEGAMON II for MVS, and access the session directly from within a workspace. You can access OMEGAMON II in this manner independently of whether the OMEGAMON XE for z/OS monitoring agent is running.

You can use a terminal view to access other available APPLIDs, such as a Customer Information and Control System (CICS®) region.

## Special-purpose views

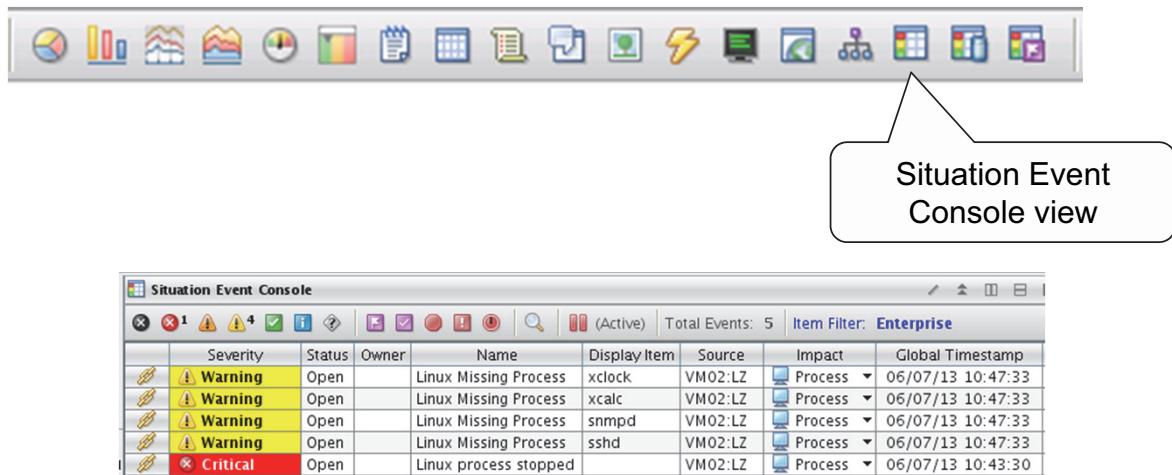
- Notepad view:
  - Standard text editor for including text and messages in a workspace
  - Possibility of describing the content of a custom workspace to users
- Universal Message Console view:
  - One message per row
  - Inclusion of situation and policy activities, such as time of a situation creation, activation, or deletion
  - Inclusion of user-generated messages that are added because of a situation or policy action
- Take Action view: Possibility of issuing commands to the system or applications
- Browser view: Integration of webpages and HTML files in a workspace

## **Special-purpose views (continued)**

- Topology view: Hierarchical view of related objects, such as Tivoli Monitoring systems or WebSphere MQ queue managers
- Situation Event Console view: Easy access to all situation event management options
- Tivoli Enterprise Console Event view: Same functions as the event viewer available in the TEC Java console
- Message Log view: Situation event status changes
- Common Event Console view: Single console for multiple event repositories

## Situation Event Console view

Easy access to all situation event management options



*Situation Event Console view*

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You can place the Situation Event Console view onto any workspace. You can filter the events by Navigator view level by dragging a Navigator item into the body of the view. The Item Filter label changes to the name of the Navigator view.

# Lesson 5. Graphic view

## Lesson 5: Graphic view

- A canvas within a workspace with customized icons that represent Navigator items on that canvas
- Includes icons that show event indicators
  - Use them to link to other workspaces.
  - Provide access to situation event details and situation event management options.
- Can build geographical or application infrastructure views

### What this lesson is about

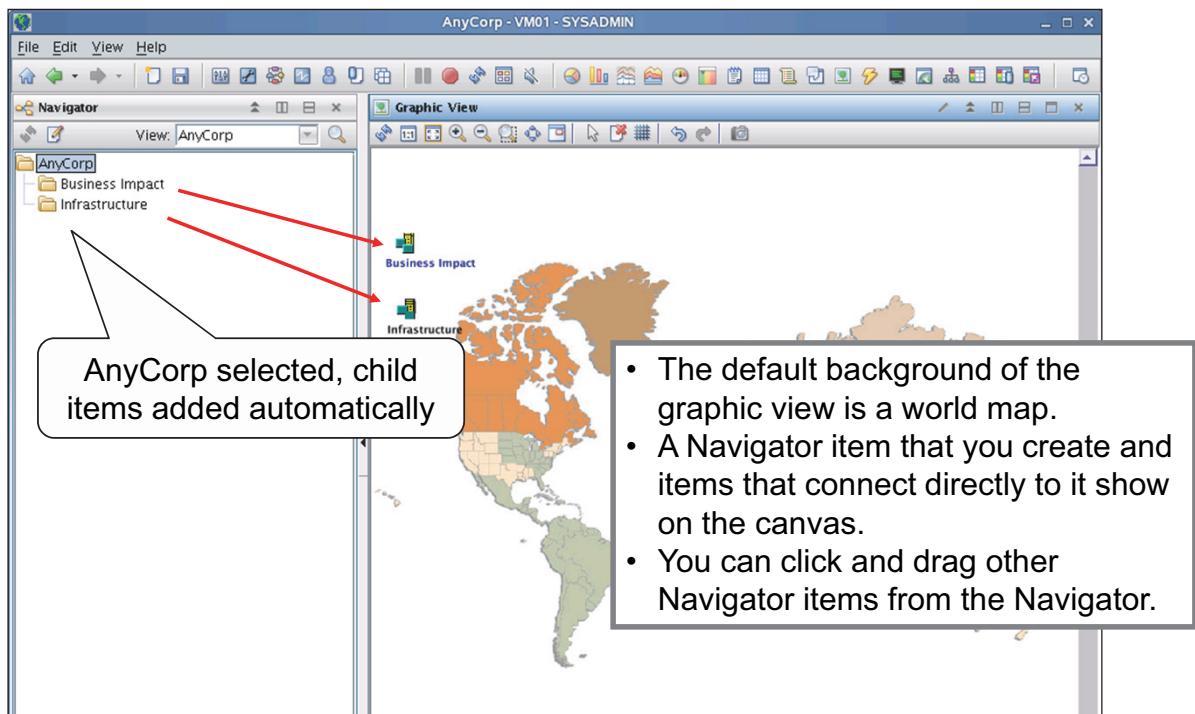
The last view type is the graphic view. The graphic view is useful for creating geographic, organizational, application dependency topologies, and other images.

### What you should be able to do

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

- Place graphic views on a workspace.
- Set the background of the view with graphic files.
- Set the format of the icons on the view with cascading style sheets.

## Graphic view introduction



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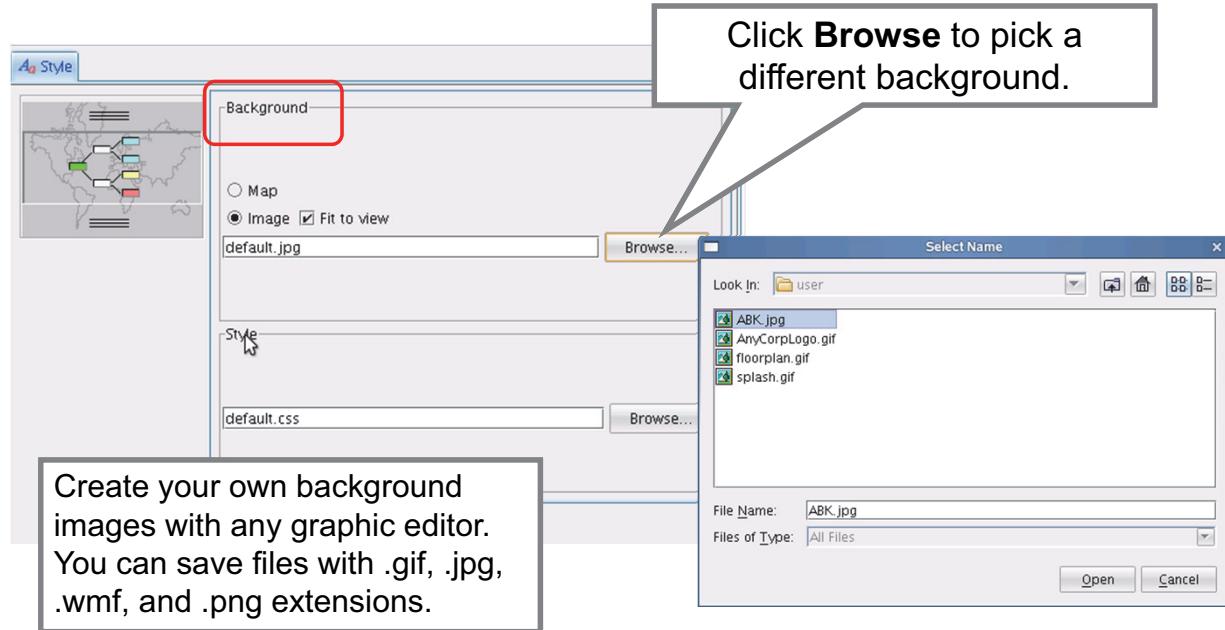
### Graphic view introduction

When you place your graphic view into a workspace pane, a world map is shown with the default style for graphic view icons. You can modify styles and the actual graphic view background.

Navigator items that belong to the next lower level in the Navigator are automatically added to the view. You can later add more Navigator items from the same Navigator.

## Selecting a background

Open the view properties for the graphic view and select the plot area in the **Style** tab.



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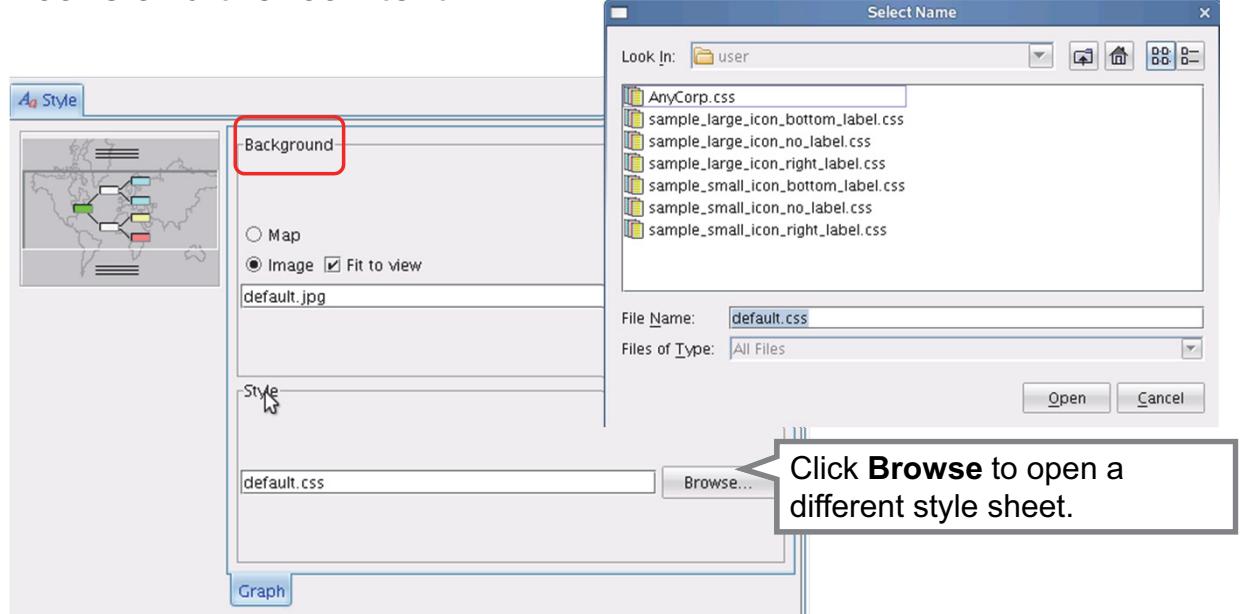
### Selecting a background

The graphic view and all properties are changed in the view properties. You can click the header, the image itself, or the footer of the view to modify that setting.

You can include your own images or use the provided .lvl files. To use your own files, select **Image**. You can see other image file formats.

## Selecting item style

Cascading style sheets (CSS) define the appearance of the icons and the icon text.



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### Selecting item style

Styles depend on files that you use to modify the appearance of your icons. You can resize your icons or specify the location of your icon label by using the predefined styles. You identify the existing styles by their titles, and generate your own style sheets to customize your icons.

## Adding graphic files and style sheets

- The portal server stores custom graphics and styles in specific directories:
  - Linux: /opt/IBM/ITM/li6263/cw/classes/candle/fw/resources/
  - Windows: \IBM\ITM\CNB\classes\candle\fw\resources\
- Backgrounds
  - Linux: backgrounds/user
  - Windows: backgrounds\user
- Icons
  - Linux: icons/user
  - Windows: icons\user
- Styles
  - Linux: styles/user
  - Windows: styles\user

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### *Adding graphic files and style sheets*

You must place all graphics, icons, and other custom files in specific directories in the following locations:

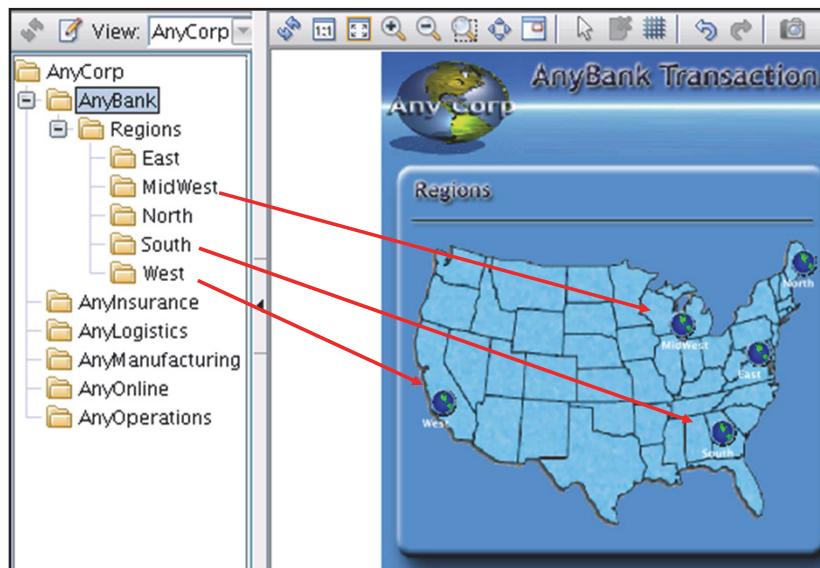
- **/opt/IBM/ITM/li6263/cw/classes/candle/fw/resources/** for Linux
- **\IBM\ITM\CNB\classes\candle\fw\resources** for Windows

Many custom files are located under a **user** directory in these directories. All portal clients, desktop, Java Web Start, and browser, load their graphics and other files from that location, simplifying file management.

IBM provides maps and other backgrounds that are available as .ivl files. These files are geo-referenced files, which consist of several images, providing better results when zooming into a graphic.

## Adding graphic view icons

After including the graphic view in your workspace, add Navigator items by dragging them into the new view.



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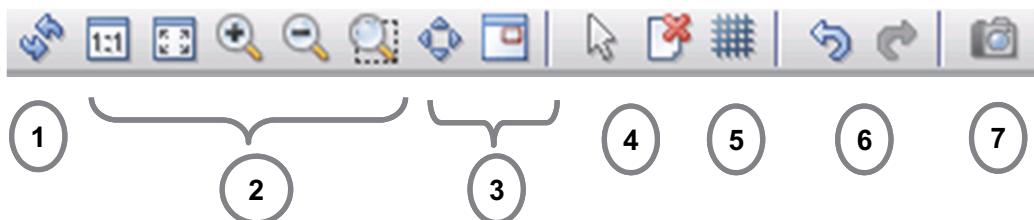
61

### Adding graphic view icons

Navigator items that show in the graphic view are tied to the items available in the Navigator view. You can include Navigator items from the current Navigator by dragging them into the graphic view. To add more Navigator items to the graphic view, expand the Navigator until the items you want are viewable. Click and drag the items onto the graphic view. Use the **Ctrl** key for selecting multiple items and dragging them into the view.



## Graphic view tools



1. Reload the style sheet.
2. Select zoom options.
3. Pan and view for overview.
4. Select and delete.
5. Select grid.
6. Undo and redo.
7. Take a snapshot.

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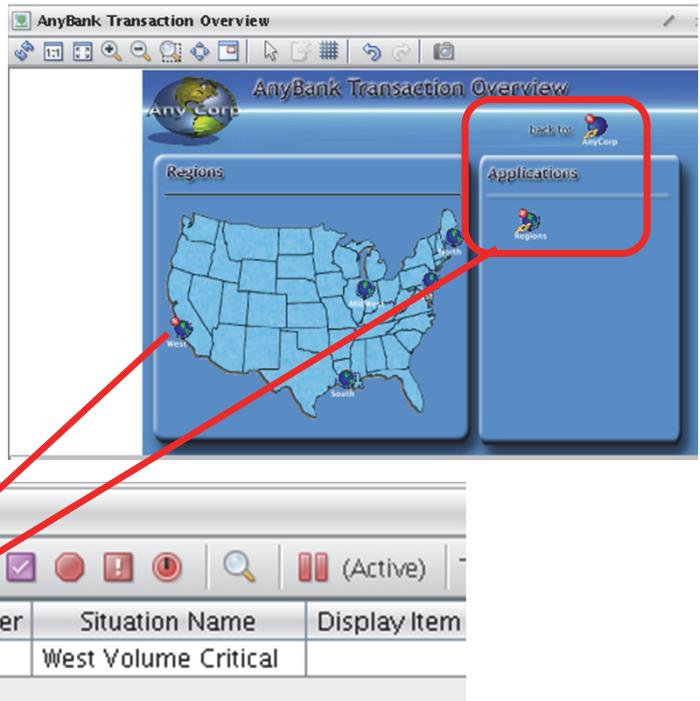
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### Graphic view tools

You can use the graphic view toolbar to modify the appearance of a graphic and provide more capabilities, such taking a snapshot of the canvas. You can also print the canvas from the right-click menu.

## Status indicators and links

- Graphic view icons show situation events, provide access to the situation event flyover window, and provide access to the situation event details workspace.
- You can create links to directly navigate from the icon to other workspaces.



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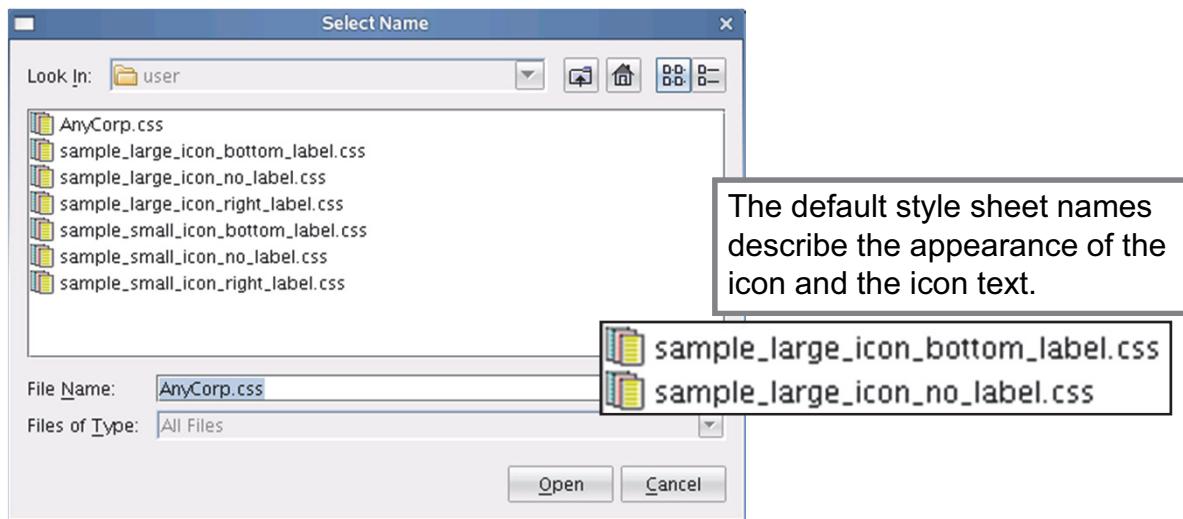
63

### Status indicators and links

Creating links for graphic view icons follows the same concept as creating links for Navigator items. Both are taught in Lesson 7, “Understanding links” on page 320.

## Customizing icons: Changing styles

- You can customize icons with style sheets.
- After you create a style sheet and copy it to the styles directory, you can select it from the graphic view properties.



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### Customizing icons: Changing styles

Besides modifying your background graphics, you can also modify the appearance of your graphic view icons. Customizing icons is useful when the presentation of your solution or specific workspace is important. Use the style sheets for this task.

## Custom style sheet example

- Style sheets determine the icon that is shown on a graphic view for each Navigator item, the icon's size, and its text properties.
- Several style sheets are available and customizable.

```
@import "../$base.css";
@import "../$baseLargeIcon.css";
@import "../$baseNodeLabelBottom.css";

node {
    foreground : "white";
}

node[name = "AnyManufacturing"]
node[name = "AnyBank"]
node[name = "AnyCorp"]
node[name = "AnyInsurance"]
node[name = "AnyPetrochemical"]
node[name = "AnyLogistics"]
node[name = "AnyOperations"]
node[name = "Any"]
node[name = "ATM"]
node[name = "Online"]
node[name = "Branch"]
```

Icon name

Icon text color

Graphic file location and name

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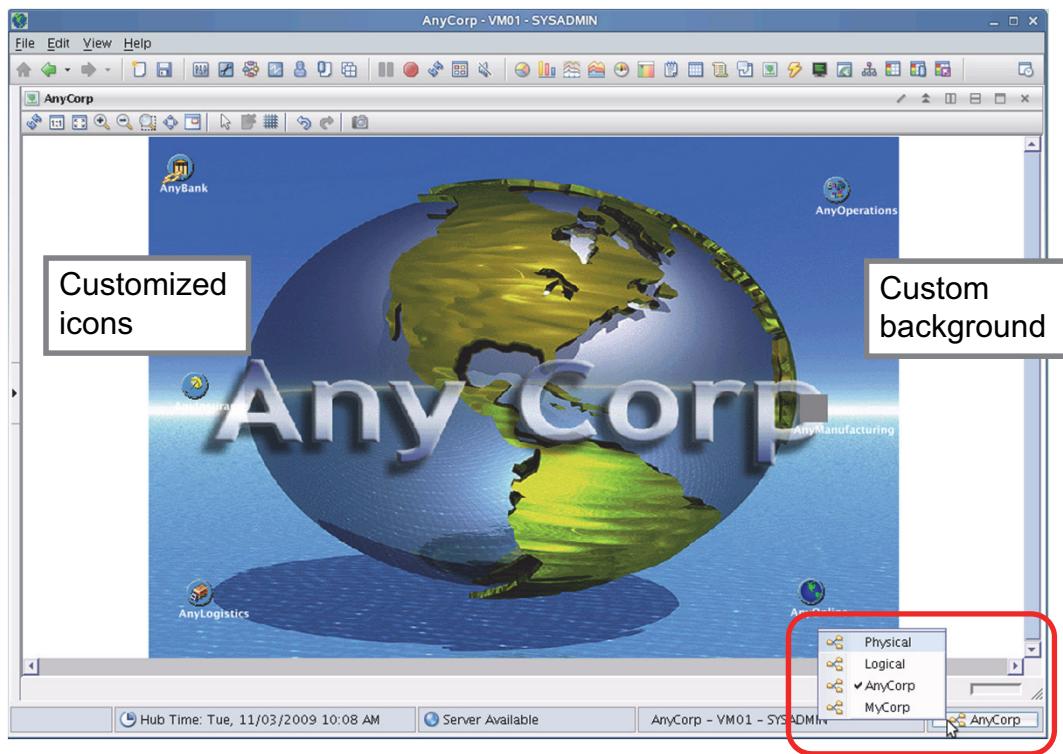
### Custom style sheet example

To replace the icon in your graphic view, associate each icon or Navigator item name with an entry in the style sheet. The style sheet points to a graphic file in the **../icons/user** directory. Each custom style sheet imports other style sheets. Some provided style sheets define the size of the icons, the label location, and other settings. You can also specify a color for your icon label.



**Note:** You must spell out associated names and use the correct case. The icon substitution depends on appropriate case.

## Graphic view: Example



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### Graphic view: Example

This example of a custom graphic uses the style sheet from the previous slide. The example shows the canvas with the Navigators hidden. A right-click on the Navigator name in the lower right corner opens a list of available Navigators as shown.

# Lesson 6. Chart views and baselines

## Lesson 6: Chart views and baselines

### ▪ Monitored Baseline

- See how a metric performs relative to its threshold
  - Real-time behavior.
- Anticipate when situation events arise.

### ▪ Statistical Baseline

- Present results of statistical functions as lines in the chart.
- Visually determine normalcy in an environment.

### ▪ Historical Baseline

- Analyze a short-term trend.
- Spot patterns or trends.
- Compare today's results to those of yesterday, last week, last 5 days, and so on.

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#### What this lesson is about

You can use view baselines to visualize where the monitored attributes are in relation to the situations that are monitoring them. You use baselines to tune your situation values.

#### What you should be able to do

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

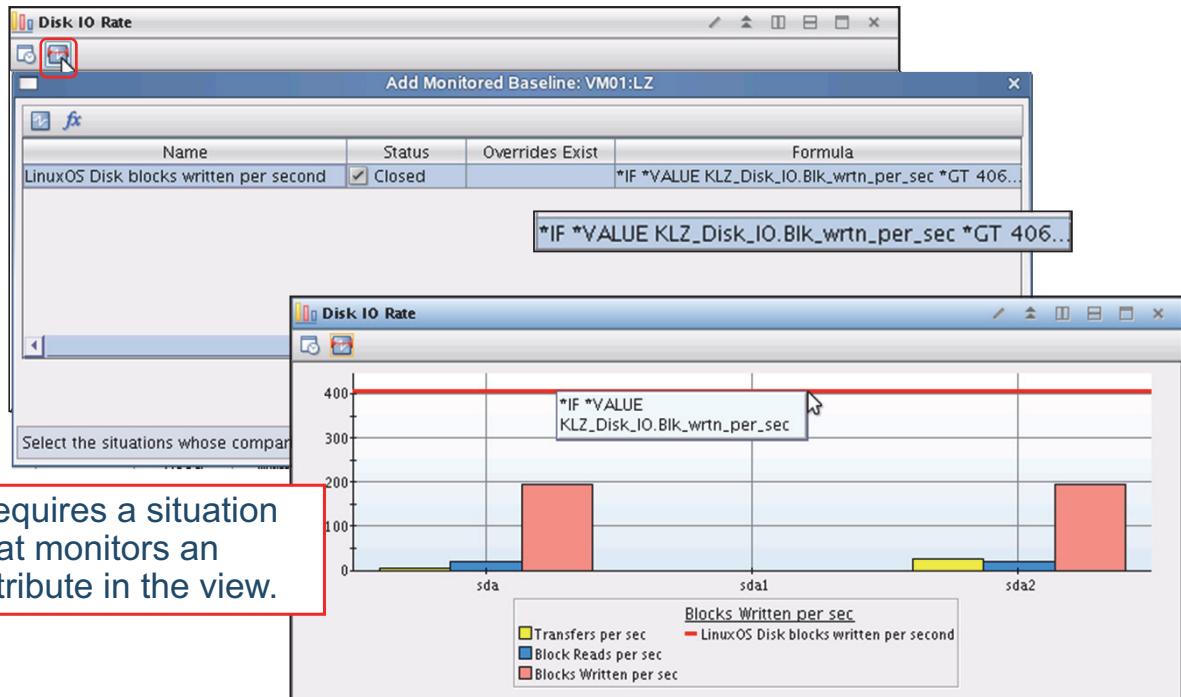
- Create a situation baseline for current data.
- Create a baseline with statistical functions
- Create a baseline with historical data.

Baselines are a new feature to add lines on chart views in order to better understand the data. The baseline is generated from three sources:

- A situation value for one of the attributes in the view

- A statistical function, such as showing the average value
- Historical data, showing what past performance is compared to current values

## Adding a monitored baseline



Requires a situation that monitors an attribute in the view.

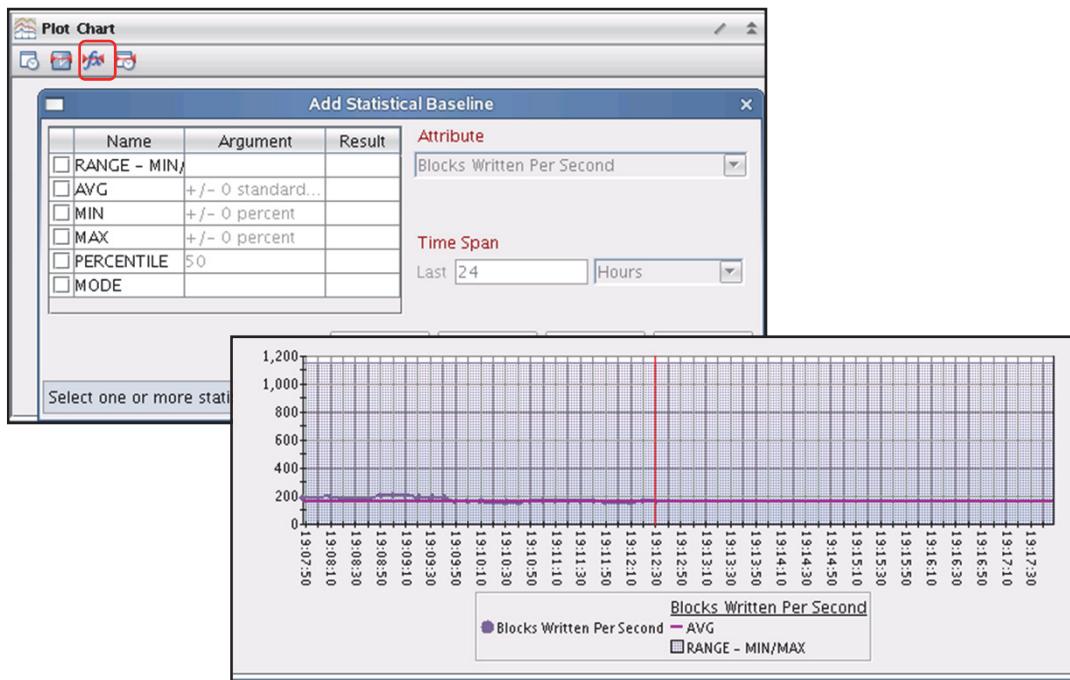
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### Adding monitored baseline

The value for a situation that is monitoring disk write activity and that plots the current activity, shows activity to be below the threshold.

## Adding a statistical baseline



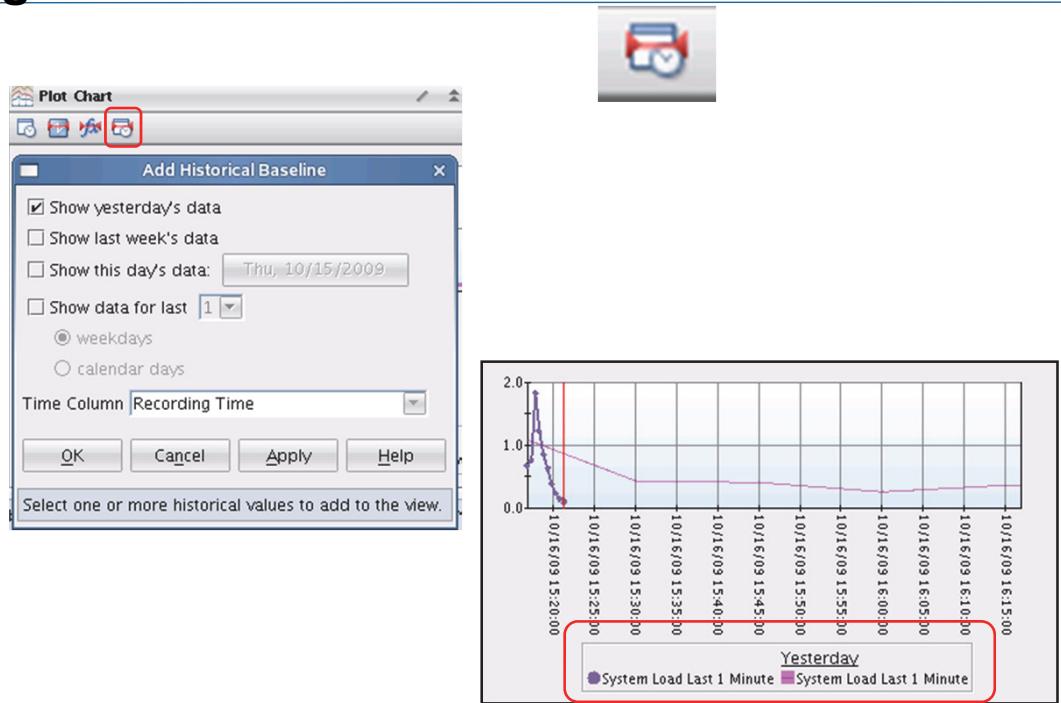
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### Adding statistical baseline

A statistical function plots a line that is based on a variation from current values. A beneficial use might be showing the average plus 20% to draw a line that represents anticipated growth.

## Adding a historical baseline



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### Adding a historical baseline

The historical baseline is useful for comparing activity for last week or last year to current activity.

# Lesson 7. Understanding links

## Lesson 7: Understanding links

- By creating workspaces, views, and queries, you ensure that users can access all necessary data to monitor the enterprise meaningfully.
- Because of the large number of Navigator items, it might be difficult to find specific workspaces of interest.
- If you provide links as default navigation options, you can significantly improve usability. Users can quickly navigate to related or more detailed information.
- The portal server database contains saved links.

### What this lesson is about

This lesson teaches the creation of links to simplify navigating in the portal client. You can use links for navigating workspaces instead of using the Navigator. This feature can enhance usability for large enterprise installations that use large Navigators, where locating specific workspaces can be difficult.

### What you should be able to do

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

- Describe the use of links to aid in workspace navigation.
- Describe source and target workspaces.

You can also use links to open related or more detailed information about a particular entry in an overview workspace. By using advanced links, you can navigate to a workspace that shows information about just one data record. Advanced links are covered in the IBM Tivoli Monitoring Advanced Administration course.



## Links: Description

- Navigation between workspaces
- Link wizard to define link and specify link source and target workspaces
- The link source possibilities:
  - A graphic view icon
  - A table row
  - A bar in a bar chart
  - A pie in a pie chart
  - A line in a plot chart
  - A Navigator item
- Link target possibility: Dynamic, based on certain criteria, but is always a workspace

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### *Links: Description*

You can issue links from almost anywhere, as the list shows. You can also define default links that you can issue with a single mouse click. For table rows and graphic view icons, you can include a link indicator to highlight the presence of a link.



**Note:** A link target is always another workspace.

## Link types: Using a link



Simple links go from one workspace to another without using the Navigator view.

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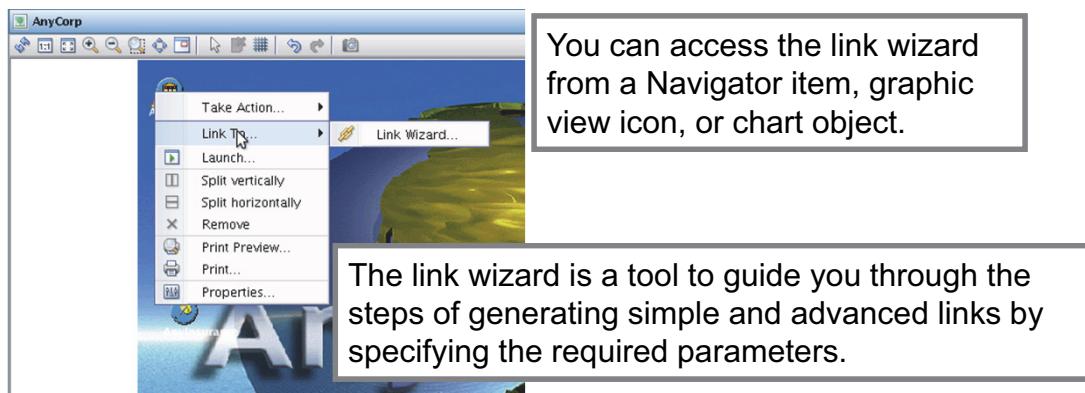
### Link types: Using a link

The example illustrates the use of a link and how links can eliminate the need for using a Navigator view to navigate between workspaces.

# Lesson 8. Defining an absolute link

## Defining an absolute link

1. Build or select your target workspace.
2. Open the source workspace.
3. Position your mouse over the region of the source workspace where you need the link.
4. Right-click and start the link wizard.



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To create links, you first define an absolute link. This slide describes some of the preparation you need to do before you can successfully create links.

### What this lesson is about

This lesson steps through the process of creating an absolute link. An absolute link goes to only one specific target workspace.

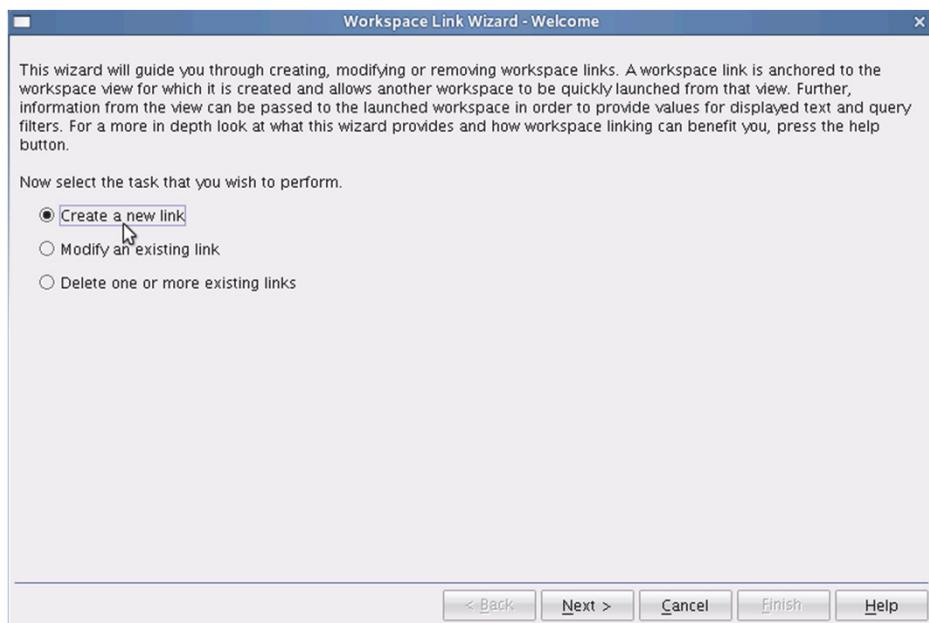
### What you should be able to do

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

- Create an absolute link to navigate from a source workspace to a target workspace.
- Issue the link.
- Describe a link anchor that provides a default target for the link.

## Using the Link Wizard to define a new link

### 1. Define a new link.



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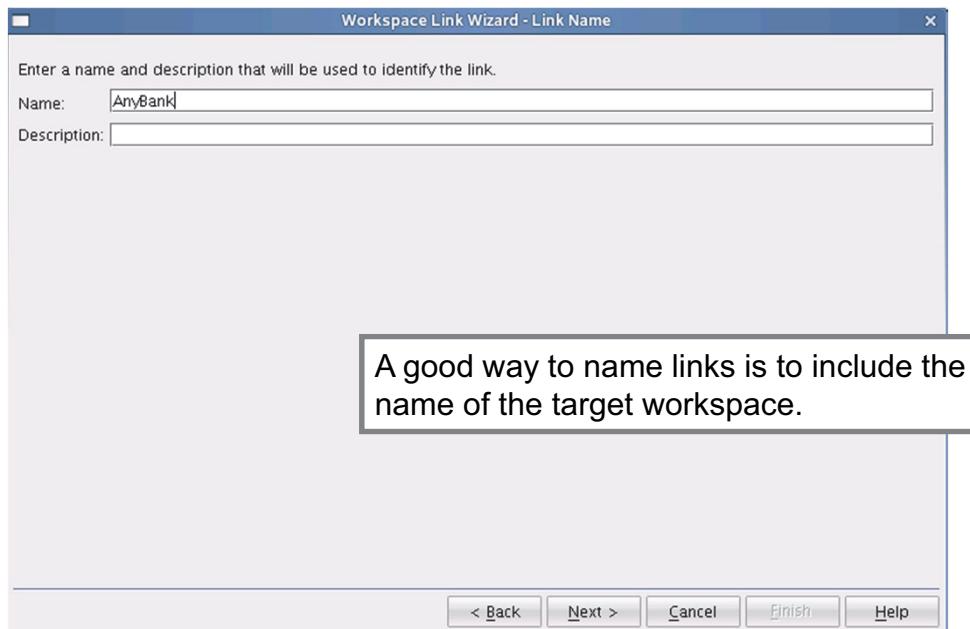
75

#### Use the Link Wizard to define a new link

After you start the Link Wizard, you can create a new link, modify an existing one, or delete a link. When you modify an existing link, you cannot modify the target of the link. If you must modify the target, you must create a new link.

## Enter the link name and description

- Type a link name in the Name field and an optional description.



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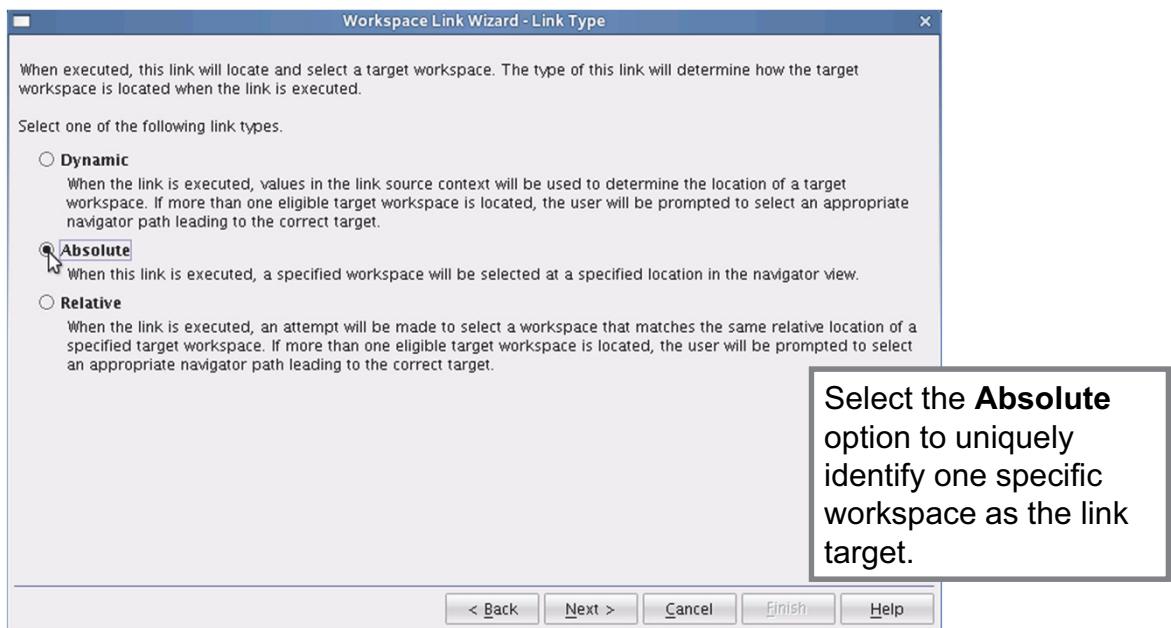
### Enter the link name and description

As a next step, enter a link name and optional description. It is good practice to enter the name of your target workspace as the name. This practice makes it easy for users to know which workspace it links to.

With graphic view icons and table row link indicators, the name is shown when you position the mouse over a link source or when you right-click the source.

## Define the link target as Absolute

### 3. Select a link type to define the link target.



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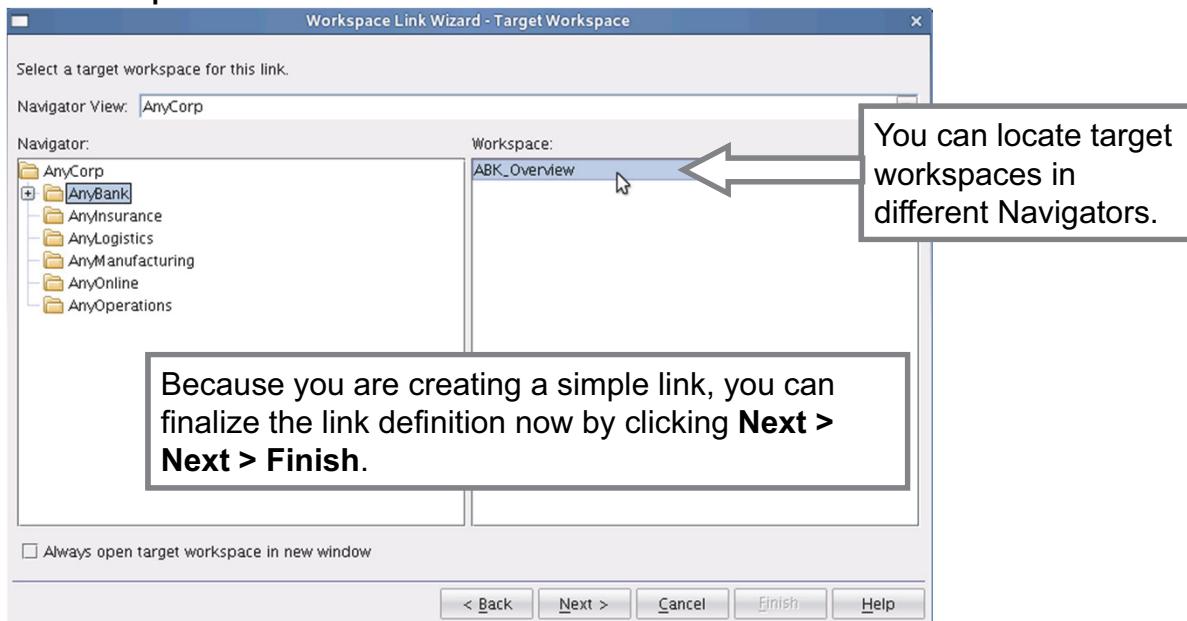
77

#### Define the link target as Absolute

In the next step, you select the target selection link type. This example shows how to create an absolute link. For this type, you do not have to enter link target selection criteria except for selecting the link target workspace itself. The IBM Tivoli Monitoring Advanced Administration course teaches creating more advanced links.

## Select the target workspace

4. Select your target Navigator item and the appropriate target workspace.



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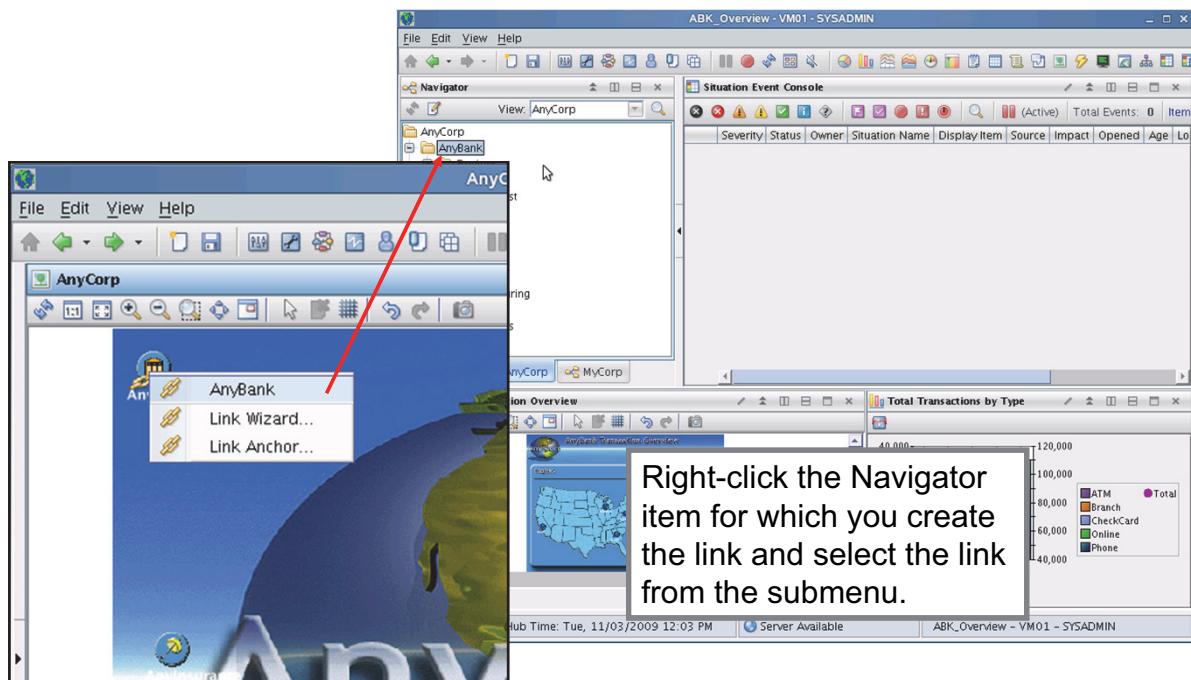
### Select the target workspace

To select your target workspace, you must make one of three choices:

1. Select the Navigator that you want to link to. You can navigate to a workspace that is in a different Navigator.
2. Choose a Navigator item within the Navigator.
3. Select the target workspace. Target workspaces can also include workspaces that are available only as link targets.

Because the link example is a simple link, you do not have to make more modifications. Finalize the link by selecting **Next**, **Next**, and **Finish**.

## Issue the link



Right-click the Navigator item for which you create the link and select the link from the submenu.

Note: Defining a Link Anchor provides a default target.

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### Issue the link

After you define the link, you can issue it from the link source. This location is where you launch the Link Wizard when you create the link. Links are saved automatically in a separate table in the portal server database.

## Student exercises



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### *Student exercises*

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

# Review questions

1. How do you make situation events visible on the Navigator item?
2. Where do you specify a different background image for your graphic view?
3. Where are link definitions stored?

## Review answers

1. How do you make situation events visible on the Navigator item?

*Assign managed systems to the item or to a subordinate item.*

2. Where do you specify a different background image for your graphic view?

*In the View Properties **Style** tab.*

3. Where are link definitions stored?

*In the portal server database.*

## Summary

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

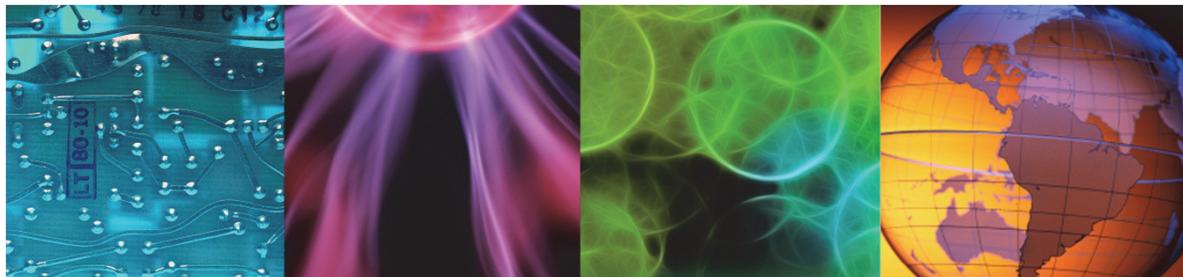
- Build Navigator views to structure your enterprise resources, depending on their location, their type, or their impact on applications or the business.
- Build workspaces and views to present data to your users in a meaningful way.
- Build simple links to provide navigation through an enterprise monitoring solution.



## 7 Introduction to Dashboard Application Services Hub



## 7 Introduction to Dashboard Application Services Hub



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**What this unit is about**

This unit introduces the Dashboard Application Services Hub (DASH), that provides an alternative user interface to IBM Tivoli Monitoring 6.3.

**How you check your progress**

You can check your progress in the following ways:

- Review questions
- Lab exercises

---

## Objectives

After completing this unit, you can perform the following tasks:

- Describe the major functions of the Dashboard Application Services Hub.
- Explain how the dashboard data requester connects to IBM Tivoli Monitoring 6.3.
- Use the Infrastructure Management Dashboards for Servers to access situation event data from the IBM Tivoli Monitoring 6.3 operating system agents.
- Create a custom dashboard.

# Lesson 1. Introduction to Jazz for Service Management Visualization Services

## Lesson 1: Jazz for Service Management components



- **Registry Services:** Centralized data resource locator
- **Visualization Services:** Tools to show data from multiple sources
- **Administrative Services:** Tools automate application management
- **Reporting Services:** Common reporting infrastructure
- **Security Services:** Authentication and Single sign-on (SSO) support

Dashboard Application Services Hub



### Jazz for Service Management components

#### What this lesson is about

This lesson introduces the visualization services component of Jazz for Service Management. This component is called the Dashboard Application Services Hub.

#### What you should be able to do

After completing this lesson, you should be able to describe visualization services.

**Registry Services:** This service provides a central repository of information about applications and application data. Information is indexed with URI pointers to data resources.

Visualization Services: IBM Dashboard Application Services Hub provides tools and services to create a consistent user interface (UI) for data and application administration across multiple applications.

Administrative Services: Provides tools and infrastructure components to create consistent application management across multiple applications.

Security Services: Provides consistent authentication and single sign-on (SSO) support across multiple applications.

Reporting Services: IBM Tivoli Common Reporting and the Cognos Business Intelligence engine provide reporting services. Report management and visualization are consistent across multiple applications and mobile devices.

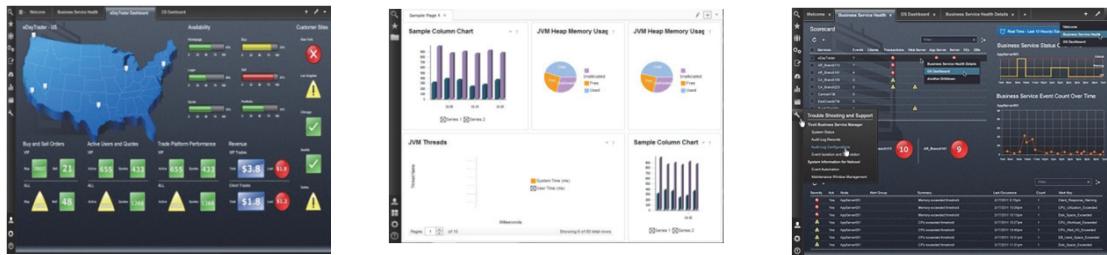
## Visualization services tools

- Data connections
- Dashboard creation workspace
- Common widget library
- Widget events
- Views
- Console preference profiles

### Visualization services tools

Here are some of the tools that visualization services provides. The common widget library that is provided with the Jazz for Service Management visualization services is the core mechanism that you use to build dashboard pages. Widgets that are placed on a dashboard page are connected with other widgets and other pages, quickly creating interactive dashboard pages. Any authorized Jazz for Service Management user can create, configure, and customize dashboard pages. WebSphere Application Server security and Single sign-on combine to create a unified security model for dashboard user and data authentication.

## Visualization services overview



The Jazz for Service Management visualization services supports:

- A common widget library that you use to quickly create custom dashboards with content from multiple products.
- Interactive dashboard pages with widget event connectors.
- Customization by systems integrators, administrators, users, and application creators.
- User and application single sign-on (SSO) and a unified security model.

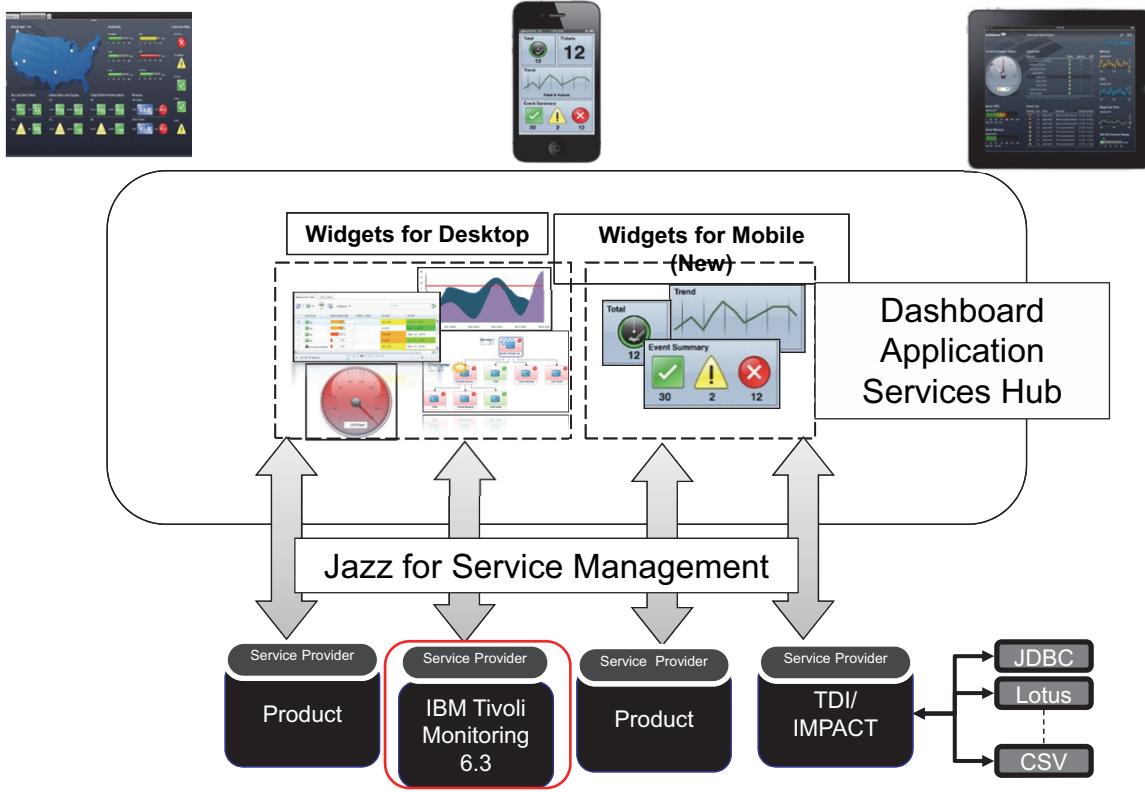
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### Visualization services overview

This diagram shows a high-level view of the main components of the visualization services architecture. Data applications that support Jazz for Service Management includes a software component that is known as a service provider. The service provider provides the standardized interface between the dashboard server and the application data. The widgets on a dashboard are configured to retrieve application data through data connections and service providers. You create dashboard pages for mobile and desktop clients by using the same development tools.

## Visualization Services Architecture



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### Visualization Services Architecture

This diagram shows a logical picture of the DASH server components. Applications provide links to their managed data through the registry services. That data is then shown through DASH server widgets on dashboard console pages. You can designate dashboards for mobile or desktop clients.

# Lesson 2. Dashboard Application Services Hub

## Lesson 2: Dashboard Application Services Hub

A systems management integration platform that supports:

- A consistent management and data visualization user interface look and feel.
- Can integrate content from multiple products into interactive screens to support drill-down scenarios.
- Customization by systems-integrators, administrators, users, and application creators.
- Fast custom dashboard development with an extensive visualization widget library.
- Development tools for creating desktop and mobile dashboards.



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### What this lesson is about

This lesson shows more about the Dashboard Application Services Hub.

### What you should be able to do

After completing this lesson, you should be able to describe the Dashboard Application Services Hub user interface.

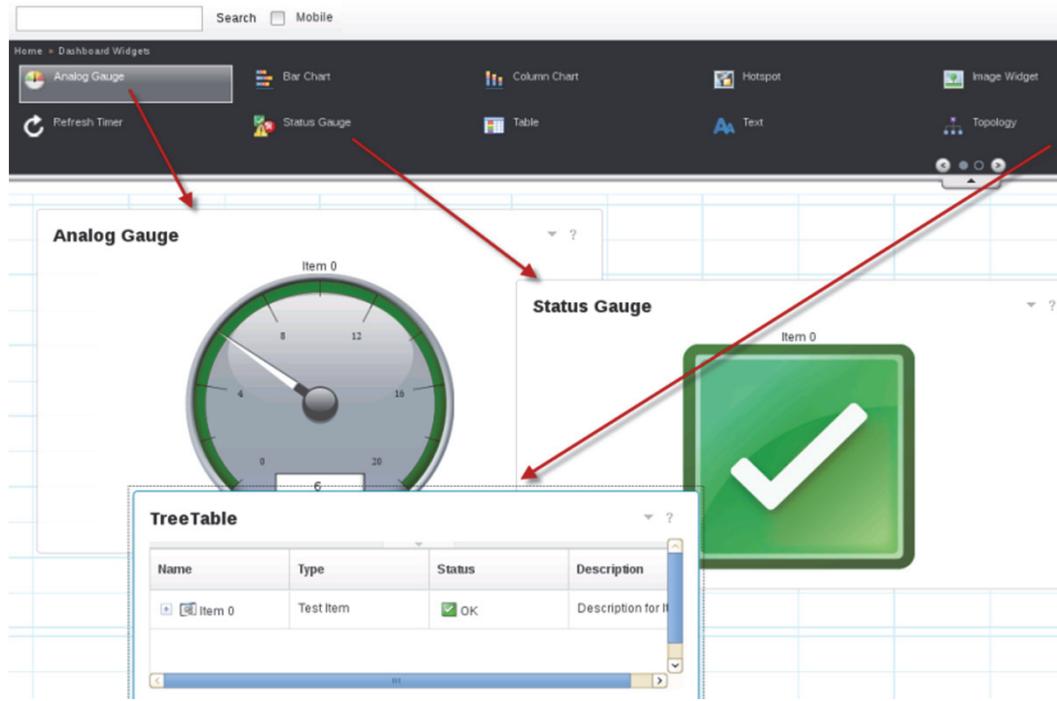
The Dashboard Application Services Hub, also known as the visualization services, has a set of tools that provide consistent dashboard console services. The visualization widgets present data consistently, regardless of the source. Because the data is linked through the registry services, rather than a central server, you can build dashboards that contain information from many different sources.

You can link dashboard pages to drill down on a target resource, providing more detailed information. The visualization services also include tools to create dashboards for mobile devices.

The DASH server senses if the connecting client is a mobile device or traditional desktop computer and renders the dashboards appropriately.

## Creating a dashboard: Adding widgets

Click and drag widgets from the palette to the page canvas.



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### Creating a dashboard: Adding widgets

This slide shows an example of the simplicity of creating custom dashboards. You create a dashboard page by clicking and dragging one or more dashboard widgets from the widget palette onto a page canvas. You then configure and arrange the widgets on the page, that is based on the data that the target user requires.

You can enhance dashboards with widgets that show Internet web data, static text, and static images. You can configure widget visualization properties not to show widget backgrounds, creating a seamless presentation of data from multiple application sources.

## Creating Dashboards: Customizing widgets

- Select data set for each widget.
- Choose for mobile or desktop view.

The screenshot shows the configuration interface for an Analog Gauge widget. On the left, there is a preview of the gauge with a scale from 0 to 20 and a needle pointing to approximately 8. To the right is the configuration panel. At the top, a red circle highlights the 'Edit' button. Below it, the 'Map Visualization Attributes to Dataset Columns:' section shows a mapping for 'Value' to 'Free Memory'. Under 'Optional Settings', there is a 'Title:' input field. The 'Visualization Options:' section contains several threshold settings: 'Label above Gauge' (Free Memory), 'Label at leading edge' (None), 'Informational' (Threshold Value: 500), 'Normal' (Threshold Value: 700), 'Minor Warning' (Threshold Value: 800), and 'Major Warning' (Threshold Value: 900). A red arrow points from the 'Select a Dataset' button in the configuration panel down to the 'JVM Heap Usage' dataset listed in the preview. Another red circle highlights the 'JVM Heap Usage' dataset in the preview.

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### Creating Dashboards: Customizing widgets

Here is an example of the process of configuring a widget that shows application data. Edit the widget properties and select an available data source. Depending on the information that the data source provides, you select the data properties to visualize.

In this example, an analog gauge widget is showing Java heap usage statistics, which the Jazz for Service Management host server supplies. You can optionally choose to set threshold values for the data that the widget tracks. Save the configuration information and the gauge immediately retrieves and shows the application data.

## Creating Dashboards: Final View

Arrange widgets and set page theme with custom preference profile.



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### Creating Dashboards: Final View

Here is an example of a completed dashboard, consisting of several status gauges, a background map, and a watermark widget, that provides a visual accent. Two dashboard color themes are currently supported, one with a white background and one with a dark background. This image uses the dark theme.

## Creating connections

- Use the Connections management widget in the Console Settings folder. Manage existing connections in the console workspace.
- Click the Create new remote provider icon.

The screenshot shows the 'Console Settings' interface. On the left, there's a sidebar with icons for General, Catalogs, Connections, Pages, Widgets, Views, WebSphere Administrative Console, Export Wizard, Roles, Group Roles, Roles, and User Roles. The 'Connections' icon is highlighted with a red circle and an arrow pointing to it from the top-left. The main panel is titled 'Connections' and contains a brief description of the connection manager. Below the description is a toolbar with four icons: a gear (Create new remote provider), a magnifying glass, a pencil, and a delete symbol. A red circle highlights the gear icon. To the right is a table listing existing connections:

Name	Type	Description
Tivoli Directory Inte	TDI	TDI Generic Data Provider (1.0.21)
tip	tip	Tivoli Integrated Portal Data Provider

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### Creating connections

A data connection is required to access a host application, such as IBM Tivoli Monitoring. You create connections in the Console Settings menu.

## Creating connections, continued

- Host name: Fully qualified host name where the portal server is running
- Port: 15200 for http, 15201 for https
- Name/password: Valid user for IBM Tivoli Monitoring
- Click Search.

Server information

\* Protocol: \* Host name: \* Port:  
HTTP VM01.tivoli.edu 15200

Connection goes through a firewall  
Firewall address      Firewall port

Use the following credentials to query the remote data providers

\* Name: sysadmin      \* Password:   
\* Confirm password:

Search

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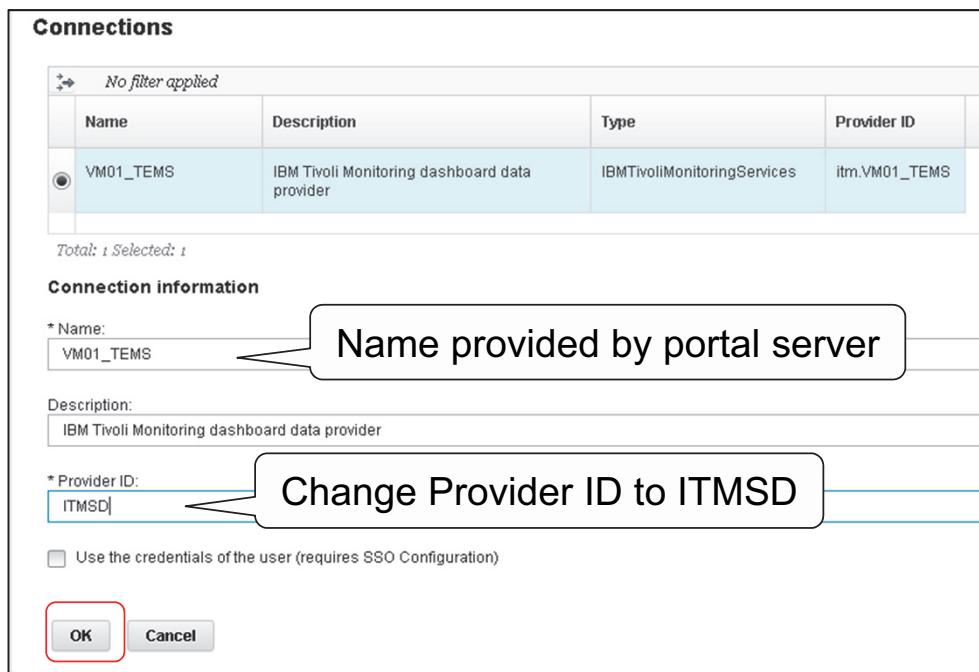
### *Creating connections, continued*

Choose the protocol that the target host uses. The following protocols are supported:

- HTTP
- HTTPS-SSL (Secure Socket Layer)
- HTTPS-TLS (Transport Layer Security).

Enter the host name and port. Port 15200 is used for HTTP, and 15201 serves HTTPS. Enter a user ID and password that is valid for the target application and click Search.

## Creating connections, finished



The screenshot shows the 'Connections' dialog box. At the top, it says 'No filter applied'. Below is a table with four columns: Name, Description, Type, and Provider ID. One row is selected, showing 'VM01\_TEMS' as the name, 'IBM Tivoli Monitoring dashboard data provider' as the description, 'IBMTivoliMonitoringServices' as the type, and 'itm:VM01\_TEMS' as the provider ID. A tooltip 'Name provided by portal server' points to the Name field. Another tooltip 'Change Provider ID to ITMSD' points to the Provider ID field. At the bottom, there are 'OK' and 'Cancel' buttons, with 'OK' being highlighted.

Connections			
No filter applied			
Name	Description	Type	Provider ID
VM01_TEMS	IBM Tivoli Monitoring dashboard data provider	IBMTivoliMonitoringServices	itm:VM01_TEMS

Total: 1 Selected: 1

**Connection information**

\* Name:  
VM01\_TEMS

Description:  
IBM Tivoli Monitoring dashboard data provider

\* Provider ID:  
ITMSD

Use the credentials of the user (requires SSO Configuration)

OK Cancel

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### Creating connections, finished

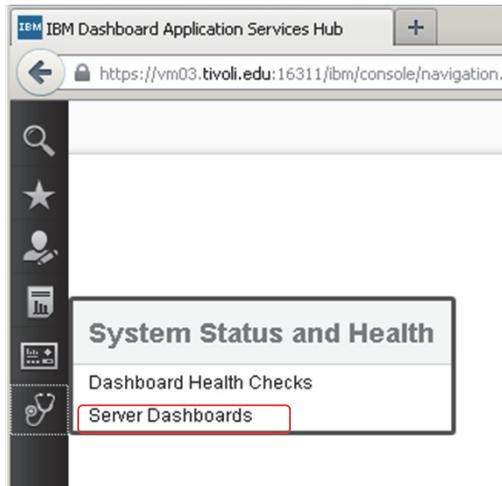
The search returns a list of available service providers. Select from the list by clicking the radio button.



**Note:** You must change the Provider ID to **ITMSD** if you are using the IBM Infrastructure Management Dashboards for Servers that IBM Tivoli Monitoring provides.

# Lesson 3. Infrastructure Management Dashboards for Servers

## Lesson 3: Infrastructure Management Dashboards for Servers



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### What this lesson is about

The Infrastructure Management Dashboard for Servers is the IBM Tivoli Monitoring dashboard. It is organized by managed system group and shows open events on each group.

### What you should be able to do

After completing this lesson, you should be able to navigate the dashboard to locate information about situation events in IBM Tivoli Monitoring.

This page shows the top level of the Infrastructure Management Dashboards for Servers, that is included with the IBM Tivoli Monitoring installation media. Here you see the consolidated status of events in your enterprise, at the managed system group level. Bar charts show situation counts by

severity, by managed system group name, and by managed system type. You can shuffle the bar chart views by clicking the left or right-pointing arrows.

Clicking the Situation Status icon returns a list of all open situations.

You can drill down to the next level by clicking the managed system group name icons in the Overview pane.

Click **Learn more** for context-sensitive online help. The help opens in a new browser window or tab.

## Carousel view

The screenshot displays a dashboard titled "Managed System Groups" with a "Managed System Groups" icon. On the left, there are icons for "Managed System Groups" (two server racks) and "Situation Events" (a blue flag). A callout box points to the "Actions" button in the top right corner.

The main area shows an "Overview" section with six managed system groups: \*LINUX\_SYSTEM, Linux\_web\_s..., \*NT\_SYSTEM, \*AGGREGATIO..., \*ALL\_CMS, and \*EIB. Each group has a server icon and a red status bar indicating event counts: \*LINUX\_SYSTEM (8 Critical, 1 Warning), Linux\_web\_s... (8 Critical, 1 Warning), \*NT\_SYSTEM (1 Critical, 1 Warning), \*AGGREGATIO... (0 Critical, 0 Warning), \*ALL\_CMS (0 Critical, 0 Warning), and \*EIB (0 Critical, 0 Warning). A callout box points to the first group with the text "Click icon to drill down". Another callout box points to the "Switch to Scorecard view" link in the top right.

Below the overview, three horizontal bar charts show "Situation Event Count by Severity" for different managed systems. The severity levels are Fatal (dark brown), Critical (brown), Warning (yellow), Harmless (green), and Informational (blue).

- Situation Event Count by Severity (Left Chart):**

Severity	*LINUX_SYSTEM	Linux_web_s...	*NT_SYSTEM
Fatal	0	0	0
Critical	9	8	1
Warning	2	1	1
Harmless	0	0	0
Informational	0	0	0
Unknown	0	0	0
- Situation Event Count by Managed System (Middle Chart):**

Managed System	Critical	Warning	Harmless	Informational
Linux_web_se...	8	1	0	0
*LINUX_SYSTEM	8	1	0	0
*NT_SYSTEM	1	1	0	0
- Situation Event Count by Managed System (Right Chart):**

Managed System	Critical	Warning	Harmless	Informational
Linux OS	8	1	0	0
Windows OS	2	1	0	0

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Carousel view

## Scorecard view

Managed System Groups

Learn more

Actions

Managed System Groups

Situation Events

Overview Click link to drill down Switch to Carousel

Total: 11

Server Group	✗	✗	⚠	✓	ⓘ	⌚	Machine Count	Offline
*LINUX_SYSTEM	0	8	1	0	0	0	2	0
Linux_web_servers	0	8	1	0	0	0	2	0

Filter 10 25 50 100 All +

**Situation Event Count by Severity**

Fatal	8
Critical	9
Warning	2
Harmless	0
Informational	0
Unknown	0

**Situation Event Count by Managed System**

Linux_web_se...	8
*LINUX_SYSTEM...	8
*NT_SYSTEM	1

**Situation Event Count by Managed System**

Linux OS	8
Windows OS	2

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Scorecard view

## Drilling down to \*LINUX\_SYSTEM

The screenshot shows the Managed System Groups > \*LINUX\_SYSTEM dashboard. On the left, there are two icons: 'Managed System Groups' (two server racks) and 'Situation Events' (a flag with a red X). The main area has tabs for 'Overview' and 'Situation Events'. A callout box highlights the 'Situation Events' tab. Below it, two server icons are shown: VM01:LZ with 1 critical event and VM02:LZ with 9 warning events. Three bar charts are displayed: 'Situation Event Count by Severity' (Warning is the highest), 'Most Critical Servers' (VM01:LZ has 10 critical events, VM02:LZ has 9), and 'Situation Event Count by Managed System Type' (Linux OS has the most events).

Severity	Count
Fatal	0
Critical	1
Warning	15
Harmless	0
Informational	0
Unknown	0

Server	Critical Events
VM01:LZ	10
VM02:LZ	9

Type	Count
Fatal	0
Warning	15
Harmless	0
Informational	0
Unknown	0

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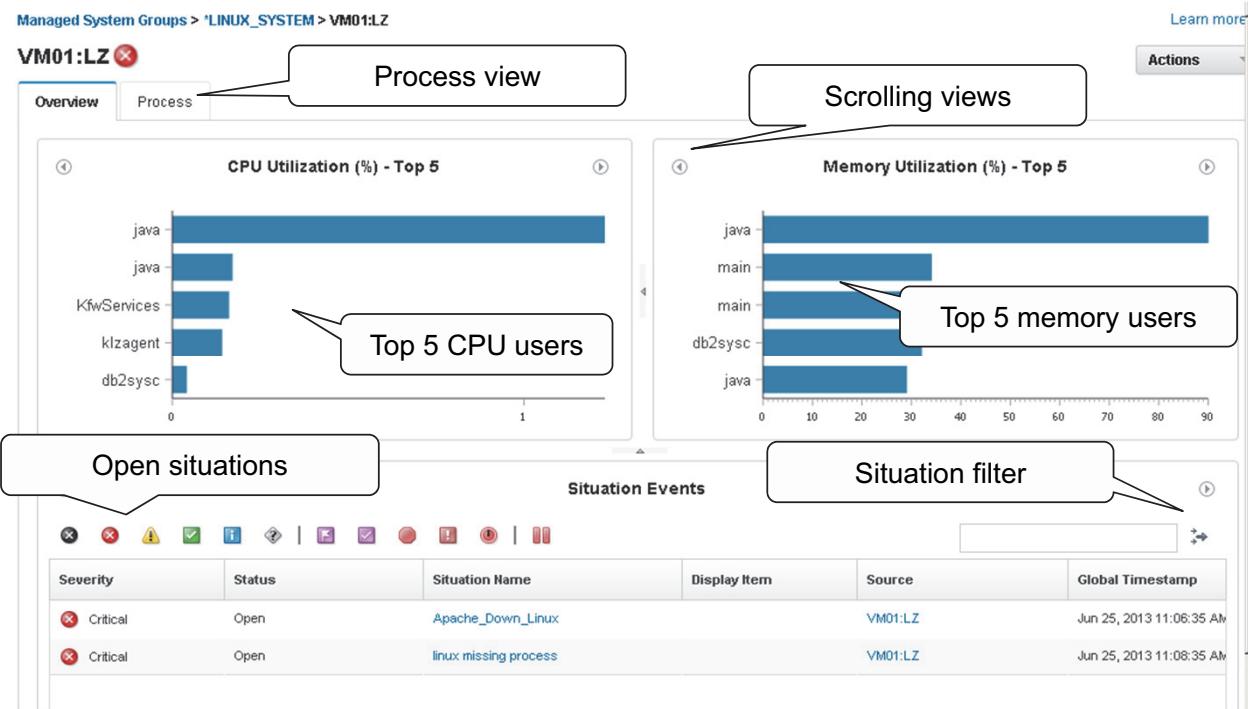
### Drilling down to \*LINUX\_SYSTEM

Here is the next level down, showing situation event status for a managed system group, in this case, the default Linux group. Clicking the Situation Events tab shows a list of all open situation events for the group.

Three bar charts show event status by severity, by server, and by managed system type.

Click one of the group members to see details about situation events on that system.

## Drilling down to VM01



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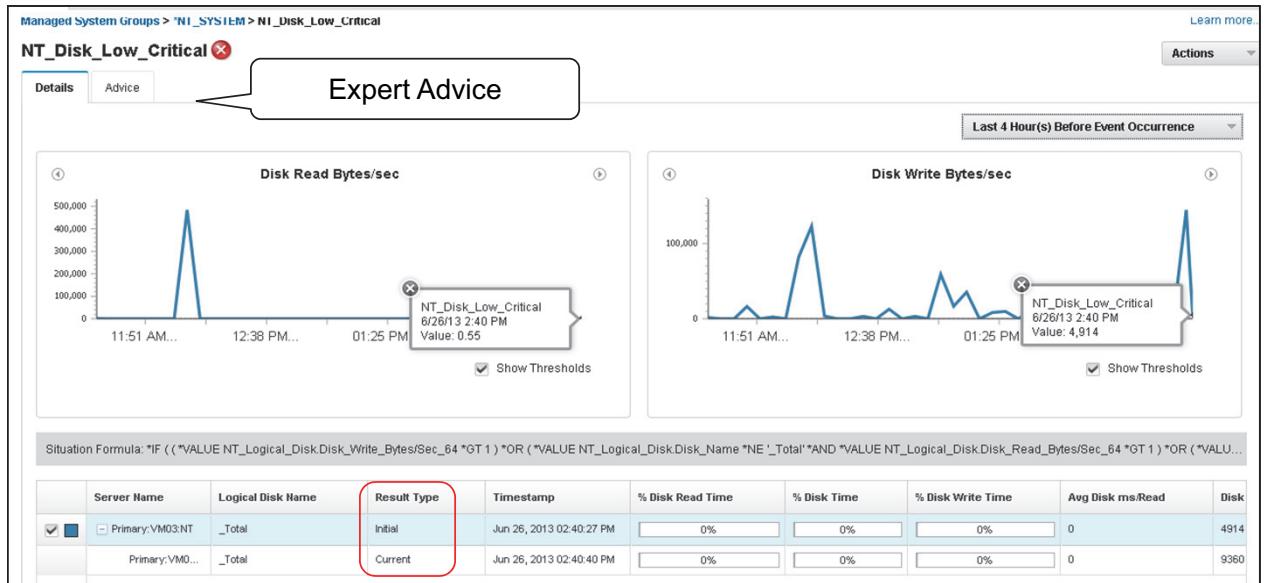
### Drilling down to VM01

The managed system Overview pane shows the major consumers of processor and memory. You can shuffle through several other views by using the arrows.

Clicking the Process tab shows processor utilization by the top five processes.

The Situation Events pane contains a list of all open situations on the managed system. You can filter the list. Clicking the situation name goes to a situation details view.

## Situations with numeric operands



Note: Requires history collection

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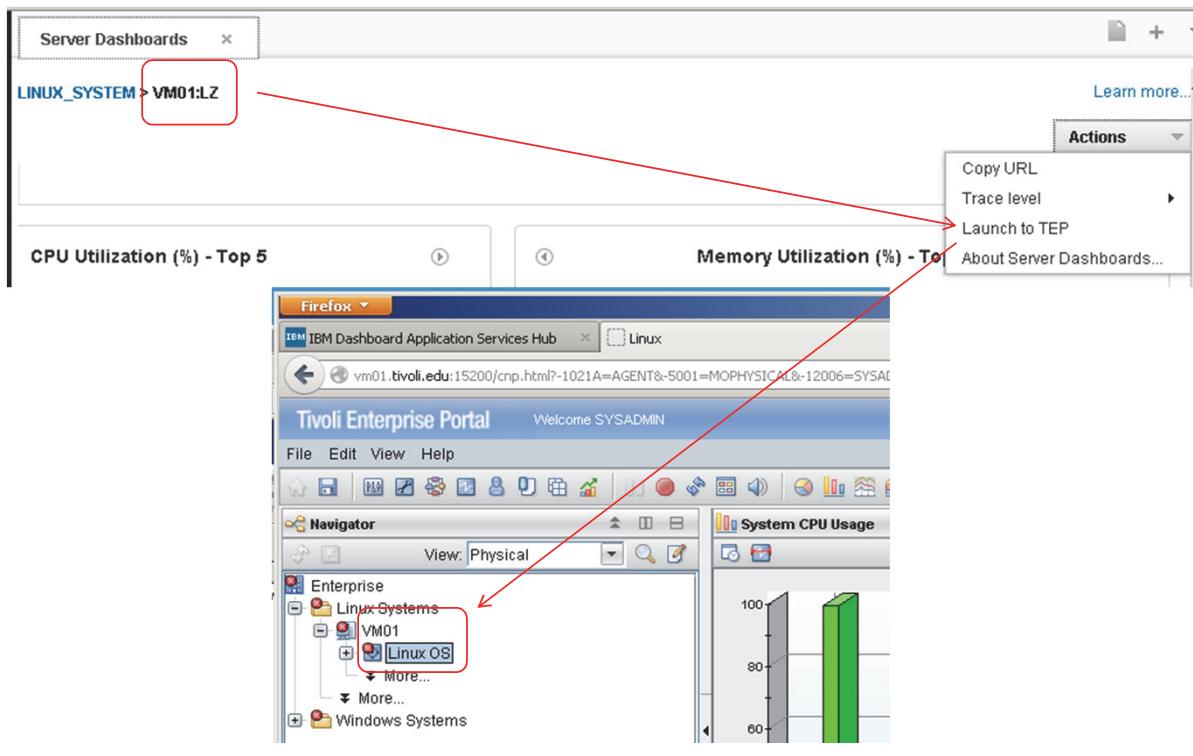
19

### Situations with numeric operands

If the situation has numeric operands, and you are collecting historical data for that attribute group, you see situation history in a plot chart. You can change the time span by clicking the list. The default time span is the last 2 hours before the event occurs.

Click the plus sign next to the situation name to see the current results beneath the initial results, similar to what you see in the Situation Event Results workspace.

## Launching the Tivoli Enterprise Portal Client



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### Launching the Tivoli Enterprise Portal Client

You can launch the Tivoli Enterprise Portal browser client in context from the managed system page of the dashboard. Click the Actions arrow and select **Launch to TEP**, and the portal client opens in a new browser tab or window. The Navigator view is positioned to the default Navigator item that is associated with the managed system name.

If you have single sign-on (SSO) configured in the monitoring environment, you can launch the portal client without supplying new credentials. To enable SSO, you must configure authentication through the Tivoli Enterprise Portal Server for an external LDAP user registry that all participating Tivoli applications share.

# Lesson 4. Building dashboards

## Lesson 4: Building dashboards

1. Create a page.
2. Choose a page style.
3. Add widgets to the page.
4. Customize the widgets as needed.

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### **What this lesson is about**

This lesson shows how to create a simple dashboard that monitors system memory by using different types of widgets.

### **What you should be able to do**

After completing this lesson, you should be able to create a simple dashboard by using widgets.

## Creating a dashboard page

Three methods to open the dashboard workspace:

1. Click the **Pages** widget in the **Console Settings** menu. Click **New Page**.

The screenshot shows the 'Console Settings' menu on the left with several options: General, Catalogs, Connections, Console Preference Profiles, **Pages** (which is circled in red), Widgets, Views, WebSphere Administrative Console, Export Wizard, Roles, Group Roles, Roles, and User Roles. To the right is a 'Pages' management interface. It has a toolbar with 'New Page...', 'New Folder...', and 'Delete'. Below the toolbar is a table with columns 'Select' and 'Name'. Under 'Name' are two entries: 'Default' and 'Administration'. A red arrow points from the 'Pages' menu option to the 'New Page...' button in the toolbar.

2. Click the plus symbol in the upper right of the console.



3. Position the mouse over the arrow in the console Welcome page. Click **build a page**.



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### Creating a dashboard page

You begin by creating a new dashboard page. This slide shows the three methods for creating a new page.

## Page layout styles

Select one of three page layout styles.

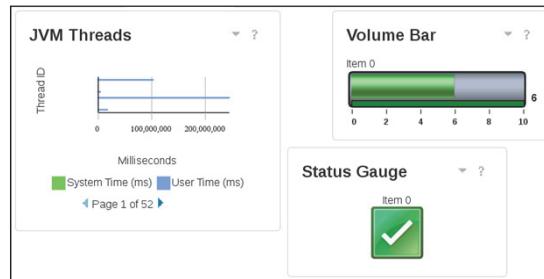


**Fluid**  
(tiled widgets)

### Proportional

Widgets rearrange when page is resized.

Widgets do not rearrange when page is resized.



**Freeform**

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### Page layout styles

Proportional layout allows you to place widgets anywhere on the dashboard page and overlay them with other widgets. If the page is resized, the widgets proportionally change size to adapt to the new page size.

The free-form layout also allows you to place widgets anywhere on the page and overlay them with other widgets. However, if you resize the page, the widgets do not proportionally adjust.

The fluid layout is designed primarily for creating mobile dashboards. You cannot overlay widgets that you place on the page with other widgets. The widgets are automatically arranged in a tiled pattern when you add them to the page.

## Page settings

### Page Settings

Provide a name for your new workpage and pick the default layout of widgets on the page.  
The navigation location is the area where you want the new workpage to appear in the navigation on the left.

\* Required field

\* Page name:

Memory Monitor

\* Page location:

console/ITM demos/

Location...

Page Layout:

- Proportional - Place and overlay widgets anywhere that will scale on work page.
- Freeform - Place and overlay widgets anywhere on work page.
- Fluid - Tile widgets on the page. Great for mobile.

#### ▼ Optional setting

Optional setting for current page.

| Add... Remove

Select	Role Name	Access Level
	iscadmins	Editor

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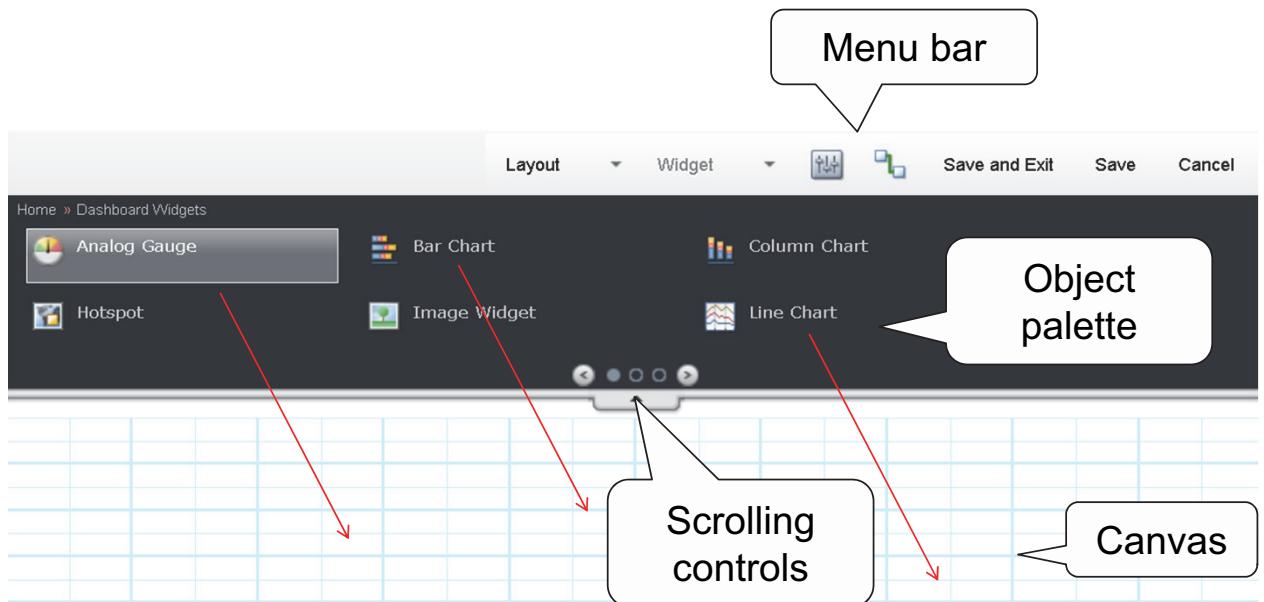
### Page settings

Provide a name for the page and select the page layout. You cannot change the page layout after you create the page.

The page is stored in the last folder that you access. Click the Location button to select another folder.

Click OK to move to the next screen.

## Building the page



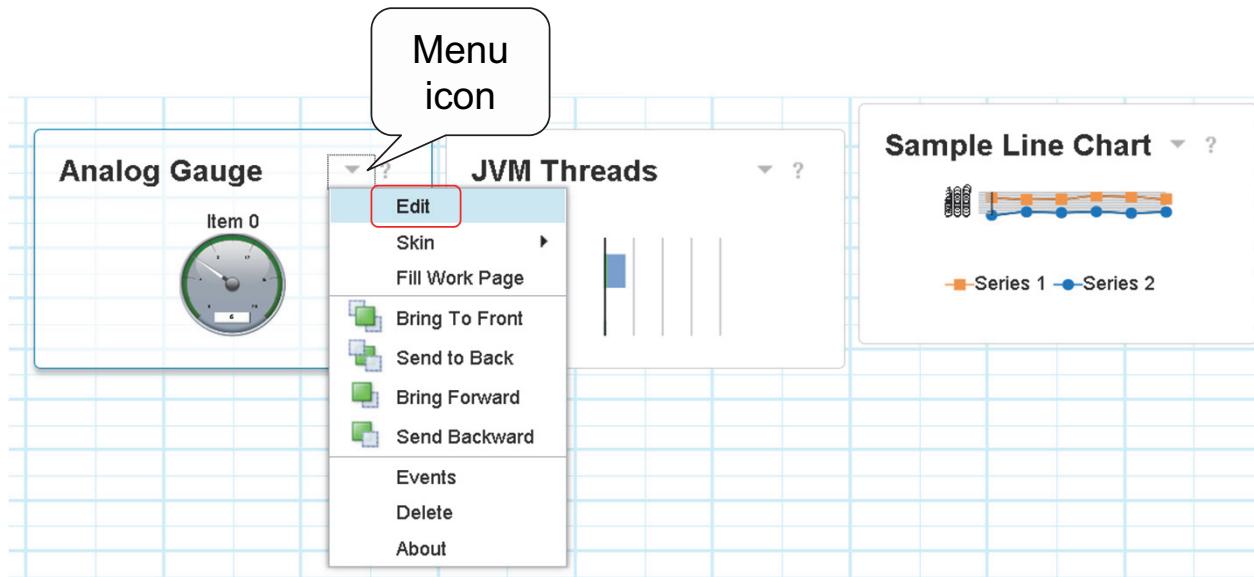
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### Building the page

You build the page by dragging widgets from the object palette to the canvas area. There are two sets of widgets: Dashboard Widgets and All. You can scroll left and right to locate more widgets. The scroll control indicates which page of widgets is visible.

## Customizing the widget



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### Customizing the widget

The next few pages work through an example that uses an analog gauge, which provides a pointer over a circular scale, similar to a car speedometer. After you drag widgets to the canvas, you can customize them. Click the menu icon and click Edit. If your widgets overlap, you can control the layering with this menu.

## Selecting the data set

The screenshot shows a search interface for selecting a dataset. On the left, a callout box contains the text: "Enter attribute group to search. Data set = Attribute group name". A red arrow points from this callout to the search input field in the search dialog. The search input field contains the text "Memory". Below the input field are "Search" and "Cancel" buttons. The search results list includes:

Dataset Name	Description
Top Memory Processes	Top_Memory_Processes
Unix Memory	Unix_Memory
DNS Memory	DNS_Memory
<b>Memory</b>	NT_Memory_64
Memory (Superseded)	NT_Memory
VM Memory	VM_Memory

Datasets Found: 37

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### Selecting the data set

The next step is to select the data set that populates the widget. Each widget on the page can have a different data set.

In Tivoli Monitoring Tivoli Monitoring terms, a data set is an attribute group. You can use the query editor to find the names of attribute groups. Enter the group name and click Search. DASH retrieves all attribute groups that match the search string from the hub monitoring server.

## Selecting the attribute

### Analog Gauge

The screenshot shows the 'Analog Gauge' visualization settings. At the top, there's a 'Visualization Settings' bar. Below it, a 'Selected Dataset:' section displays 'VM01 TEMS > Windows OS > Memory' and 'NT\_Memory\_64'. A 'Data Type: table, No Automatic Refresh, Local Data Provider' message is shown with a 'Change' button. The main area is titled 'Map Visualization Attributes to Dataset Columns:' and contains a 'Value' field set to 'Available kBytes'. A callout bubble labeled 'Attribute selection' points to this field. Another callout bubble labeled 'More settings' points to a '▼ Optional Settings' link.

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### Selecting the attribute

After you select the data set, or attribute group name, you can specify which individual attribute you want for the widget. An analog gauge takes a single attribute. Other widgets such as bar charts, plot charts, and tables can have multiple attributes from the same group, much like workspace views.

Click the Optional Settings control to continue defining the widget.

## Finishing the settings

**Visualization Options:**

- Label above Gauge**: Available kBytes
- Label at leading edge**: None
- Informational**: Threshold Value indicating start of Informational Status
- Normal**: Threshold Value indicating start of Normal Status
- Minor**: Threshold Value indicating start of Minor Warning Status

**Visualization Settings**

- Major Ticks Separation**: 1000000
- Minor Ticks Separation**: 500000
- Unit**: Enter a metric for the gauge

**Configure Optional Dataset Parameters:**

- Managed System Name**: Primary:VM03:NT (highlighted with a red box)
- Time filter**: Time filter
- Refresh Every**: 30 Seconds

OK Cancel

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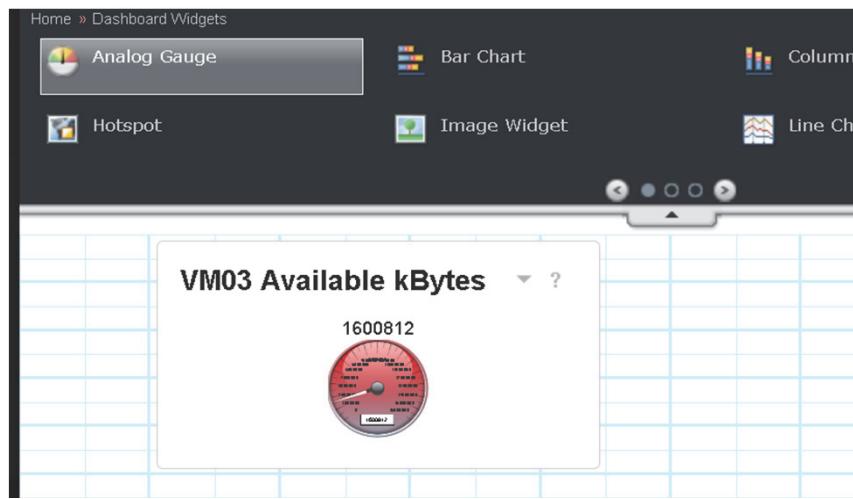
29

### Finishing the settings

There are various controls for the widget, depending on its nature. For an analog gauge, you can set numeric ranges to cause the widget to assume different colors, somewhat like situation states. Other widgets such as the value status gauge can change shapes, depending on the value of the attribute and how you code the ranges.

After setting the ranges, provide a managed system name so that DASH can retrieve the correct information. Each widget on the page can access a different managed system.

## Completing the first widget



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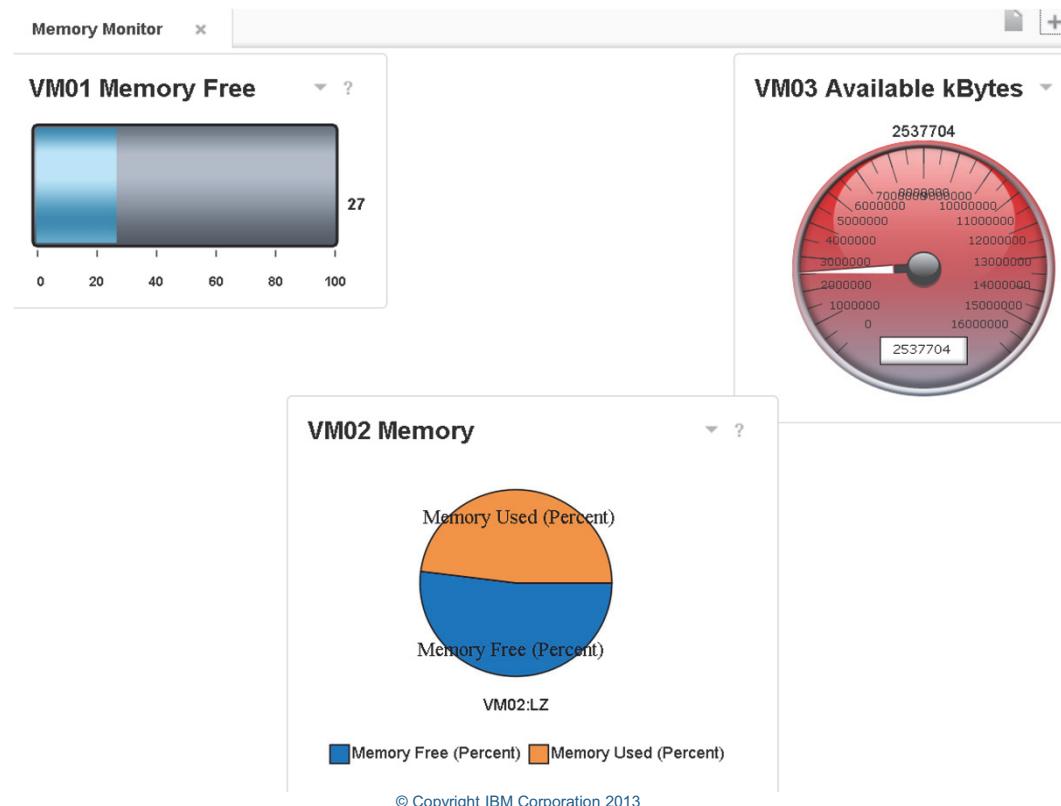
30

### Completing the first widget

This example shows the complete analog gauge with a title field and the monitored value above the object. There are also other options for labels.

Widgets are static unless you refresh the page or the Refresh Every field is set in the Optional Settings window. The minimum refresh rate is 30 seconds.

## Completing the Memory Monitor dashboard



*Completing the Memory Monitor dashboard*

This example shows how to monitor available memory of three servers on the same page. The first widget is a volume bar. The minimum and maximum values and the tick marks are set in the properties.

The volume bar and the analog gauge are single-instance widgets. The pie chart can have as many attributes as you like. As with workspace view types, you must use a widget type that is appropriate for the data you want to show.

## Student exercises



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### *Student exercises*

Perform the exercises for this unit.

## Review questions

1. Do you have to install Jazz for Service Management to use dashboards?
2. Which page format do you choose if you want the page to resize automatically?
3. Can you see the same data in the Tivoli Enterprise Portal as you see in the Infrastructure Management Dashboard for Servers?

## Review answers

1. Do you have to install Jazz for Service Management to use dashboards?

*Yes. The Dashboard Application Services Hub is a component of Jazz for Service Management.*

2. Which page format do you choose if you want the page to resize automatically?

*Proportional. If the page is resized, the widgets proportionally change size to adapt to the new page size.*

3. Can you see the same data in the Tivoli Enterprise Portal as you see in the Infrastructure Management Dashboard for Servers?

*Yes, that dashboard shows monitoring information that is retrieved from the hub monitoring server. You can also launch to the portal client in context from the dashboard managed system page.*

## Summary

Now that you have completed this unit, you are able to perform the following tasks:

- Describe the major functions of the Dashboard Application Services Hub.
- Explain how the dashboard data requester connects to IBM Tivoli Monitoring 6.3.
- Use the Infrastructure Management Dashboards for Servers to access situation event data from the IBM Tivoli Monitoring 6.3 operating system agents.
- Create a custom dashboard.

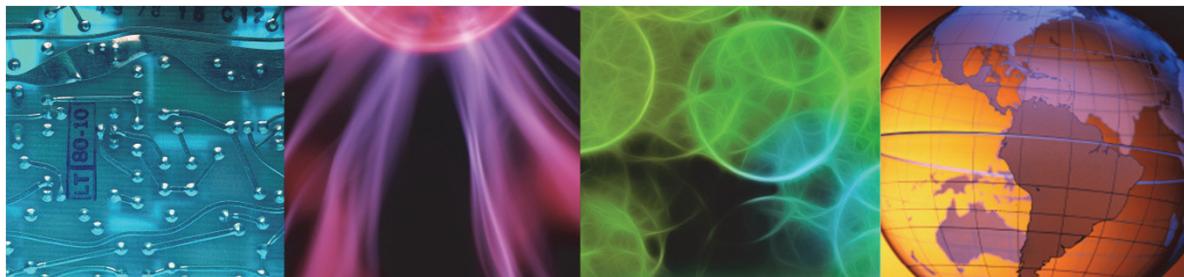


## 8 Historical data collection

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## 8 Historical data collection



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**What this unit is about**

This unit shows how to collect historical data, prune and summarize data, manage data retention, and view historical data in workspace views. The unit also introduces Tivoli Common Reporting.

**How you check your progress**

You can check your progress in the following ways:

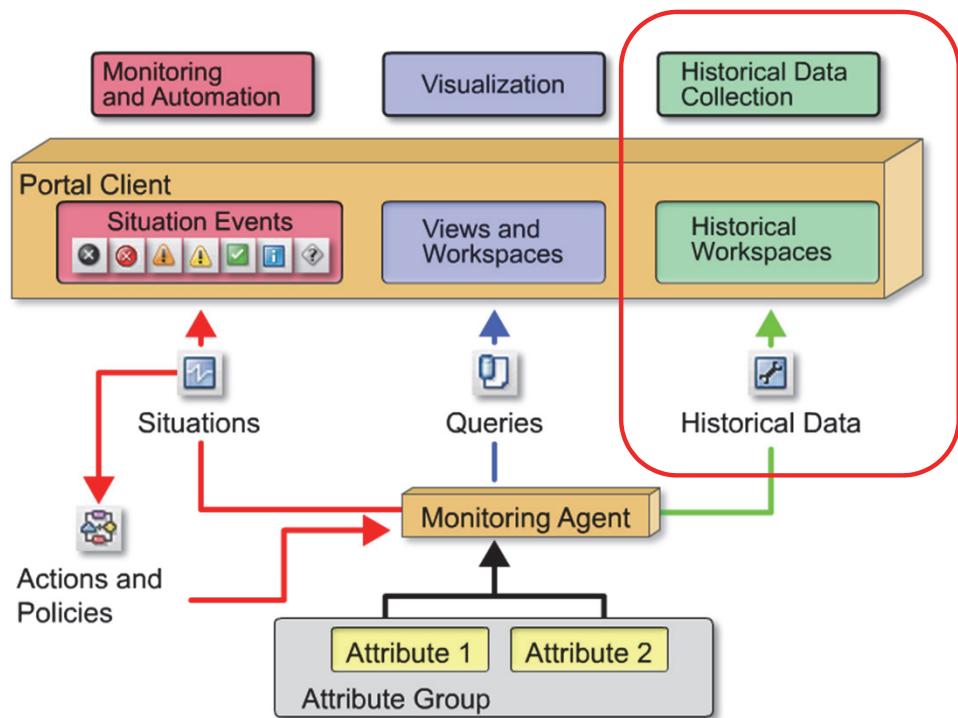
- Review questions
- Lab exercises

## Objectives

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

- Describe the historical data collection procedure.
- Configure historical data collection.
- Distribute historical data collection settings to managed systems.
- View historical data in workspaces.
- Describe historical data collection self-monitoring workspaces.
- Use Tivoli Common Reporting to view summarized historical data in report.

# Historical data collection



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## *Historical data collection*

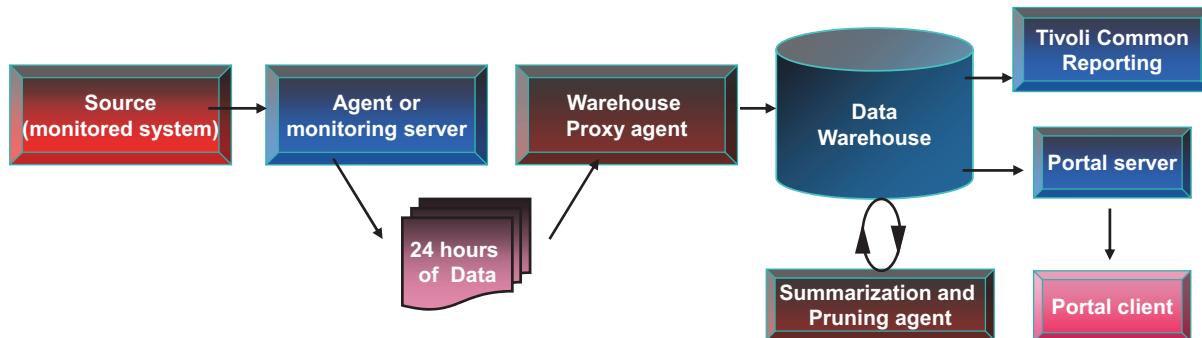
This unit teaches the process of collecting and representing historical data. You learn which components are required to collect historical data, how to configure data collection, and how to show data in the portal client.

This unit is not an in-depth treatment of the subject of historical data collection. Other Tivoli courses address historical data collection in depth. Refer to the education roadmap on the Tivoli Education website for more information.

# Lesson 1. Historical data collection overview

## Lesson 1: Historical data collection overview

- You can save all the monitoring data that agents collect as historical data.
- The agent or the connected monitoring server saves short-term historical data up to 24 hours.
- You can periodically warehouse the data in a database.
- After you warehouse the data, you can view it in the portal client or use a database reporting tool to view it.



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### What this lesson is about

Collecting historical data provides a powerful way to analyze trends and to evaluate the performance of different systems over time. Monitoring agents collect the data and put it into a data warehouse. Then, you can view the data in the portal client or database reporting tool such as Tivoli Common Reporting, SAS, or Crystal Reports™.

### What you should be able to do

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

- Install Tivoli Storage Manager Administration Center.
- Install Tivoli Storage Manager server.

## Types of monitoring data

- Real-time
  - Latest sampling
  - Most current information
- Short-term 24-hour
  - Collected at the monitoring agent or the monitoring server
  - Trimming necessary to prevent filling a disk
- Long-term detail
  - Same as short term
  - Warehoused at selected intervals
- Long term summarized
  - Hourly, daily, weekly, monthly, quarterly, yearly
  - Warehoused until pruned

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### *Types of monitoring data*

All historical data begins as short-term data that the monitoring agent collects. The monitoring agent or the monitoring server to which the agent is connected can store short-term historical data. It is best to store short-term historical data where the collection occurs. Exceptions to this rule might be if the system is small and cannot handle the size of the file, or local files might pose a security risk.

If warehousing is not implemented, short-term data grows until the disk drive fills up and the server stops. Use the product-provided roll-off programs to copy the short-term data to flat files and remove it from the disk regularly.

- Windows: **krarloff.exe**
- UNIX or Linux: **itmcmd history**
- z/OS: **KPPDPROC1**

## Usage of historical data

- Hardware capacity planning
- Trend analysis for application workload balancing
- Historical problem diagnosis and detection of system anomalies
- Baseline data for creating or modifying situations
  - Situation modeler
  - Dynamic situation thresholds
- Accounting and charge-back

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### *Usage of historical data*

The following are historical data usages:

- Hardware capacity planning: Budgeting for hardware
- Trend analysis: Determining the utilization of enterprise resources
- Historical problem diagnosis: Helping determine the cause of a problem or the frequency

The following are potential historical data usages:

- Accounting and charge-back procedures: Determining application utilization by department
- Other: Modeling a situation to help generate thresholds that are based on actual monitored values

## Features

- Configurable collection of historical data:
  - By attribute group
  - By managed system or group
- Configurable summarization and pruning intervals
- Product-provided workspaces that show historical data trends for distributed agents

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### Features

You can view the logged historical data in Tivoli Monitoring and OMEGAMON XE workspaces. If you enable historical data collection, table and chart views have a tool for setting a time span up to the most recent 24 hours. If you configure data warehousing, you can view samples for longer time periods.

## Infrastructure components

- Warehouse database for long-term data storage and summarization
- Warehouse proxy agent:
  - Receives historical data from agents or monitoring servers.
  - Requires data source to communicate with the data warehouse.
- Summarization and Pruning agent:
  - Aggregates hourly, daily, weekly, and so on.
  - Requires data source to communicate with the data warehouse.
- Agents or monitoring servers, where they collect and store data
- Tivoli Enterprise Portal Server:
  - Extracts historical data from the warehouse to populate workspace views.
  - Stores Summarization and Pruning agent configuration information.
- Hub Tivoli Enterprise Monitoring Server which registers historical self-monitoring workspaces

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### *Infrastructure components*

The assumption for this list of components is that historical data uploads and summarizes to the Tivoli Data Warehouse. Otherwise, monitoring agents are the only components that are required to collect the data.

The warehouse proxy agent receives historical data from agents or monitoring servers and stores it in the data warehouse. The warehouse proxy agent needs a data source for communication with the database. A large environment can require multiple warehouse proxy agents that run at the same time. You control this setting at the agent configuration. The warehouse proxy agent must connect to the hub monitoring server.

The summarization and pruning agent aggregates the historical data on a table-by-table basis. It also deletes old data that is past its useful retention period. The summarization and pruning agent must connect to the hub monitoring server. Both the agent and database can reside on the same system. For remote access, the agent can also use a database client. If the agent is on a remote server, verify that a high-speed network links the systems

The warehouse proxy and the summarization and pruning agents run on distributed systems and Linux on System z. Consult the respective agent user's guides for details.

# Lesson 2. Configuring historical data collection

The process of managing historical data collection is similar to that of managing situations. You create a definition, set its parameters, then distribute it.

This slide lists the steps to configure historical data collection for an agent. Perform these steps in the Tivoli Enterprise Portal user interface.

## Lesson 2: Configuring historical data collection

1. Create a collection setting:
  - a) Select the monitored application.
  - b) Create a collection setting for an attribute group.
  - c) Specify a name and description.
  - d) Select the attribute group.
  - e) Click OK.
  - f) Set the collection and warehousing intervals and the location.
  - g) Repeat steps b, c, d, e, and f for all the attribute groups. Keeps intervals and location settings unless changed.
  - h) Distribute collection settings to managed systems, or use the Object Group editor to distribute to a managed system group.
2. Specify summarization and pruning settings.

### What this lesson is about

This lesson teaches you how to configure historical data collection settings. You also learn how to distribute those settings to managed systems or groups to start the collection. Then, you learn how to configure summarization and pruning.

## What you should be able to do

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

- Configure historical collection settings for attribute groups
- Distribute the settings or groups to start collection.
- Set the summarization and pruning parameters to control summarization and determine how long to retain data in the data warehouse.

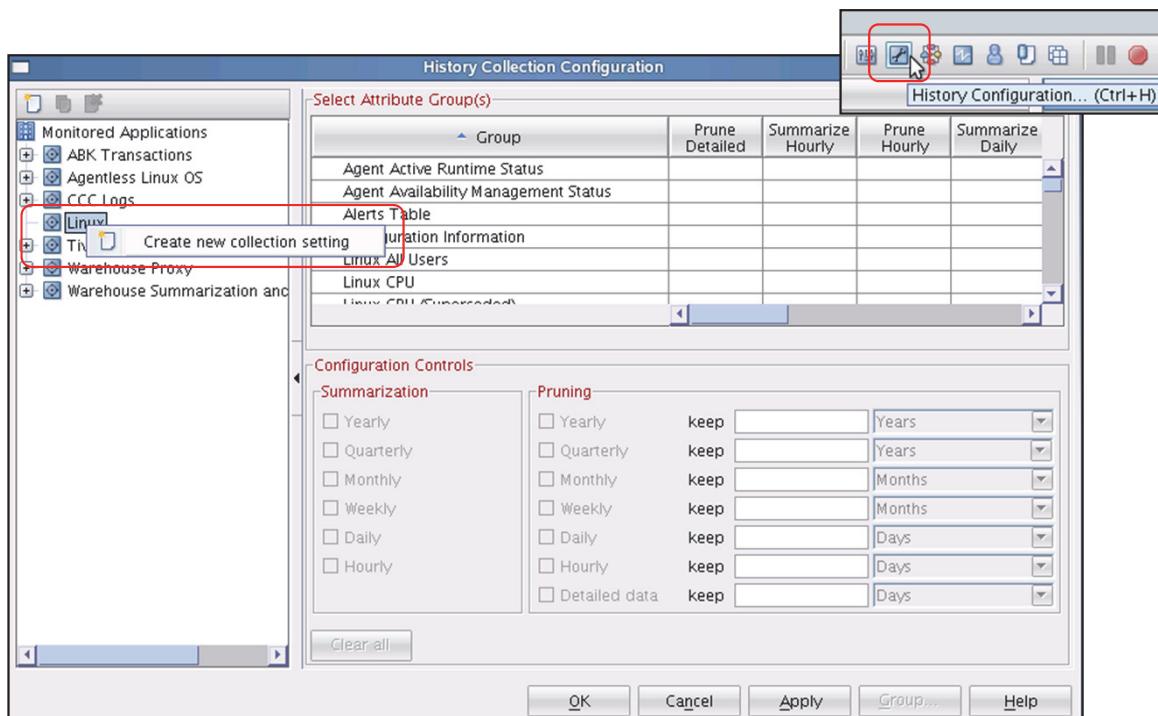


**Note:** As a rule, collect only data that the business requires. Collecting unnecessary data is resource-intensive. Use special care when collecting data for attribute groups that have many instances, such as process data, which can have hundreds of instances per collection interval. When multiplied by the number of intervals per day and the number of agents, process data can generate millions of rows of data.



**Hint:** You can also configure historical data collection with tacmd line commands. Consult the IBM Tivoli Monitoring Command Reference for details.

## Creating a collection setting



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### Creating a collection setting

Open the history collection configuration editor by clicking the icon or by clicking **Ctrl+H**. Locate the agent type in the **Monitored Applications** area and click it. Then, click **Create new collection setting**.

Each attribute group that you want to collect historical date for requires a collection setting. You can create multiple settings for an attribute group and assign different collection characteristics. Doing so allows you to have different collection intervals on different servers.