helpsystems

User Guide
Robot Monitor
15

Copyright Terms and Conditions

202209221054

Table of Contents

Introduction to Robot Monitor

Robot Monitor is a tool that collects and presents IBM i, AIX, Linux, and VIOS partition performance data in real time. This data is recorded and summarized for later presentation in other formats.

A single IBM i system or partition (known as the host system) manages the collection, storing, and summarization of data. A PC is used to present most data to the user, and this PC communicates with the host system. Performance data is collected under the supervision of programs running on a host system.

The host system starts programs on itself and the remote machines, which send performance data back to the host machine to be stored in the IBM i database. The host system manages this data for real time display and later analysis. Communications are typically performed using TCP, although SNA is supported in some environments.

Systems are able to monitor themselves (using a job called MON.LOCAL) during communications failures and send the data to the central system when contact is reestablished. See the Robot Monitor IBM i User Guide for more information.

Data (including individual monitors, disk data, summarized monitors, real-time data, and historical data) is displayed using a graphical user interface (the GUI) that connects to the host system and downloads the required data from server programs running on this machine. You can also store summarized historical data locally or on another server using the GUI. The two main methods of displaying the data in the GUI are summary dashboard views and more detailed system views. Both the dashboard and system views provide drill-down functionality to allow you to view your data both from a high level and a more granular level.

Partitioned systems are generally treated as separate systems, except that Robot Monitor can display a list of allocations to the partitions on a single box. You also have the option of creating views that cover groups of systems or all systems. There are special considerations for summarizing data at higher levels when working with multiple systems, which are laid out in more detail in later sections of this user guide.

Getting Started

After Robot Monitor has been installed on the PC and the host IBM i system, there are certain tasks you must complete before you can use the software.

Configuring the Host System

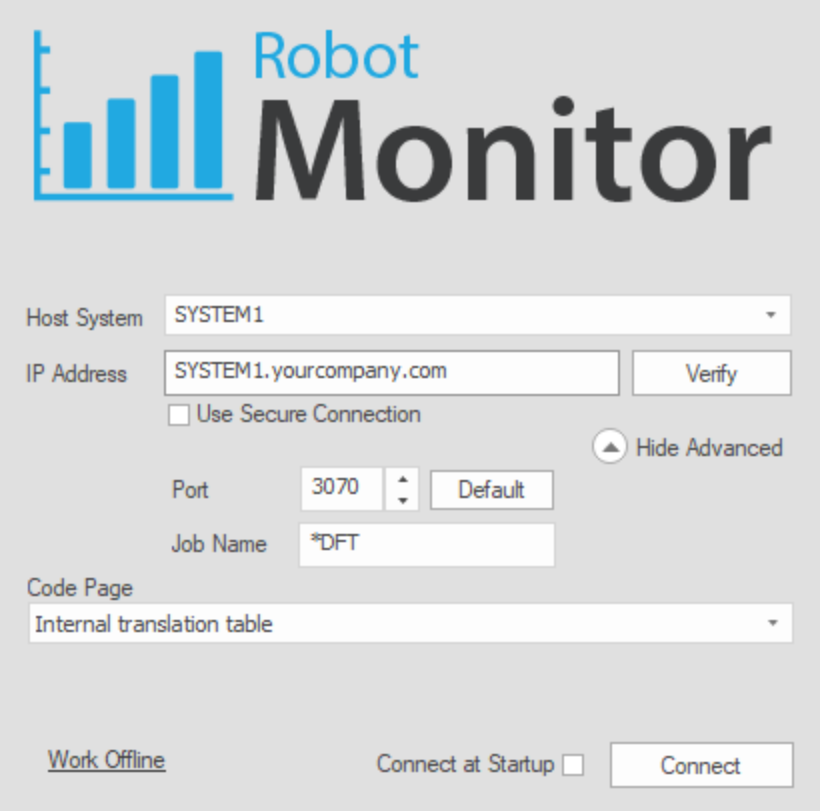
The Robot Monitor graphical user interface (the GUI) needs to be configured with details on how to contact the host system before you can run it. The configuration happens during the first Robot Monitor installation and does not need to be configured again afterward.

If you want to change the configuration of the host system after the initial installation or configure a new host system, you can do so from the Robot Monitor IBM i. See the *Robot Monitor Green Screen User Guide* for more information.

Connecting to the Host System

Following installation of Robot Monitor to your PC, you can open Robot Monitor and connect to the host system you set up during installation.

> **NOTE:** You cannot connect to Robot Monitor using a different system unless that system is configured as a host system.



To connect to the host system and launch the GUI:

1. Enter the name of the host system you configured during set up. The IP address appears automatically unless the system name is not recognized. You can use **Verify** to make sure the host system is configured correctly.
2. If you are setup for an SSL connection, check the **Use Secure Connection** box. Otherwise, leave the box unchecked.
3. Under Show Advanced, you have the following options:
   - Enter the port number for the host system, if other than the default.
   - Enter the job name of the IBM i jobs associated with your PC. Otherwise, leave the value of *DFT to let Robot Monitor create a valid IBM i job name.
   - If you need to use a different character translation table based on your locale, select the appropriate code page from the **Code Page** dropdown. Otherwise, leave the default value of Internal translation table.
4. Select **Connect at Startup** to bypass the logon screen when starting the GUI in the future.

   > **NOTE:** If you want to show the logon screen again, hold down `Shift` and start the application. Release `Shift` when the logon screen appears.

5. Click **Connect** to launch the GUI and load the dashboard view.

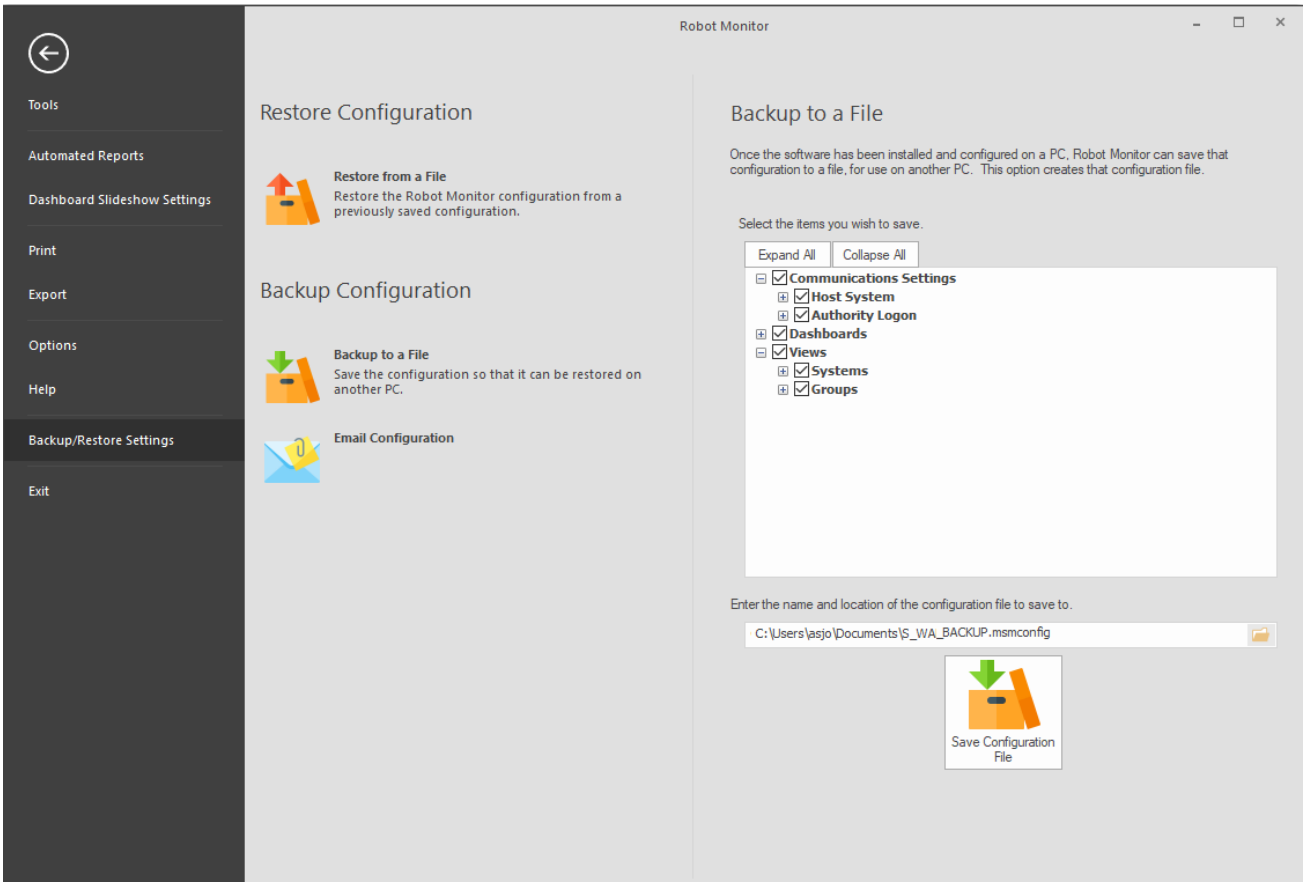
   You can also choose **Work Offline** instead of Connect. This allows you to work in the GUI without being connected to the internet. Any work done while in Work Offline mode will be saved until the next log on.

Backing up your Configuration

After you install Robot Monitor on your PC, you can save the host configuration to a file and restore it on another PC that is connected to the host system.

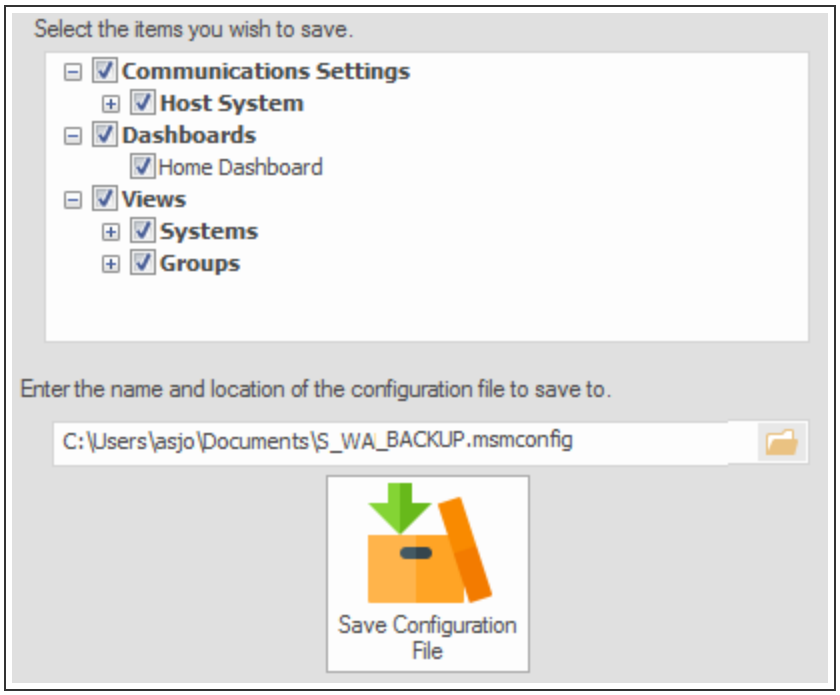
There are two ways to back up a configuration: by saving a file or sending the configuration through an email. The following sections contain steps on how to create and save a backup of your host configuration.

Backup to a File



To create a backup file of the host configuration, follow these steps:

1. Launch the Robot Monitor GUI on your system and log on to the host system for which you want to create a backup.
2. From the Home Dashboard, click the **File** menu, then **Backup/Restore Settings**.
3. Select **Backup to a File** below the Backup Configuration options.
4. Under the items you wish to save, clear any you do not want included in the backup.



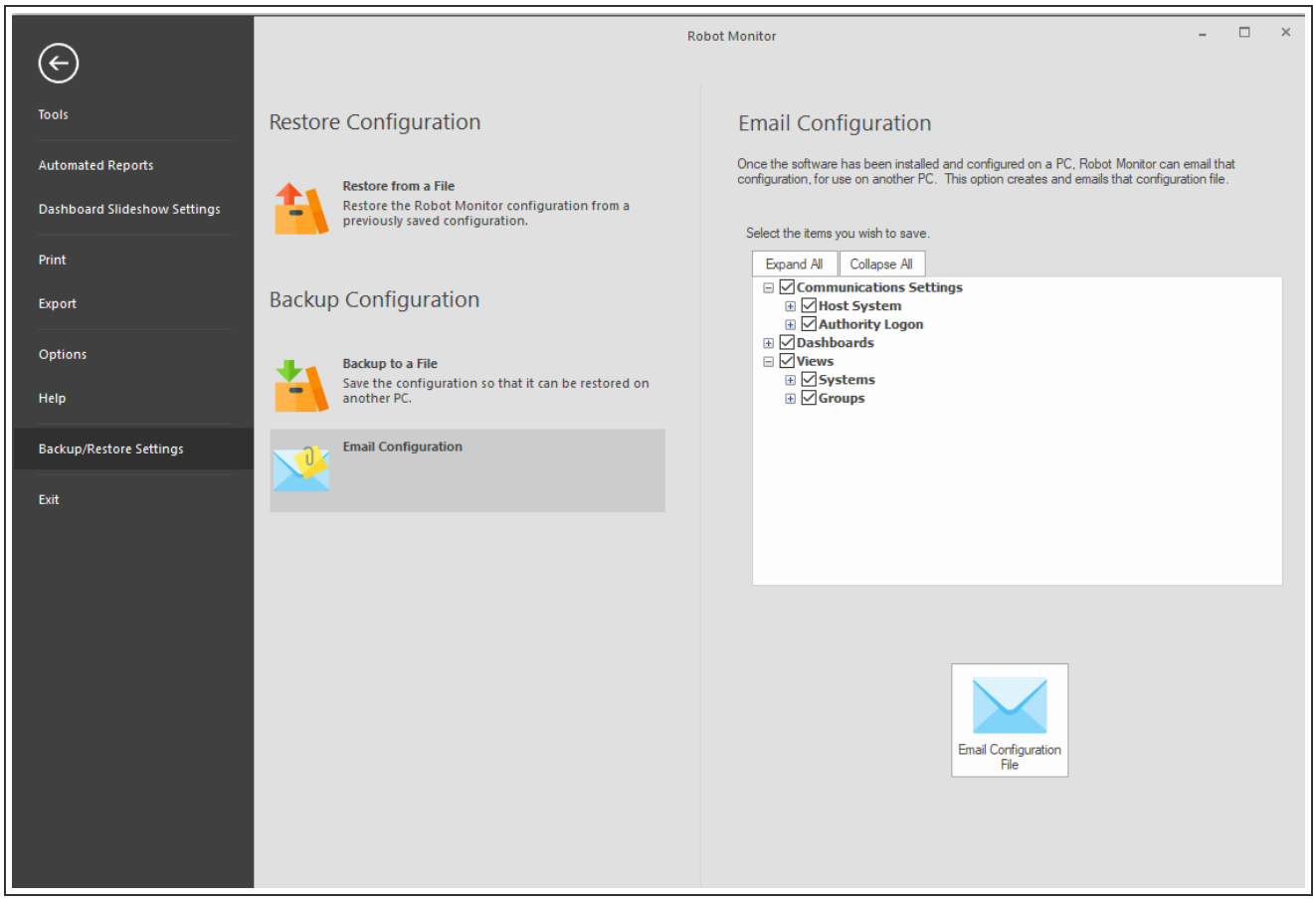
You can save the following items:

- Your Communication Settings (the settings specified when connecting to the host system)
- Your Dashboards (all dashboards or specific dashboards)
- Your Views (including all or specific Systems and Groups)

5. Enter the name and location of the place you want to save the backup file, or browse and select a location from your PC.
6. Click **Save Configuration File**.

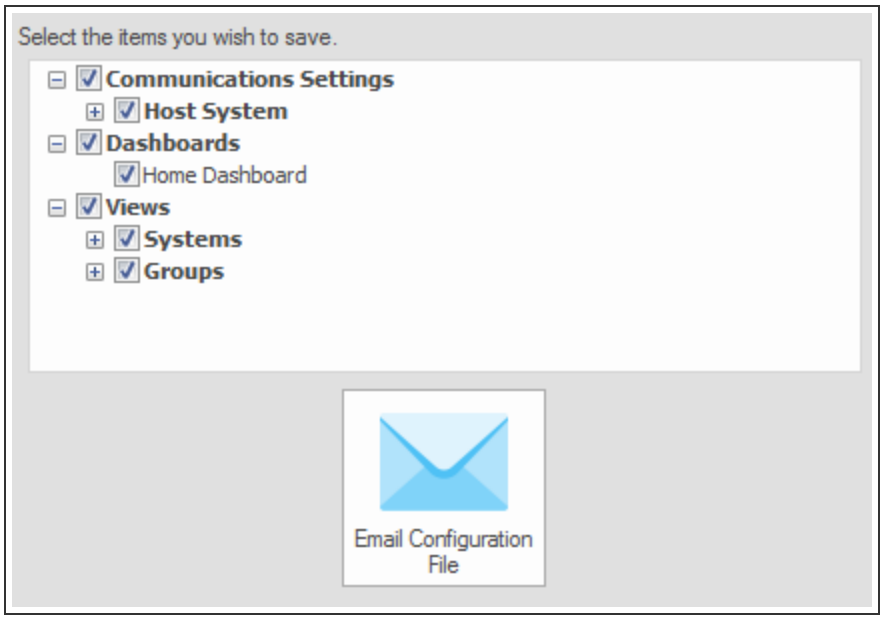
A message appears if the configuration exports successfully. If you want to see the backup file, click **Open Containing Folder** to view its saved location.

Email Configuration



To create a backup of the host configuration via email, follow these steps:

1. Launch the Robot Monitor GUI on your system and log on to the host system for which you want to create a backup.
2. From the Home Dashboard, click the **File** menu, then **Backup/Restore Settings**.
3. Select **Email Configuration** below the Backup Configuration options.
4. Under the items you wish to save, clear any you do not want included in the backup.



You can save the following items:

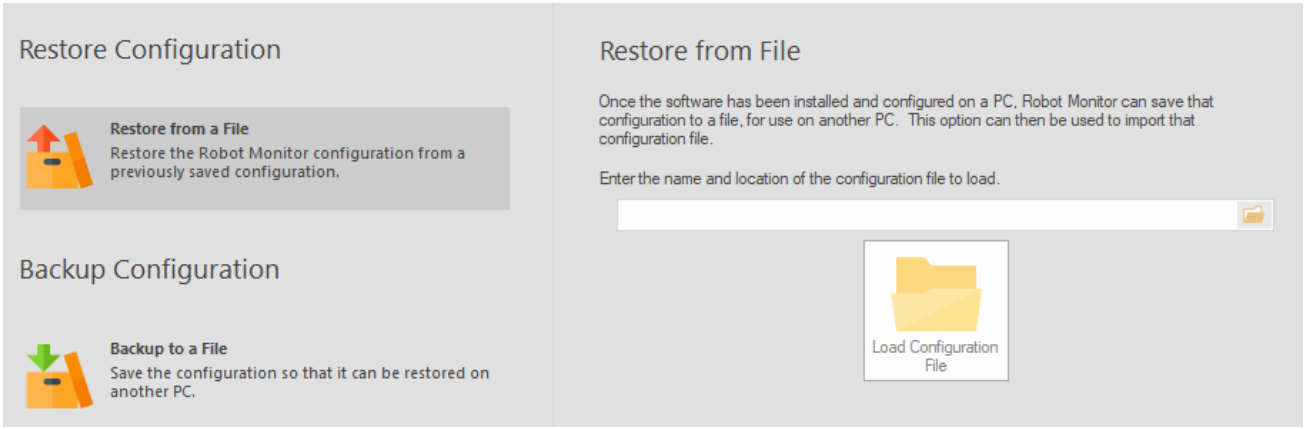
- Your Communication Settings (the settings specified when connecting to the host system)
- Your Dashboards (all dashboards or specific dashboards)
- Your Views (including all or specific Systems and Groups)

5. Click **Email Configuration File**.

> **NOTE:** In order for the email configuration to work, you need to have your email settings defined. See the section on email options for more details.

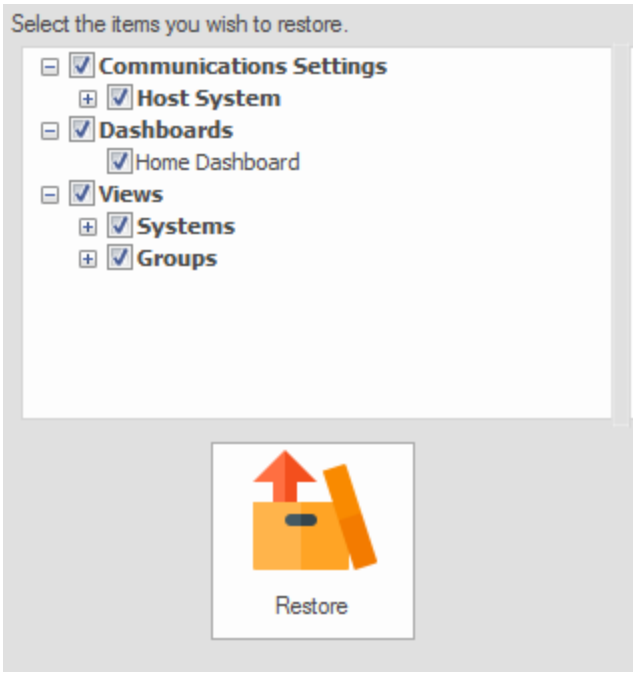
Restoring your Configuration

Once a Robot Monitor configuration has been saved, you can restore it on multiple other systems.



To restore a saved configuration on a new PC, follow these steps:

1. Launch the Robot Monitor GUI on your system and log on to the host system.
2. From the Home Dashboard, click the **File** menu, then **Backup/Restore Settings** to open the Restore Configuration settings.
3. Enter the name and location of the configuration file, or browse and select a file from your PC.
4. Click the **Load Configuration File** button to open the restore options.
5. Clear any items in the configuration file that you do not want on your system, then click **Restore**.



NOTE: If you choose to restore views from a configuration file, any currently defined views on your PC will be overwritten.

General Information

The following pages describe general information about Robot Monitor.

Robot Monitor Settings

You can use the File menu to work with the following settings:

Tools
Use the settings under Tools to configure product security, export configurable elements as an MIB file, view diagnostic information, and manage your licenses.

For more information, see Tools.

Automated Reports
Use Automated Reports to add graphs to a new report or run an existing report.

For more information, see Automated Reports.

Dashboard Slideshow Settings
Use the Dashboard Slideshow Settings to create a slideshow that cycles through your dashboards.

For more information, see Dashboard Slideshow Settings.

Print
This allows you to print your current screen, including dashboards and system views.

Export
This allows you to export your current view to an image, CSV, or text file.

For more information, see Export.

Options
Use the settings under Options to personalize your experience with Robot Monitor. This includes email and speech settings.

For more information, see Robot Monitor Options.

Help

Use Help to open the *Robot Monitor User Guide* or go to the HelpSystems website.

Backup/Restore Settings
Use the backup and restore settings to save or restore your Robot Monitor configuration.

For more information, see Backing up your Configuration and Restoring your Configuration.

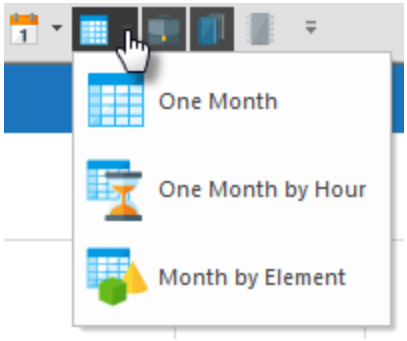
Quick Access Toolbar

The Quick Access Toolbar allows you to set up commands that you can use immediately without having to access the File menu, Right-click menu, or Options ribbon for a particular view.

Depending on the view you are currently working with, some options on the Quick Access Toolbar may not be available. Unavailable options are shaded (shown above).

Actions you can take:

- Click an available option to apply it to the current view. If you need a reminder, you can hover over its icon to see what it is.
- If an icon has an arrow next to it, click it to display a drop-down list with more choices.



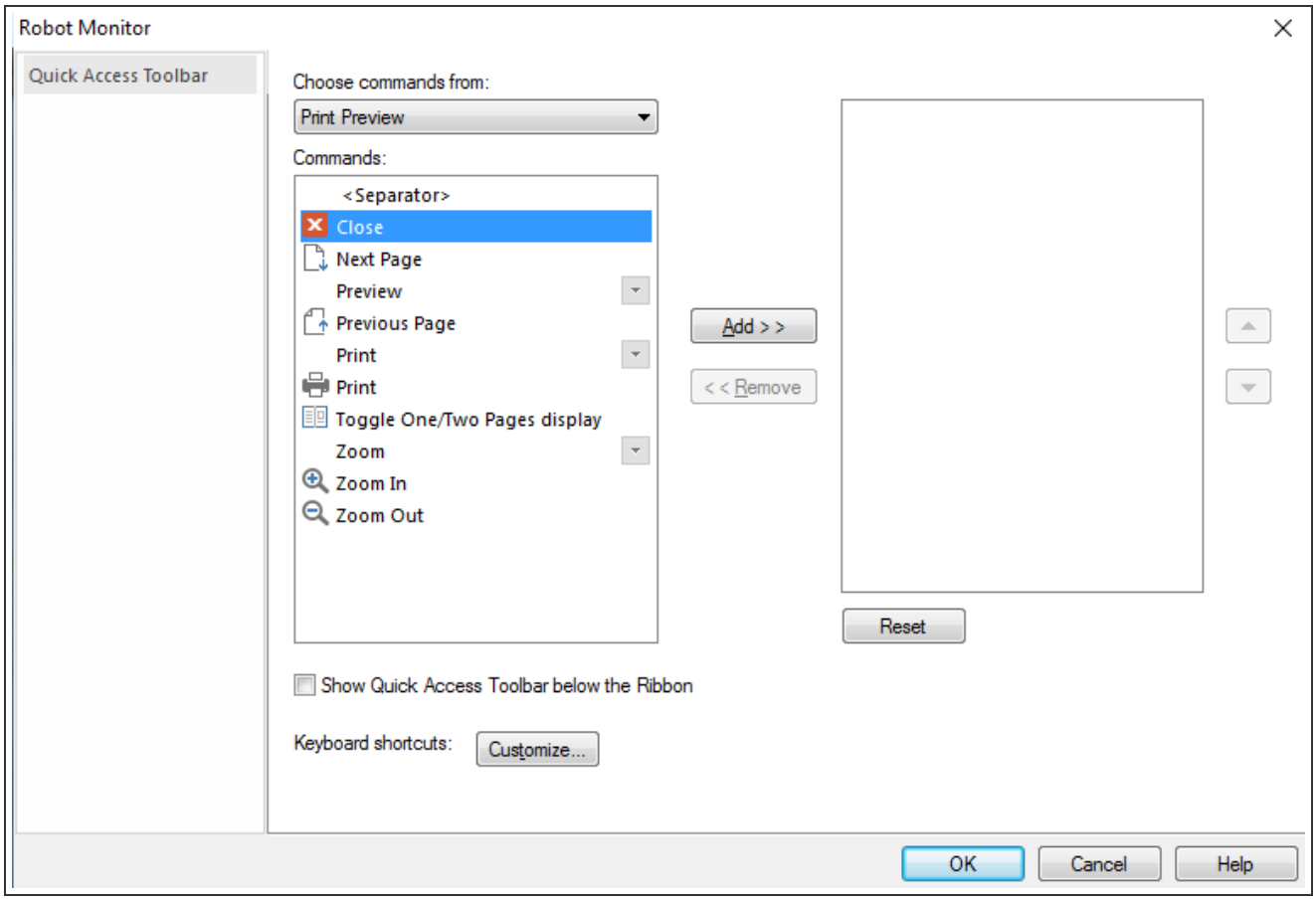
Clicking the option itself applies the top option by default. In this example, the command for One Month would be applied.

- To access the Quick Access Toolbar Settings, click the **Customize Quick Access Toolbar** button at the upper left-hand corner of the Robot Monitor GUI. Then, click **More Commands...**

Quick Access Toolbar Settings

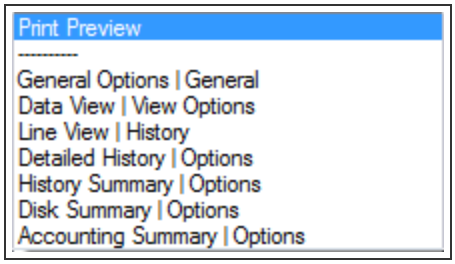
The Quick Access Toolbar Settings window in Robot Monitor allows you to view, add, or remove different commands from your Quick Access Toolbar. You can also add keyboard shortcuts for the commands if you prefer to use hot keys instead of the GUI toolbar.

To access the Quick Access Toolbar Settings, click the **Customize Quick Access Toolbar** button at the upper left-hand corner of the Robot Monitor GUI. Then, click **More Commands...**



Actions you can take:

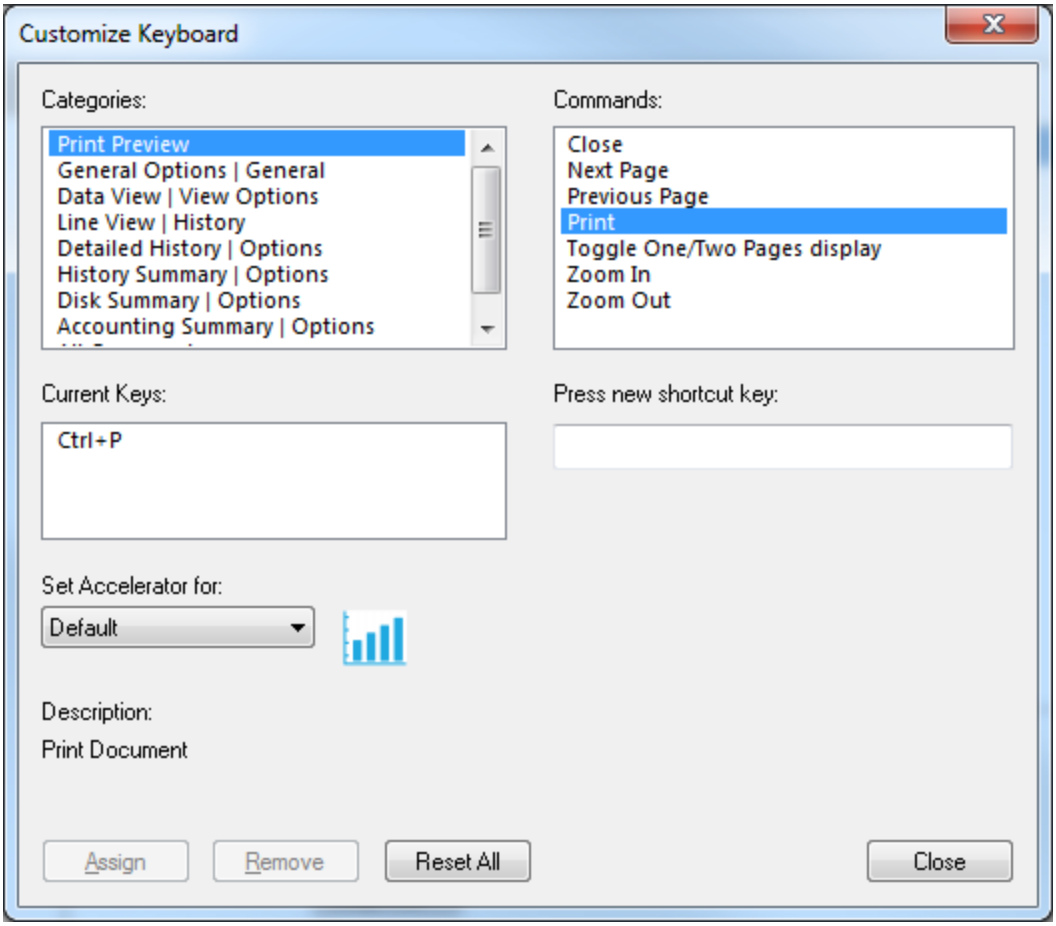
- Choose a view from the *Choose commands from* drop-down list to see which related options you can add to your Quick Access Toolbar. You can choose from the following views:



- To add commands to the Quick Access Toolbar, highlight the ones you want from the list on the left and click **Add**.
- To remove commands from the Quick Access Toolbar, highlight them from the list on the right and click **Remove**.
- To remove all commands applied to the Quick Access Toolbar and start over, click **Reset**.
- To change the order of the commands in your Quick Access Toolbar, highlight a command and move it using the up and down arrows.
- Click **Show Quick Access Toolbar below the Ribbon** if you want the toolbar to appear below the File menu instead of above it.
- Click **Customize...** if you want to setup keyboard shortcuts for frequently-used commands.

Customize Keyboard

Use the Customize Keyboard window in Robot Monitor to assign shortcut keys to the Quick Access Toolbar options and commands.



Actions you can take:

- To add a shortcut key, select a category and corresponding command from the lists, then type the key you want to apply it to into the *Press new shortcut key* field. Click **Assign**.
- To remove a shortcut key, select a shortcut key from the Current Keys list and click **Remove**.
- Click **Reset All** to remove all configured shortcut keys.

Tools

There are several tools you can use to manage Robot Monitor. They are listed below.

To get to the Tools menu, click the **File** menu, then **Tools**.

Security

This option allows you to log in and manage authorities. For details, see Security.

Export to MIB

Use this option to create a MIB file, containing all user-defined elements, that can be used by SNMP managers such as Intermapper or HP Open view.

To export all user-defined elements:

1. If you are not on the Tools menu, click the **File** menu, then **Tools**.
2. Click **Export to MIB**.
3. Enter the name and location where you want to save the MIB file, then click the **Export MIB** button.

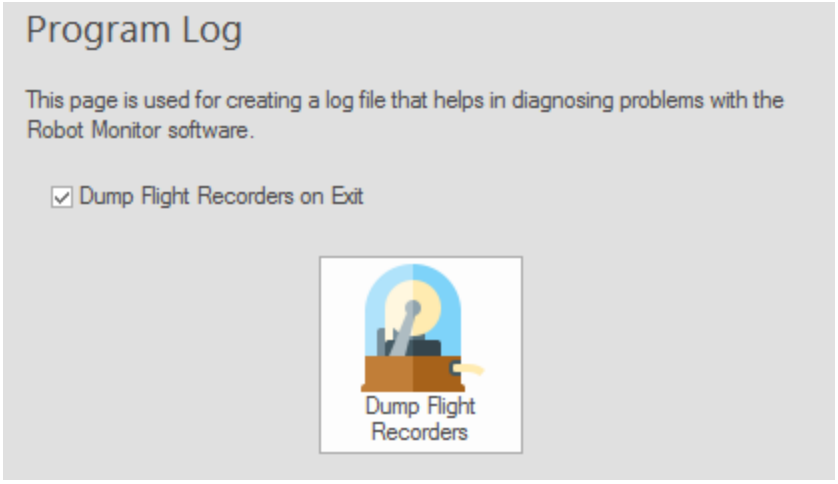
4. After you have created the export, click the **Open Containing Folder** link to quickly access the MIB file.

Program Log

Use this option to create a log file to help you diagnose issues with the Robot Monitor software.

To create a program log file:

1. If you are not on the Tools menu, click the **File** menu, then **Tools**.
2. Click **Program Log**.



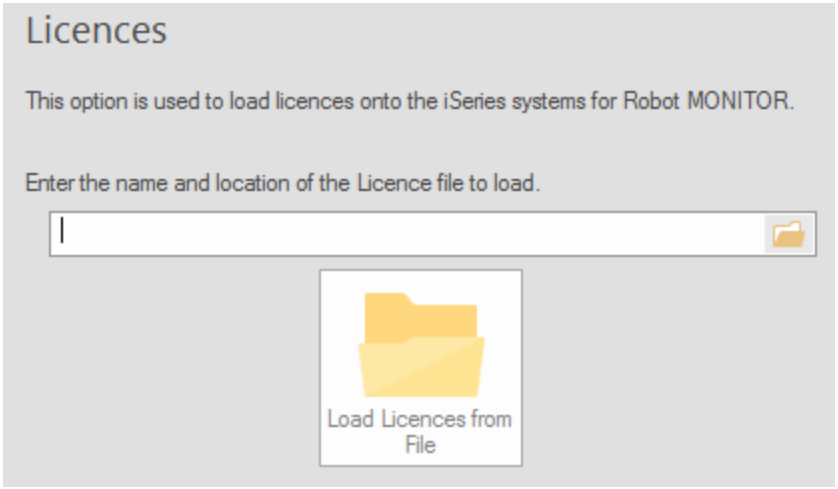
3. To create a program log immediately, click **Dump Flight Recorders**.
4. To create a program log only when you exit Robot Monitor, check the **Dump Flight Recorders on Exit** box.

Licenses

Use this option to manage your Robot Monitor licenses. You can load new licenses onto the IBM i systems from here.

To load a new license file:

1. If you are not on the Tools menu, click the **File** menu, then **Tools**.
2. Click **Licenses**.



3. Browse to select the file you want.
4. Click **Load Licenses from File**.

Security

Depending on your needs, Robot Monitor offers two different kinds of security: IBM i security, which requires a user profile and password to establish a connection between the GUI and the IBM i, and Robot Monitor Security.

IBM i Security

IBM i security is Robot Monitor's default security option.

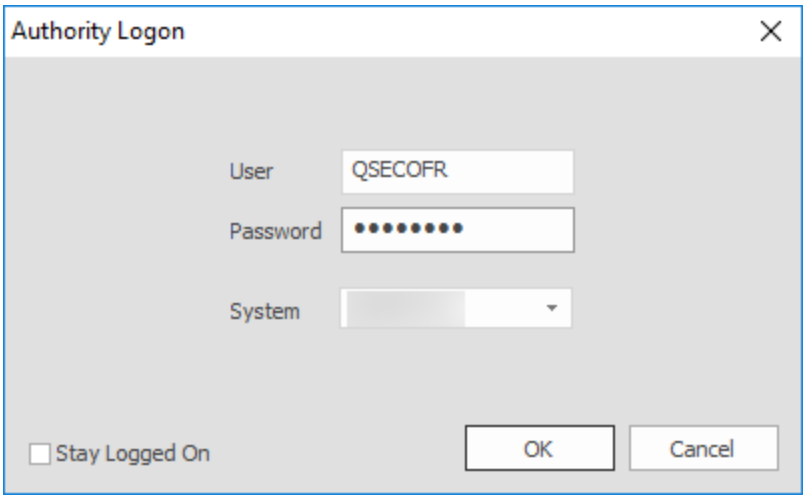
If you attempt to run a command in the GUI, for example, you will be prompted to log on to the IBM i with a valid user profile and password before it will execute.

Robot Monitor Security

If you have more stringent security requirements, you may want to use Robot Monitor Security. This security option allows you to limit access to Robot Monitor features and system information for individual IBM i profiles and user groups.

To enable Security for Robot Monitor:

1. In the GUI, click **File**, then click **Tools**.
2. Under Security, click **Log In**. The Authority Logon dialog box displays.



3. Enter the user name and password for the QSECOFR profile. Select **Stay Logged On** if you want to keep your session active.
4. Click **OK**. You should see this message in the bottom right corner of the screen, showing that you are connected to the host system with Robot Monitor Security enabled.

You are now able to define authorized users, manage user groups, create authority lists, and view a list of authorized systems.

> **NOTE:** Always remember to add your own user profile as an authorized user immediately after initiating Robot Monitor Security. QSECOFR should only be used to initiate security.

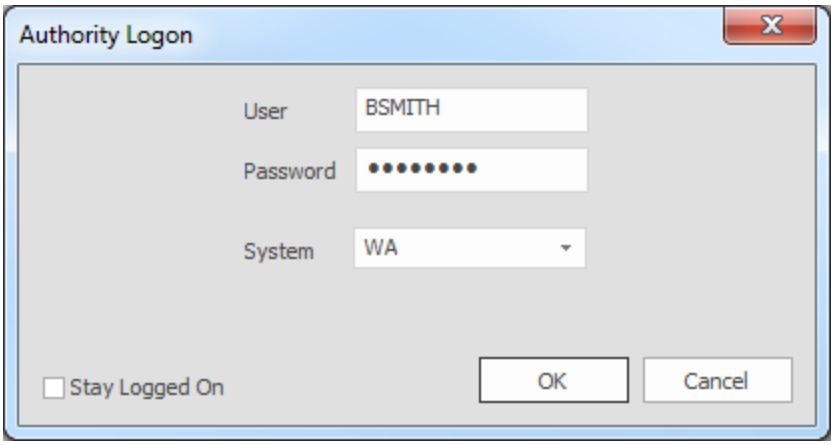
Once Robot Monitor Security is enabled and authorities are set, users must authenticate themselves using the authority logon dialog box before they can (depending on the level of authority they have) run a command from, add, change, view, or maintain the following:

- Data Definitions
- Thresholds
- PTF Listings
- Calendars
- SST Configuration

When you are finished managing your security options, log out to limit access to authorities and authority lists for connected systems.

Authority Logon

The Authority Logon dialog box allows users to log on and access areas of Robot Monitor that have security enabled.



Logging on will only be successful if the following criteria are met:

- Robot Monitor Security has been enabled.
- An authorized user has been created for the user profile.

To acess this dialog box, click **Click to Logon** in the lower right corner of the GUI or select **Log In** from the Tools tab in the File menu.

To log on as an authorized user:

1. In the GUI, click **Click to Logon** in the lower right corner. The Authority Logon dialog box displays.
2. Enter the user name and password for your profile.
3. Select **Stay Logged On** if you want to keep your session active when you log out.
4. Click **OK**. You should see this message in the bottom right corner of the screen, showing that you are connected to the host system.

To enable Robot Monitor Security:

See Security for more information on how to enable Robot Monitor Security.

Authorized Users

The Authorized User List displays a list of defined users in Robot Monitor. From this window, you can add a new user, copy or delete an existing user, and change user preferences.

Use the search bar to quickly filter the list by a specific user or system.

Adding a User

Follow the steps below to add a new authorized user to the Authorized Users List.

> **NOTE:** To add a user, you must be logged on to the host system with a SECOFR user profile.

1. If you are not on the Authorized User List window, click the **File** menu, then **Security**, then **Authorized Users**.
2. Click **Add**.
3. On the Authorized User Details panel, type a system into the **System** field or choose one from the drop-down.
4. Type an existing user into the **User Profile** field or choose one from the drop-down. You can click **Refresh List** if you do not see the user profile you want to add.
5. (Optional) Select a **Default Authority List** for the user. This authority list is assigned, by default, to any objects the user creates.
6. Select which Special Authorities the user should have on the selected system. You have the following choices:

	Maint	Add	Change	Visible	Commands
Systems	Allowed to open a list of authorized systems.		Change any system he can see.	All systems are visible.	Run commands on any system.
Data Definitions	Allowed to open the Data Definitions view and make changes to data definitions.	Add new data definitions.	Change any data definition he can see.	All data definitions are visible.	Run commands against any data definition.
Thresholds	Allowed to open the Thresholds view and make changes to thresholds.	Add new thresholds.	Change any threshold he can see.	All thresholds are visible.	

	Maint	Add	Change	Visible	Commands
Users	Allowed to open the Authorized Users view and change users. As this allows users to assign any rights to themselves, this right implies all others and is effectively a SECOFR type of right.				
Calendars	Allowed to open the Calendars view and maintain calendars.				
SST	Allowed to open the SST Configuration view and define access to system service tools.				

7. When you are finished, click **OK** to add the new user to the Authorized User List.

Copying an Existing User

Follow the steps below to create a new authorized user by copying an existing user's properties.

1. Right-click the user you want to copy and select **Copy**.
2. On the Authorized User Details panel, make any changes you need to the system, user profile, default authority list, and special authorities.
3. When you are finished, click **OK** to add the copied user to the Authorized User List.

Editing a User's Properties

To edit an existing user's properties, right-click one and select **Properties**. The Authorized User Details panel opens. From this panel, you can add the user to a default authority list or change their special authorities.

Click **OK** to save your changes.

Deleting a User

To delete a user from the Authorized User List, right-click one and select **Delete**. Click **Yes** when prompted to confirm the deletion.

To delete multiple users at a time, hold down **Shift** and click the users you want to remove, then right-click one of the highlighted users and select **Delete**.

> **NOTE:** A user cannot be deleted if it is in a user group. Remove the user from the group before attempting these steps.

Authorized User Groups

The Authorized User Groups window displays a list of defined groups in Robot Monitor that are used to connect users to authority lists. You can assign one or more users to a group then assign the group to an authority list. Authority lists are assigned to systems, elements, and thresholds to control access to those objects.

From the Authorized User Group window, you can add a new user group, copy or delete an existing group, and change group preferences.

Use the search bar to quickly filter the list by a specific user group.

Adding a User Group

Follow the steps below to add a new authorized user group to the list.

> **NOTE:** To create a user group, you must be logged on to the host system with a SECOFR user profile.

1. If you are not on the Authorized User Groups window, click the **File** menu, then **Security**, then **Authorized User Groups**.
2. Click **Add**.
3. On the Authorized User Group Details panel, enter a **Group Name** and **Description**.
4. Select which users you want to add to the user group. You can select as many as you want.
5. When you are finished, click **OK**. The new group will be added to the Authorized User Groups list.

Repeat steps 1-5 to add other user groups as needed, or click **Cancel** to close the Authorized User Group Details panel.

Copying an Existing User Group

Follow the steps below to create a new authorized user group by copying an existing user group's properties.

1. Right-click the user group you want to copy and select **Copy**.
2. On the Authorized User Group Details panel, make any changes you need to the group name, description, and users.
3. When you are finished, click **OK** to add the copied user group to the Authorized User Groups list.

Editing a User Group's Properties

To edit an existing user group's properties, right-click one and select **Properties**. The Authorized User Group Details panel opens. From this panel, you can add new users to the group or change the group's description.

Click **OK** to save your changes.

Deleting a User Group

To delete a user group from the Authorized User Groups list, right-click one and select **Delete**. Click **Yes** when prompted to confirm the deletion.

To delete multiple user groups at a time, hold down **Shift** and click the users you want to remove, then right-click one of the highlighted user groups and select **Delete**.

> **NOTE:** A user group cannot be deleted if it is in an authority list. Remove the user group from the list before attempting these steps.

Authority Lists

The Authority Lists window displays all currently defined authority lists in Robot Monitor. The list shows all user groups and any authorities that are assigned to them.

From the Authority Lists window, you can add new list details, copy or delete existing lists, and change list preferences.

Use the search bar to quickly filter by list name or description text.

Adding an Authority List

Follow the steps below to create a new authority list.

1. If you are not on the Authority Lists window, click the **File** menu, then **Security**, then **Authority Lists**.
2. Click **Add**.
3. On the Authority List Details panel, enter a **List Name** and **Description**.
4. Select which user groups you want to add to the authority list. You can select as many as you want.
5. When you are finished, click **OK**.

Repeat steps 1-5 to add other authority lists as needed, or click **Cancel** to close the Authority List Details panel.

> **NOTE:** To create an authority list, you must be logged on to the host system with a SECOFR user profile.

Copying an Existing Authority List

Follow the steps below to create a new authority list by copying an existing list's properties.

1. Right-click the authority list you want to copy and select **Copy**.
2. On the Authority List Details panel, make any changes you need to the list name, description, and groups.
3. When you are finished, click **OK**.

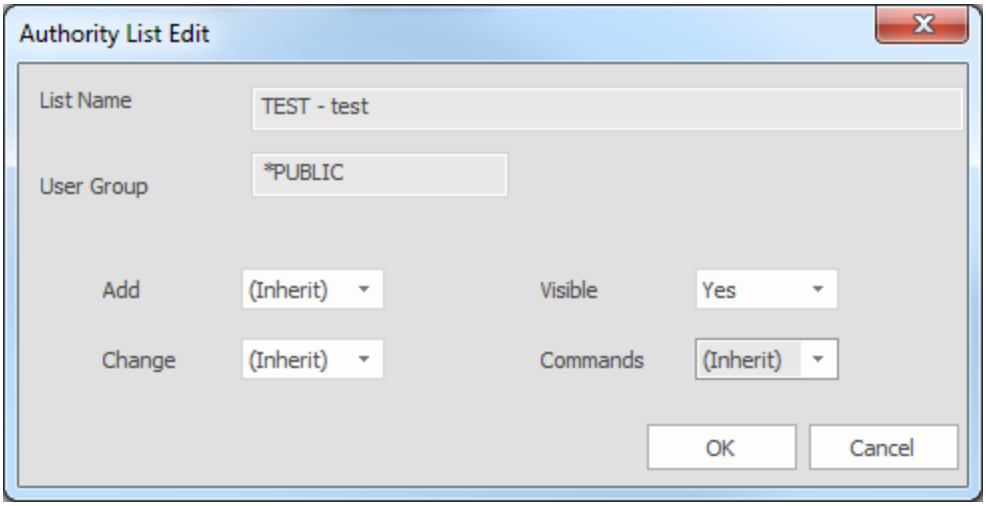
NOTE: To copy an existing authority list, you must be logged on to the host system with a SECOFR user profile.

Editing an Authority List

To edit an existing authority list:

1. Right-click an authority list and select **Properties**.

   The Authority List Details panel opens. You can change the list's description from here if needed.
2. To add or remove special authorities to a group within this authority list, double-click a group to open the Authority List Edit panel.



3. Select the option you want for Add, Change, Visible, and Commands. You can choose from Yes, No, and Inherit.

   If you select Inherit, Robot Monitor uses the special authorities applied to each authorized user.
4. Click **OK**.
5. Click **OK** again to save your changes.

NOTE: To edit an authority list, you must be logged on to the host system with a SECOFR user profile.

Deleting an Authority List

To delete an authority list, right-click one and select **Delete**. Click **Yes** when prompted to confirm the deletion.

To delete multiple authority lists at a time, hold down **Shift** and click the lists you want to remove, then right-click one of the highlighted authority lists and select **Delete**.

> **NOTE:** To delete an authority list, you must be logged on to the host system with a SECOFR user profile.

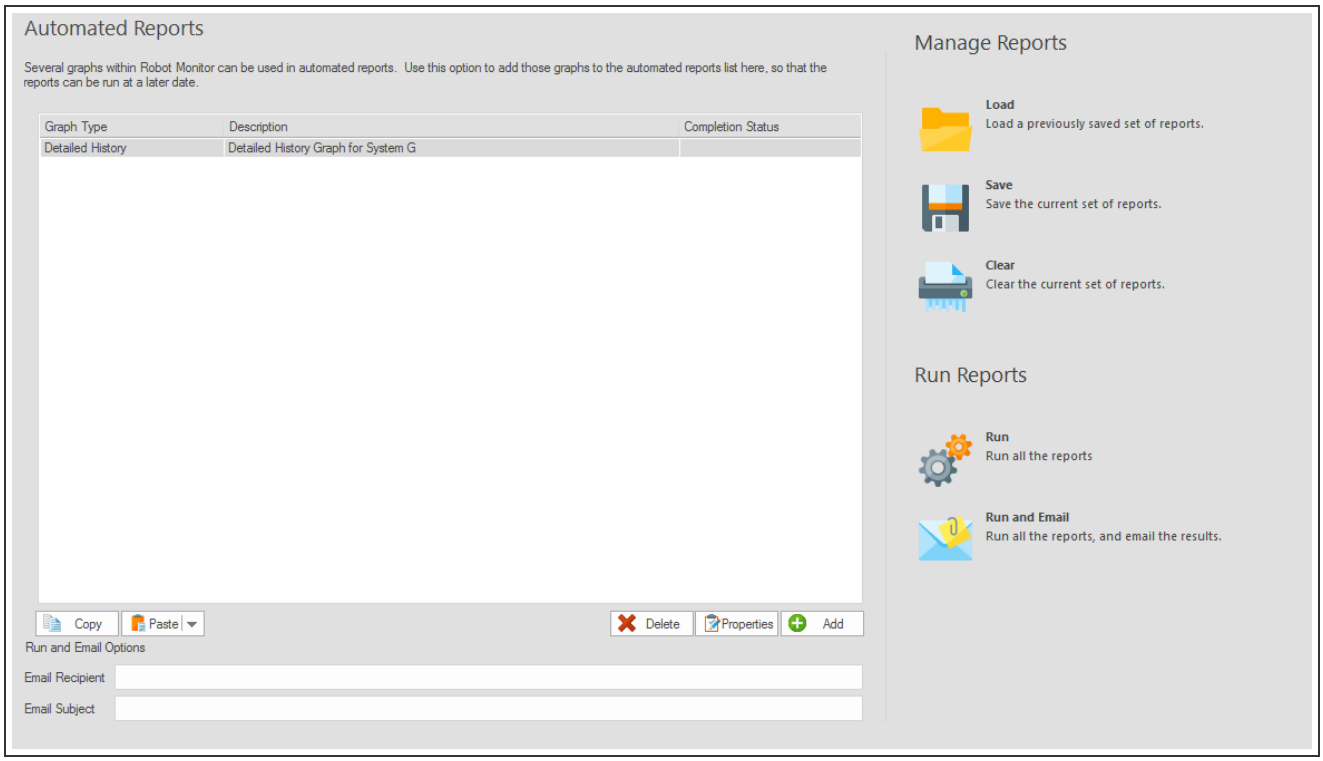
Authorized Systems

The Authorized Systems window displays a list of all systems the current user is authorized to see.

Double-click a system to change the description text or authority list. To find a system quickly, use the search bar to filter by system name, authority, or description text.

Automated Reports

In Robot Monitor, you have the option to add different graphs to the automated reports. The graphs you add become part of the automated reports list until a report is run.



From the automated reports window, you can choose to add, edit and delete graphs in a report list. You can also load a set of saved reports and run the reports.

Adding, Deleting, and Editing Reports

To add a new graph to the automated reports list, do the following:

1. If you are not on the Automated Reports window, click **File**, then **Automated Reports**.
2. Click **Add** and select which graph you want to add to the report list. The properties panel for the graph displays.
3. Review the properties and make changes as needed.
4. On the Output Options tab, you have the following options:
   - Select how you want to export the graph: Print, Export to Image, Export to CSV, or Export to Tabbed Text.
   - Select the orientation of the graph: Default Orientation, Landscape, or Portrait.
   - Choose a printer from the **Select Printer** panel, if other than the default.

   > **NOTE:** For an Image, CSV, or Tabbed Text export, you can add the date of the report to the export file name by adding the following variables within the file name:
   > %y = Two digit year
   > %m = Two digit month
   > %d = Two digit day
   > For example, defining an export file name of 'DetailedGraph%y%m%d.csv' within the **Filename to Export** text box would render a file in your chosen location named 'DetailedGraph012318.csv' (assuming the report date was January 23, 2018). For a Detailed History report, the variables will pull the **From Date** rather than the **To Date**.

5. When you are finished, click **OK**.

Repeat steps 1-5 as many times as needed until all the graphs you want to run are in the automated reports list.

To delete an existing graph from the automated reports list, highlight the graph you want to remove, then click **Delete**.

To edit an existing graph, highlight it and click **Properties**. This opens the properties panel for the graph.

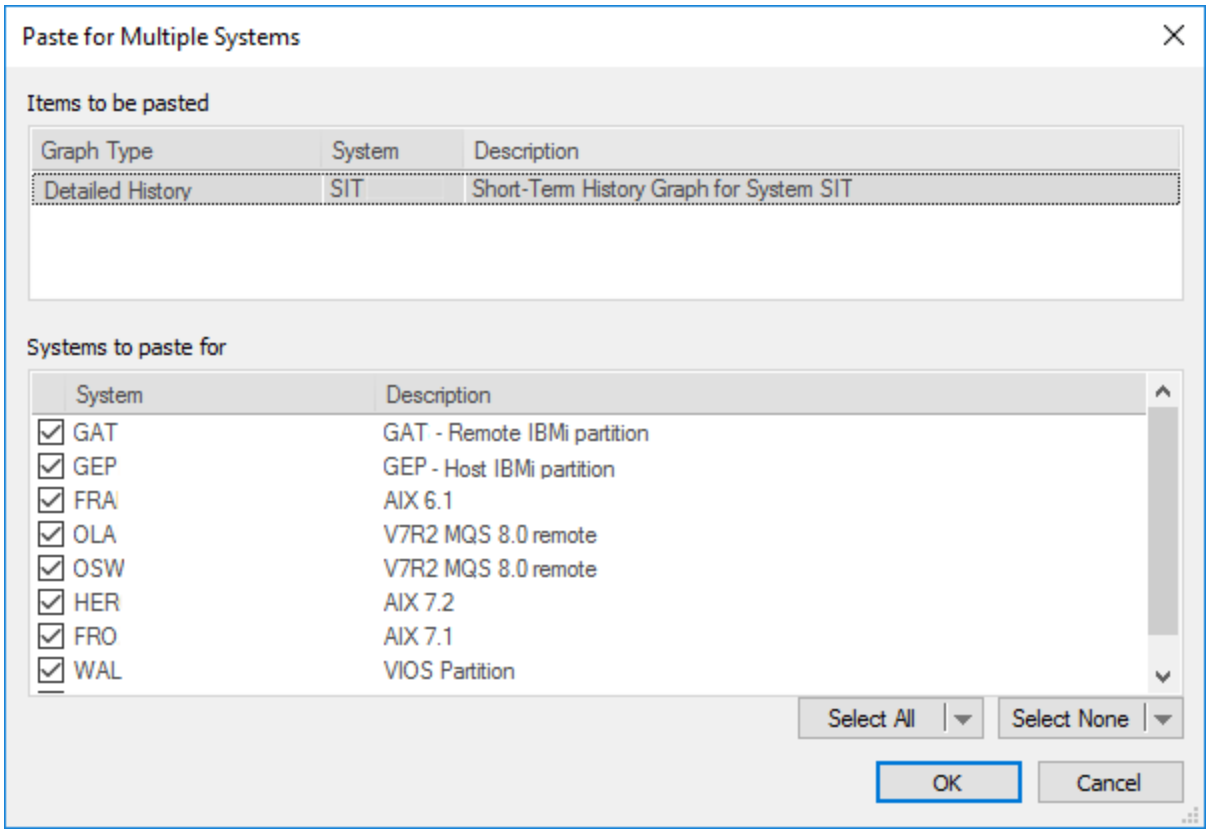
Copying and Pasting Reports

You can copy and paste reports. You can also duplicate reports across different systems using the Paste for Multiple Systems command.

1. Select the automated report you want to copy.
2. Click the **Copy** button in the lower left hand corner.
3. Click the **Paste** button to paste the copy in the Automated Reports list.
4. Select the copied report and click the **Properties** button to edit as desired.

To duplicate reports across different systems using the Paste for Multiple Systems command:

1. Select the automated report you want to copy for other systems.
2. Click the **Copy** button in the lower left hand corner.
3. Click the arrow icon next to the **Paste** button and then select **Paste for Multiple Systems...**.
4. In the **Paste for Multiple Systems** window, select the report that you copied, then check all systems that you would like to duplicate that report for.



5. Click **OK**. The report or reports will be duplicated for all selected systems.

Managing Reports

From the Manage Reports sidebar, you can save, load, or clear a set of reports.

To save a new report, add graphs to the automated reports list (see add instructions above), then click **Save**. The **Save As** window opens. Type in a name and location for the file, then click **Save** again to create the report on your system.

To load an existing report into Robot Monitor, click **Load**. Choose the save file you want from your system, then click **Open** to display the set of reports in your automated reports list.

To clear the automated reports list, click **Clear**. The list will be removed immediately, so make sure it is saved on your system beforehand.

Scheduling Reports

You can schedule reports to run using Task Scheduler (a program that automatically comes with Windows) or another application that allows tasks to be scheduled.

Running Reports

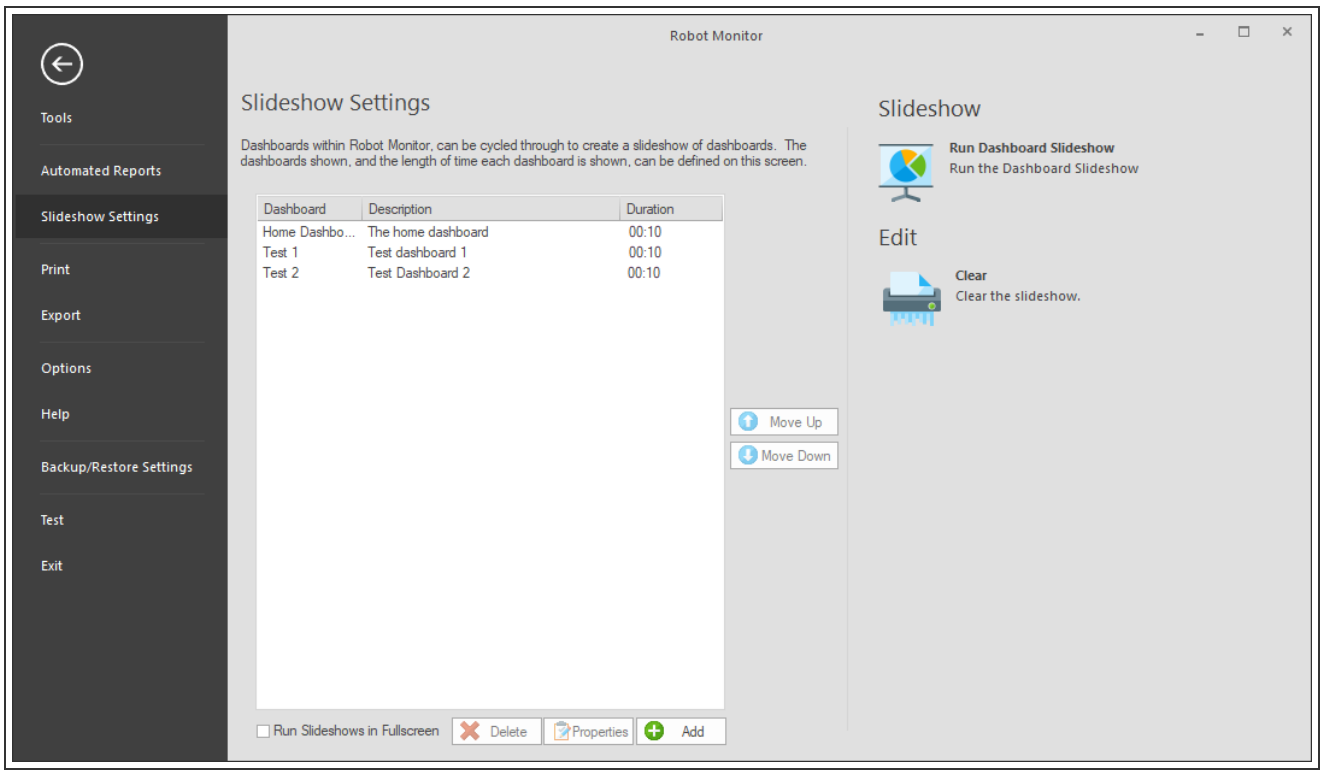
When you are ready to run a report, you have two options:

1. Create a new reports set or open a saved set from your PC.
2. Choose how you want to run your report.
   - Click **Run** to run the report. This make take a few moments.
   - Click **Run and Email** to run the report and send the results to an email. Under **Run and Email Options**, you can determine the email recipient and email subject. When the report is done, the results will be send to the email specified.

> **NOTE:** Before running the report, make sure the graphs have the output option you want. The default output is Print, so they will be sent the printer when the report is done.

Dashboard Slideshow Settings

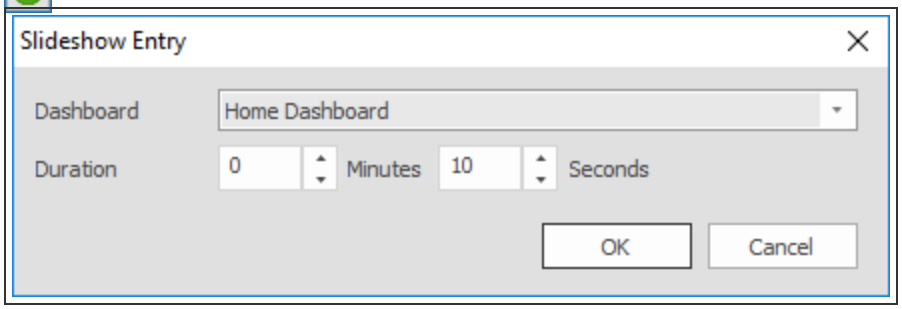
In Robot Monitor, you have the option to a create a slideshow that cycles through your dashboards.



From the Slideshow Settings screen you can define which dashboards are show, in what order, and for how long.

Adding a Slideshow Entry

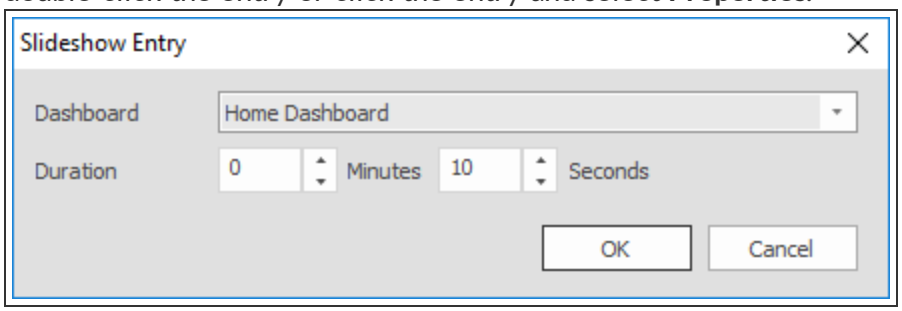
1. To add a dashboard to the slideshow, from the Dashboard Slideshow Settings screen, select the **Add** button.



2. Select the dashboard you would like to add to the slideshow (this dashboard must be created prior to adding it to the slideshow).
3. Select the duration you would like the dashboard to appear for before moving on to the next slide.
4. When you are finished, press **OK**.

Editing a Slideshow Entry

1. To edit an existing slideshow entry, from the Dashboard Slideshow Settings screen, either double-click the entry or click the entry and select **Properties**.



2. Make the necessary changes to the Slideshow Entry window.
3. When you are finished, press **OK**.

Deleting a Slideshow Entry

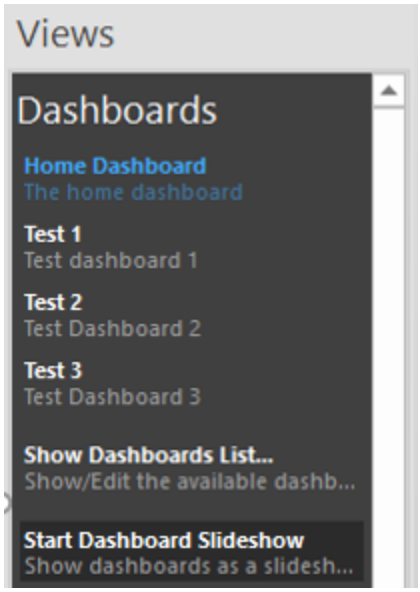
To delete a dashboard from the slideshow, from the Dashboard Slideshow Setting screen, simply click the entry and select **Delete**. This will not delete the dashboard from Robot Monitor. It will only remove the entry from the slideshow.

Viewing a Slideshow

There are two ways to view the Dashboard Slideshow after you create it.

1. From the Dashboard Slideshow Settings screen, select Run Dashboard Slideshow.

2. From the View bar, under Dashboards, select Start Dashboard Slideshow.



Export

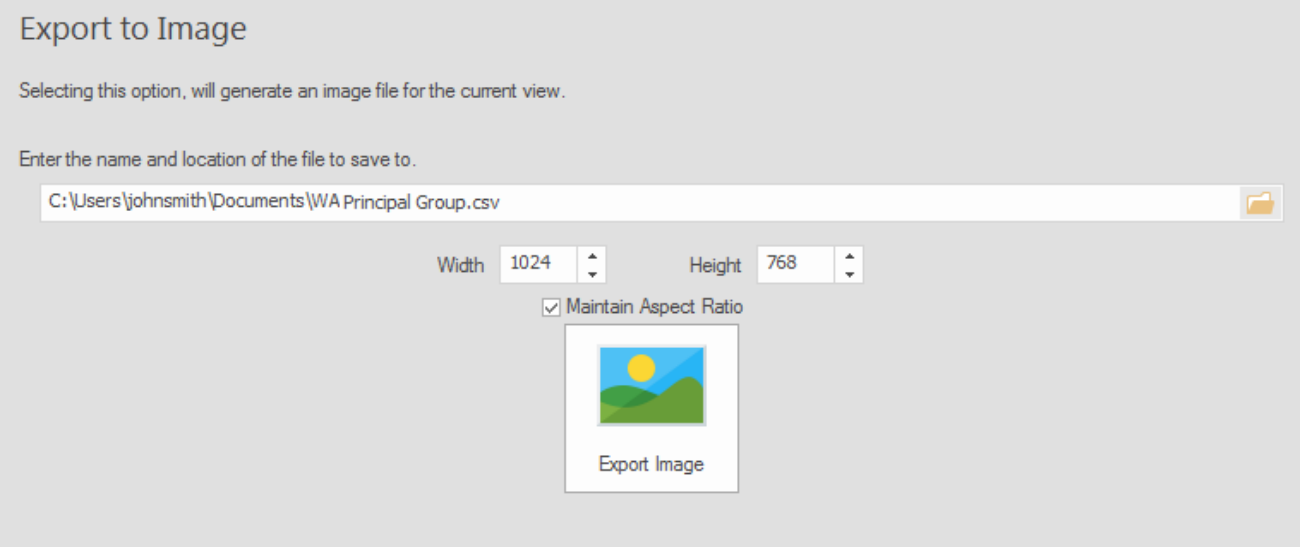
You can export your current view in Robot Monitor to an image, csv file, or text file.

To get to your Export options, click the **File** menu, then **Export**.

There are three ways to export your current view. The following sections contain steps on how to do this.

> **NOTE:** Some export options may be unavailable, depending on the type of data you want to save. For example, a dashboard can only be saved as an image. Data definitions can only be saved as csv or text files.

Export to Image

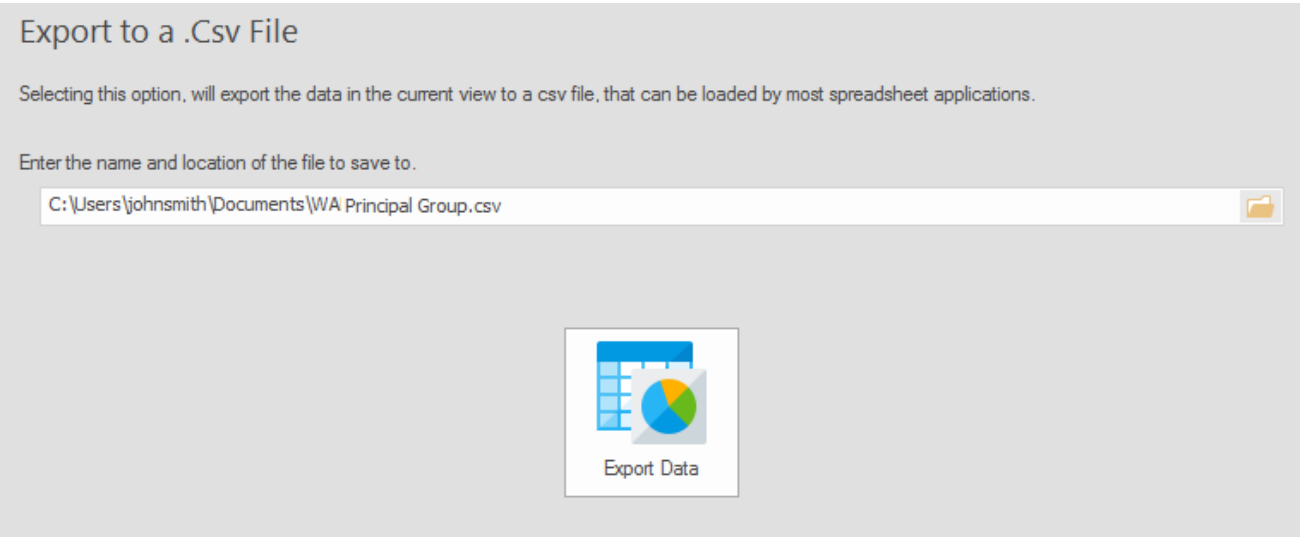


You can export your current view as an image with a variety of different file extensions.

To export a view as an image, follow these steps:

1. Enter the name of the file and the place you want to save it to. **Note:** You can change .jpg to a preferred extension.
2. Choose the width and height of the image. If you want the image to balanced proportions, click **Maintain Aspect Ratio**.
3. Click **Export Image**.

Export to Csv

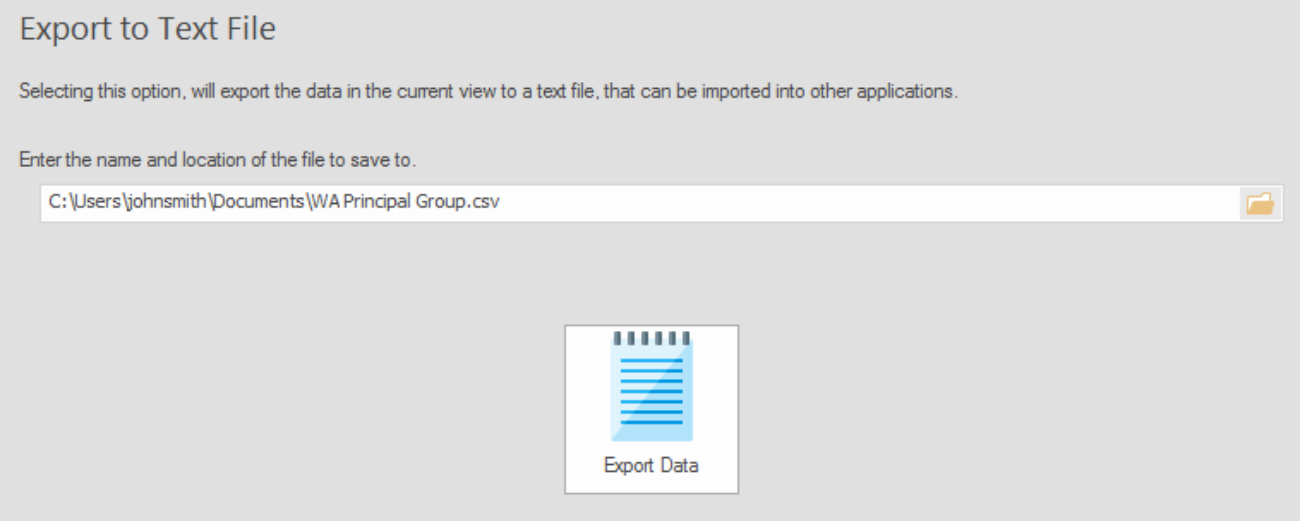


You can export your current view as a csv file, which can then be loaded by most spreadsheet applications.

To export a view as a csv file, follow these steps:

1. Enter the name of the file and the place you want to save it to.
2. Click **Export Data**.

Export to Text



You can export your current view as a text file. This is useful if you want to import the data into other applications.

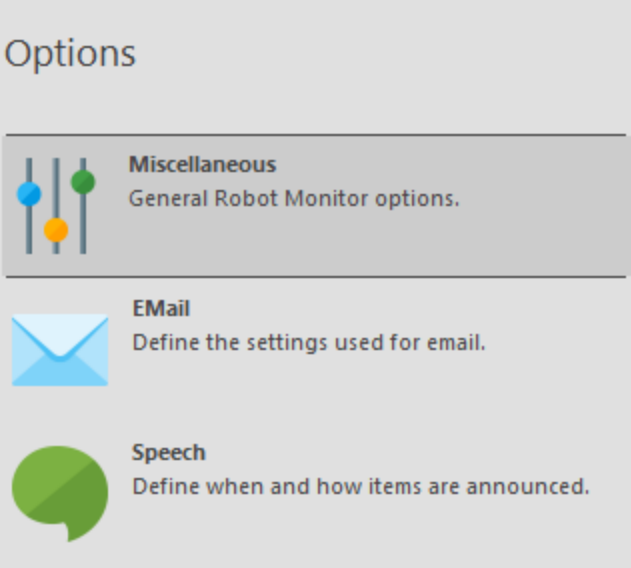
To export a view as a text file, follow these steps:

1. Enter the name of the file and the place you want to save it to.
2. Click **Export Data**.

Robot Monitor Options

There are several options you can set in Robot Monitor. These cover general settings (such as start-up behavior), email settings, and speech settings.

To open this page, click the **File** menu, then **Options**.

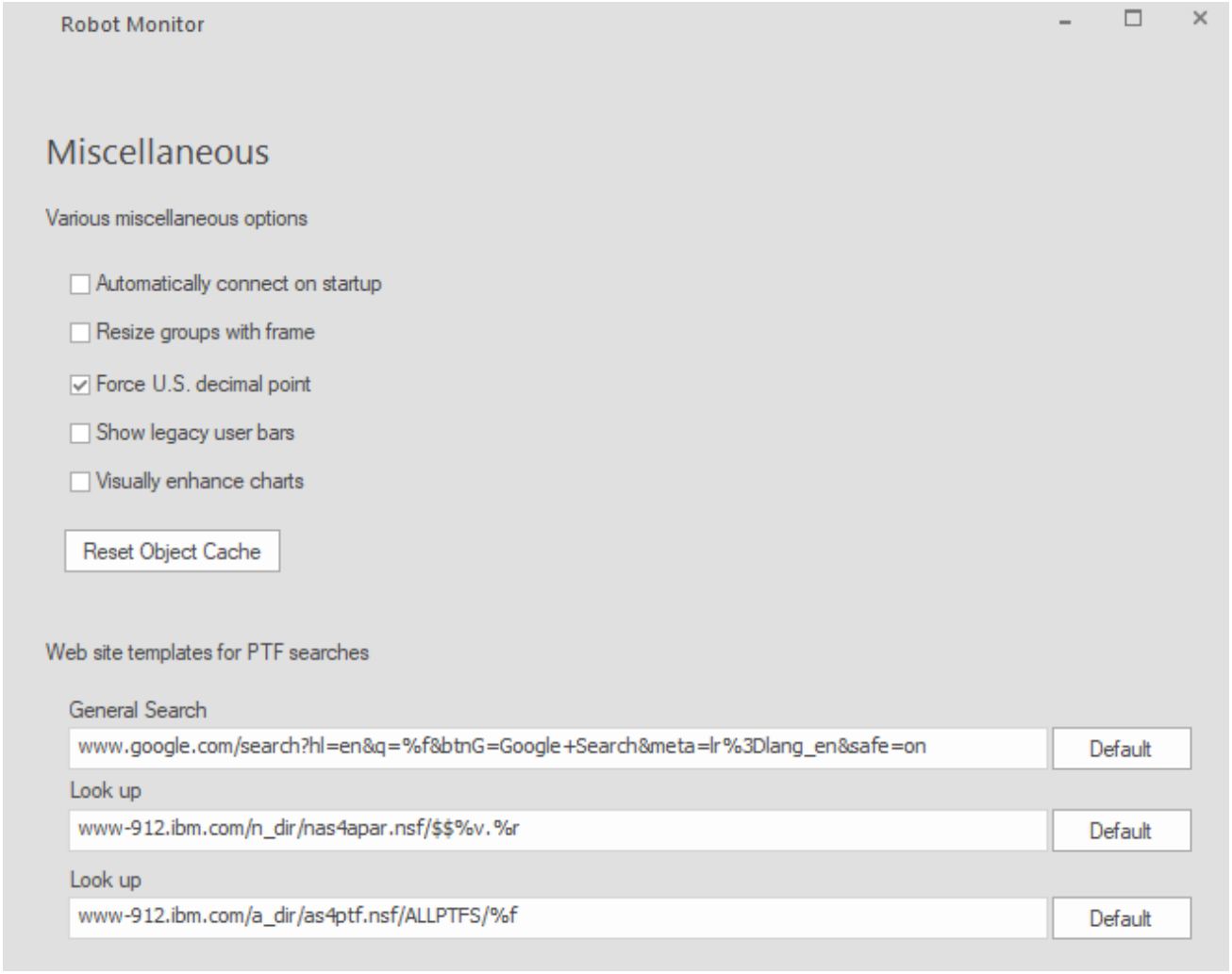


Miscellaneous Options

Use the Miscellaneous options to change general settings for Robot Monitor.

To change these settings:

1. If you are not on the Options menu, click the **File** menu, then **Options**.
2. Click **Miscellaneous**.



3. Select **Automatically connect on startup** to have Robot Monitor connect to the previously defined host system when you start the program, instead of displaying the Getting Started screen.
4. Select **Resize groups with frame** to allow groups that are docked to the view's edge to be resized when the view changes.
5. Select **Force US Decimal Point** if you want to use a period for decimal points (US version) instead of a comma for decimal points.
6. Select **Show legacy user bars** to display user bars in the QSystem Monitor style.

   > **NOTE:** The **Show legacy user bars** option relates to the original User Defined elements added to the CCSS product QSystem Monitor. This option is only relevant for a few CCSS customers who used the old version of this product. If you are a new user, you can safely ignore this option.

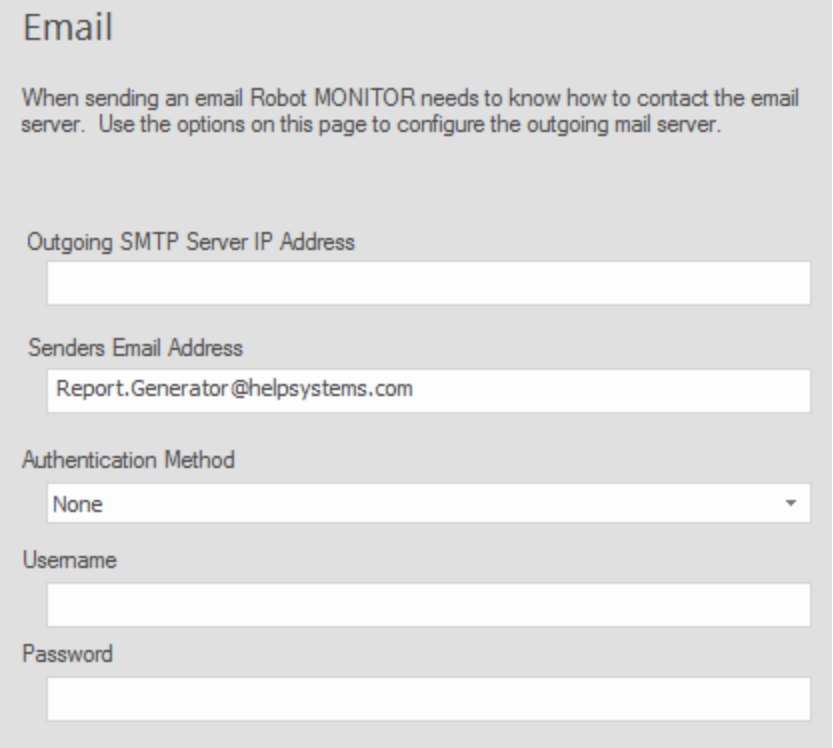
7. Select **Visually enhance charts** if you want to add more visual appeal to your charts.
8. Click **Reset Object Cache** if you want to force a download from the host systems cache.

9. The entries under **Web site templates for PTF searches** define the websites that are accessed from the PTF Comparison view to show the details of a selected PTF.

Email Options

Use the Email options to configure the outgoing mail server so that Robot Monitor can contact the email server when sending an email. **Note:** Only an administrator with knowledge of email servers should change these settings.

To open this page, click the **File** menu, then **Options**. Then, click **Email**.



Speech Options

When Robot Monitor was installed, you were given the option of installing the text-to-speech engine on the PC. If you accepted this option, text-to-speech will be used to highlight certain alarm conditions.

This function is driven by options on the threshold records. When a threshold that has speech enabled is selected, and the speech option is also enabled, the long description from the threshold is passed to the text-to-speech engine. The engine then reads out the text, alerting you to a problem without interrupting your work flow.

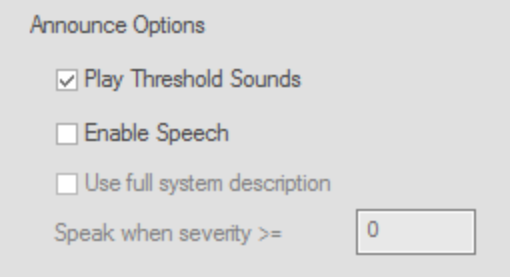
The default voices supplied with text-to-speech engine in Robot Monitor are fairly basic. If you find the speech option useful, you can buy some better voices for it. We recommend the AT&T natural voices, which you can download from the web for a small fee.

To change the Speech Options settings:

1. If you are not on the Options menu, click the **File** menu, then **Options**.
2. Click **Speech**.
3. Under Announce Options:
    a. Select **Play Threshold Sounds** if you want to be alerted every time a set threshold is triggered.

    > **NOTE:** You can set a threshold sound for each threshold using the Threshold Detail Record panel.

    b. Select **Enable Speech** to allow speech within Robot Monitor. Clear the check mark to disable speech.

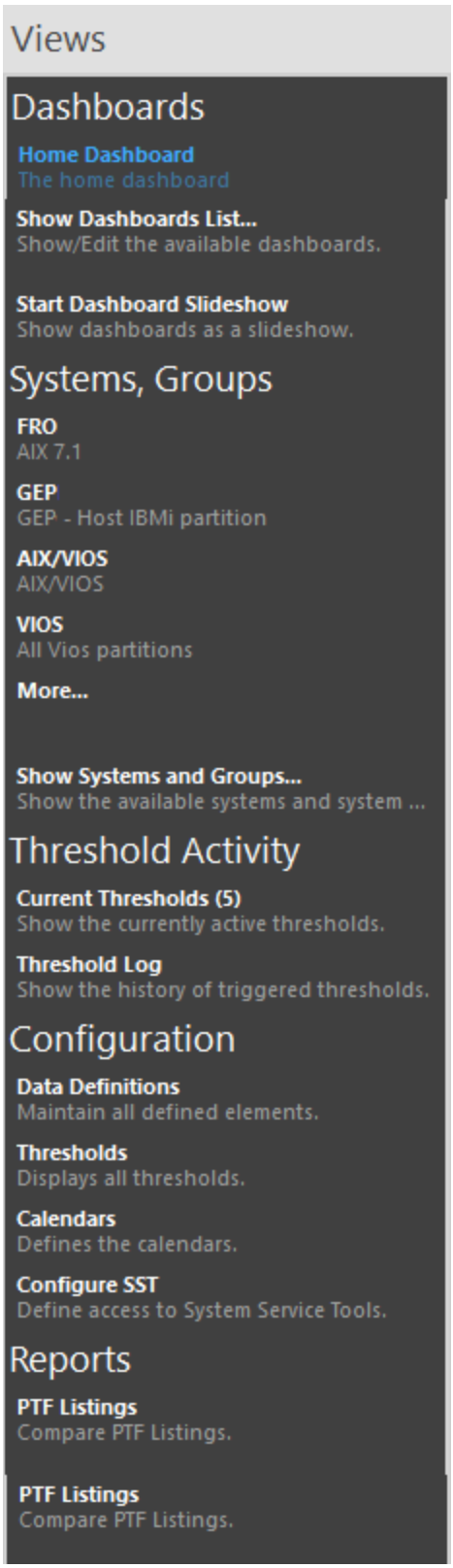
    The following two options are available only when speech is enabled.
    c. Select **Use full system description** to use the long description from the system record to identify the system when speaking. Otherwise, the eight character system name is used.
    d. Enter a value for **Speak when severity >=** to control which threshold records are passed to the speech engine. The records at the specified severity or greater are selected for speech.
4. Under Speech Engine:
    a. Select either **SAP14** or **SAP15**. Then, select an engine from the drop-down list.

    b. Adjust the **Rate** at which alarm conditions are highlighted by using the slider. The range is from slow on the left to fast on the right.
    c. Adjust the **Volume** for the text-to-speech engine by using the slider. The range is from quiet on the left to loud on the right.

The Views Menu

The following menu is displayed on the left side of the Robot Monitor GUI. Use this menu to navigate Robot Monitor's dashboards, systems, thresholds, and more.



From the Views Menu, you can access the following sections of Robot Monitor:

Dashboards

Option	Description
Home Dashboard	Displays the default dashboard that you see after logging on to Robot Monitor.
Show Dashboards List	Allows you to view and edit all available dashboards in Robot Monitor.

NOTE: Depending on the amount of dashboards you have created, you may see an option for **More...** in the Views Menu. Click this to expand the list of dashboards.

Systems, Groups

The most recently used systems and groups show up here.

You can also click Show Systems List to view the Systems and Groups screen. This allows you to sort through and access all the systems and groups you have configured in Robot Monitor.

NOTE: Depending on the amount of systems and groups you have, you may see an option for **More...** in the Views Menu. Click this to expand the Systems and Groups list.

Threshold Activity

Option	Description
Current Thresholds	Displays all currently active thresholds and allows you to acknowledge them or print them right from the list.
Threshold Log	Displays a history of triggered thresholds. You can print the history log or save it to a file.

Configuration

Option	Description
Data Definitions	Allows you to see the data elements that are currently being collected within the Robot Monitor environment.
Thresholds	Displays the threshold view, which shows the thresholds that have been globally defined, as well as those that have been defined locally.
Calendars	Allows you to maintain the calendars that are to be used when creating threshold selectors.

Option	Description
Configure SST	Allows you to configure SST Access for Robot Monitor.

Reports

From the Reports section, you can access the PTF Listings, which allows you to compare PTFs you have applied to different systems.

Data

The following pages describe the online and offline data, configurable elements, and environmental data found in Robot Monitor.

Online and Offline Data

Online data

Online data is collected and displayed in real time. The types of data collected are divided into two main categories: Built-in Elements and Configurable Elements.

Offline data

Offline data is collected daily and can only be viewed historically. Robot Monitor collects information on disk usage and job accounting information, then stores a summary of the data in the central machine's database for display and analysis using different system views.

Configurable Elements

In addition to the built-in elements that come with Robot Monitor, you can configure and monitor dozens of data types for a single system, for multiple systems, or for all systems.

Configurable data types include communications performance and status, job performance and status, system performance, and memory performance, among others.

See the section on Data Types for a full list of the configurable elements available in Robot Monitor.

Exceptional Jobs

Each time Robot Monitor collect a detailed sample, it also collect a list of exceptional jobs. Exceptional jobs are jobs that a) use the most of a particular resource or b) experience the worst performance.

The types of exceptional jobs collected are as follows:

Response Time

The high response time list shows interactive jobs experiencing the worst performance on the system. This can be useful in determining whether high average response time is due to a single job performing unusual activity, or whether a large number of users is experiencing high response time.

CPU Usage

The high CPU usage list shows the jobs using the most CPU in the system. This can be useful in pinpointing jobs using excessive in the amounts of CPU and having a system-wide effect on performance.

Database CPU Usage

The high database CPU usage list shows the jobs using the most database CPU in the system. On systems with limited database CPU capability, this can be useful in pinpointing jobs that consume more than their fair share of database CPU or have an adverse effect on other jobs in the system.

Disk I/O

The high disk I/O usage list shows jobs performing the most disk I/O in the system. There are two principal uses for this list: first, if unusually high disk activity has an adverse effect on system performance, this list can help you determine which job is causing the problem. Second, a runaway jobs that is consuming all auxiliary storage on the system can be very difficult to track down. This list can be used to identify likely candidates when this happens, particularly in conjunction with the high database CPU usage list. A combination of high disk I/O and high database CPU usage usually indicates a job that is writing a large number of records to the database.

Environmental Data

Robot Monitor collects a significant amount of environmental data and brings it together in a single convenient location in the Robot Monitor GUI.

Instead of checking the output for a number of commands, the following views provide a useful summary of vital system information.

The Monitor View

The Box View

The ASP Information View

The PTF Comparison View

General Principles

The following sections discuss some concepts that apply to various aspects of Robot Monitor.

Label Templates

In many places throughout Robot Monitor, you can specify a label template. Label templates are used to determine what text displays to distinguish a particular element or group from other elements or groups.

A template is made up of a combination of text and variables. To indicate the desired data, variables are denoted using an ampersand followed by a letter or a number. For instance, you can specify the label template string *&s &d* to display the system name and element description for each item in a group.

The variables that can be specified for label templates are listed in the section for the panel on which they appear. Templates are hierarchical; if an item does not have a template specified, it inherits one from its parent item.

Scaling

By default, scaling in Robot Monitor adjusts automatically.

The scale is normally stored as part of the element definition and is shared across all systems and groups. However, you can override the scale for a system or enter scale values manually.

Data Types

There are four data types supported by Robot Monitor. The first three—text, integer and floating point—are self explanatory.

Composite data types, however, requires some explanation. They are used for many of the averages in Robot Monitor. Instead of carrying a calculated average figure, they carry the two values used to calculate the average. For Auxiliary Storage, the figure is carried as megabytes used and megabytes available.

When composite data types are displayed, the average calculation is performed. It displays as an ordinary floating point item.

Where the difference becomes significant, however, is when composite figures are combined to produce averages across systems. For instance, suppose we are monitoring CPW percentage used on systems WA and KING. WA is using 150 out of 300 (50%) and KING is using 50 out of 200 (25%). If a multiple system view is used to give the overall CPW usage figure for both systems, the average will be calculated as (150 + 50) / (300 + 200), which gives an average of 40%.

Composite data types are indicated in the detailed descriptions of user defined element types.

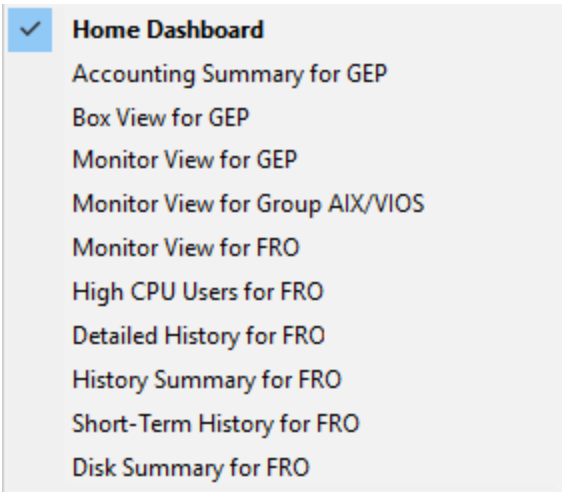
Navigation

You have the option of moving forward and backward through previously viewed Robot Monitor screens.

Actions you can take:

- Click the back button  to move backward one screen from the currently viewed screen.
- Click the forward button  to move forward one screen form the currently viewed screen.

- Click the small down arrow  next to the back and forward buttons to open a panel listing the last ten screens you have viewed. Select the name of the screen from the list you would like to navigate to.

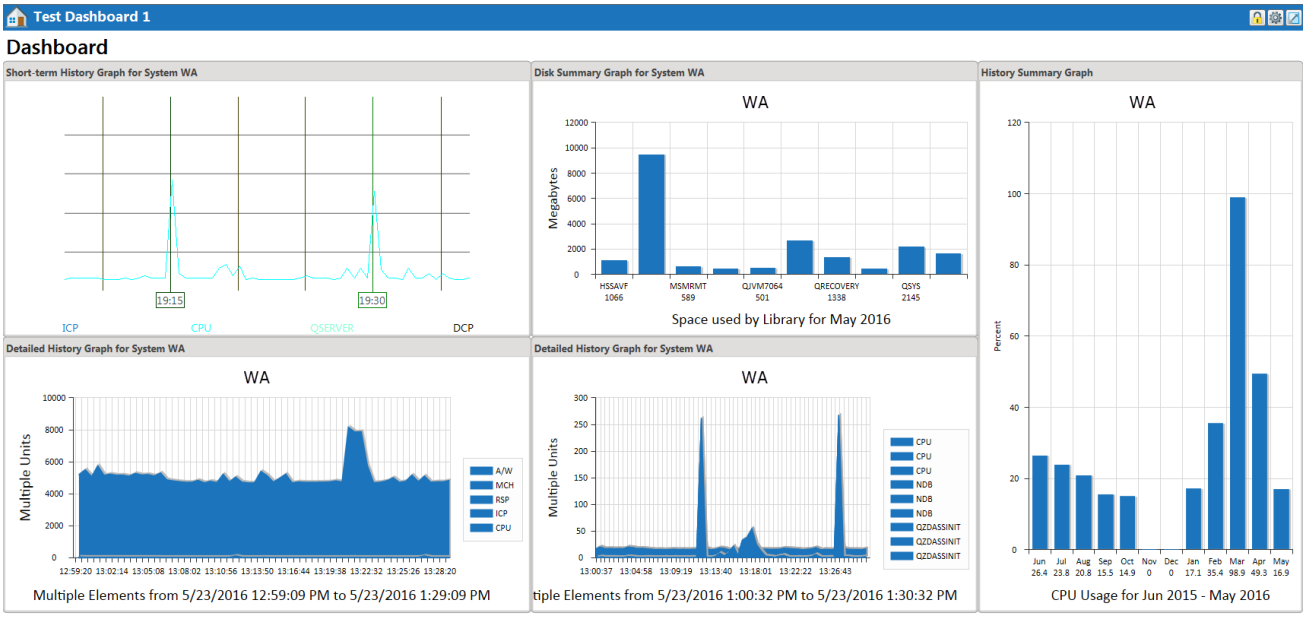


Dashboards Overview

The dashboards display information from the systems that Robot Monitor monitors. Use the dashboards for viewing and analyzing data from across your network all on one screen. You can quickly view your short-term history, your CPU usage, your disk summary, your accounting summary, and more.

You can create more than one dashboard that will show up on the left hand sidebar on your screen. You can use any combination of widgets in the same dashboard and adjust them to whatever length and width you want, including overlapping them as needed.

When you are finished, you can lock your dashboard to keep your widgets from moving.



The Dashboard View

The Dashboard View opens when you select a dashboard from the Dashboards list in the Views sidebar. It displays created widgets, images, and system icons, and allows you to see an overall view of your systems or elements.

A dashboard can be set to default, and the default dashboard will be the first panel to open when the GUI launches.

You can set a dashboard to default when adding a new dashboard or change the default to an existing dashboard by customizing it.

Working with Dashboards

The following sections contain general information about creating and using the Robot Monitor dashboards.

Adding a Dashboard

You can create as many dashboards as you need to. Also, you can change a dashboard's layout and settings any time after adding it.

Use the following steps to add a new dashboard to Robot Monitor:

1. Click **Show Dashboards List** under the Dashboards section on the Robot Monitor sidebar.
2. Click the **Add** button in the upper right hand corner on the Dashboards page.
3. Enter a unique **Dashboard Name** and brief **Description**.

   If you want this to be the default dashboard (the one that opens when the GUI starts), check **Set as Default**.
4. Click **OK** to save the dashboard.

After you create the dashboard, you need to add widgets to it.

Customizing a Dashboard

One easy way to customize your dashboard is to rearrange the widgets on it.

1. Click the dashboard you want to customize.
2. Click the **Lock** button in the upper right hand corner to unlock the widgets on the dashboard.
3. Click anywhere on the widget and drag it where you want it. Depending on the size of the widget, you can overlap widgets on the dashboard or the widget will snap to the widget next to it.
4. If you want to resize the widget, drag the edges of the widget until it is the size you want. Depending on the size, some text may get cut off by other widgets.

For other customizations:

- To change the dashboard name or description, or to set the dashboard as default, click the **Settings** button in the upper right hand corner and select **Properties**.
- Use the **Auto Arrange** button to reorganize and resize the widgets on your dashboard. **Note:** You can undo auto arrange by pressing CTRL+Z on the keyboard.
- If you want to change the overlapping order of the widgets, right-click a widget and use the Z-Order settings to move the widget to the front or back.
- To lock the dashboard (and ensure no accidental changes are made), click the **Lock** button again.
- To delete widgets from a dashboard, see Deleting widgets.

- To size and align widgets on a dashboard, see Sizing and aligning widgets.
- To copy and paste widgets on a dashboard, see Copying and pasting widgets.

Deleting a Dashboard

You can delete any dashboard you have created. However, in order to delete a dashboard, you must ensure it is not set as default. You can do this by checking the **Properties** option under the dashboard's Settings. If it is set as default, you will need to assign another dashboard as the default before you can delete the current one.

Use the following steps to delete a dashboard.

1. Click the dashboard view you want to delete.
2. Click the **Settings** button in the upper right hand corner.
3. Select **Delete This Dashboard**. The dashboard is deleted immediately, so make sure you want to delete the dashboard before completing this step.

Working with Widgets

After you create a dashboard, you need to add widgets to it.

Simple instructions for working with dashboard widgets are included in the following sections.

> **NOTE:** Do you want to change the update interval for the data in your widgets? You can do this by revising the monitoring interval specified in the System Summarization Options panel. See the *Robot Monitor 14 IBM i User Guide* for more details.

Adding Widgets to a Dashboard

You can add as many widgets as you need to your dashboard. For many of the widgets, you can even add more than one of each kind. But, be aware that number of widgets on the page does affect the response time.

1. Click the dashboard view that you want to add widgets to.
2. Click the  button in the upper right hand corner to unlock the dashboard.
3. Click the button.
4. Click the widget you want to add.
5. Customize the widget you added, then click **OK**.

   > **NOTE:** You can right-click a widget and select **Properties** to edit its settings at any time.

6. Adjust the widget to the size and location you would like.
7. When you are finished, click the  button again to secure the dashboard view from further changes.

Deleting Widgets from a Dashboard

You can delete widgets from dashboards that you have created.

1. Click the dashboard view that you want to delete widgets from.
2. Click the Lock button in the upper right hand corner to unlock the dashboard.
3. Select the widget or widgets that you want to delete, then right-click and select **Delete**.

   > **NOTE:** The widget or widgets are deleted immediately, so make sure you want to delete the widget before completing this step. If necessary, you can reverse the deletion by using the keyboard shortcut (CNTL+Z) to undo.

4. When you are finished, click the  button again to secure the dashboard view from further changes.

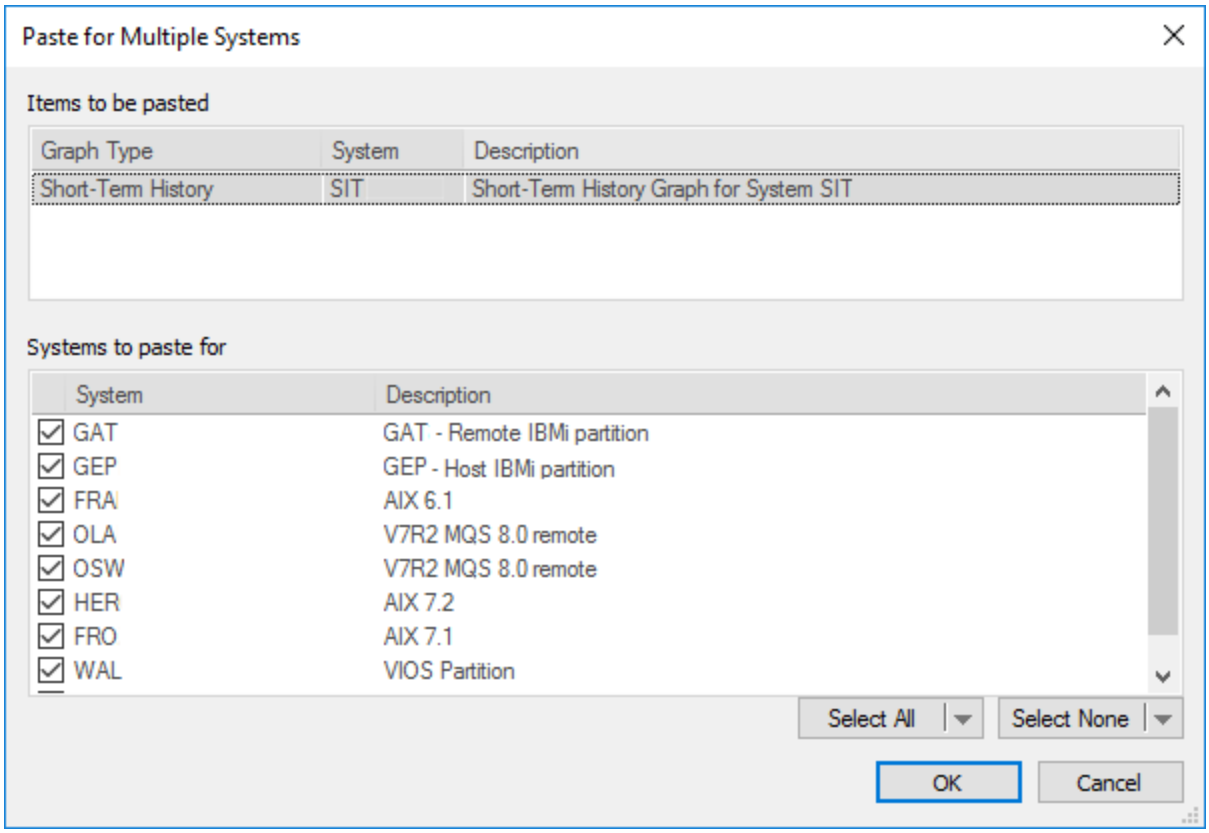
Copying and pasting widgets from a Dashboard

You can copy and paste dashboard widgets. You can also duplicate widgets across different systems using the Paste for Multiple Systems command.

1. Click the dashboard view that you want to copy widgets from.
2. Click the Lock button in the upper right hand corner to unlock the dashboard.
3. Select the widget or widgets that you want to copy, then right-click and select **Edit** > **Copy**.
4. Right-click the dashboard you want to copy to and select **Edit** > **Paste**.
5. When you are finished, click the  button again to secure the dashboard view from further changes.

To duplicate widgets across different systems using the Paste for Multiple Systems command:

1. Click the dashboard view that you want to copy widgets from.
2. Click the Lock button in the upper right hand corner to unlock the dashboard.
3. Select the widget or widgets that you want to copy, then right-click and select **Edit** > **Copy**.
4. Right-click the dashboard you want to copy to and select **Edit** > **Paste for Multiple Systems...**.
5. In the **Paste for Multiple Systems** window, select the widget that you copied, then check all systems that you would like to duplicate that widget for.



6. Click **OK**. The widget or widgets will be duplicated for all selected systems.
7. When you are finished, click the button again to secure the dashboard view from further changes.

Sizing and aligning widgets on a Dashboard

To size your dashboard widgets in comparison with one another:

1. Click the dashboard view.
2. Click the Lock button in the upper right hand corner to unlock the dashboard.
3. Select the widgets that you want to size together, then right-click and select **Size**. Your choices are:
    - Make same width
    - Make same height
    - Make same size
4. Select your desired sizing function. The selected widgets will resize.
5. When you are finished, click the button again to secure the dashboard view from further changes.

To align your dashboard widgets in comparison with one another:

1. Click the dashboard view.
2. Click the Lock button in the upper right hand corner to unlock the dashboard.

3. Select the widgets that you want to align together, then right-click and select **Align**. Your choices are:
   - Align Top
   - Align Bottom
   - Align Left
   - Align Right
   - Align Middles
   - Align Centers
4. Select your desired alignment function. The selected widgets will realign.
5. When you are finished, click the  button again to secure the dashboard view from further changes.

Robot Monitor Dashboard Widget Descriptions

The following are descriptions of each of the available Robot Monitor dashboard widgets.

> **NOTE:** If the definition has been created across a number of partitions and the parameters do not match all partitions, ***NF** (Not Found) might be displayed against some elements on that partition. Review the purpose and contents of the widget you are creating.

Text Dashboard Widget

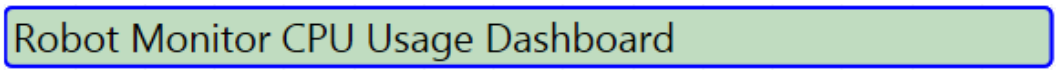
This widget displays any text you want to show up on your dashboard. You can use this widget to organize portions of your dashboard by creating text labels, headings, reminders, and more.

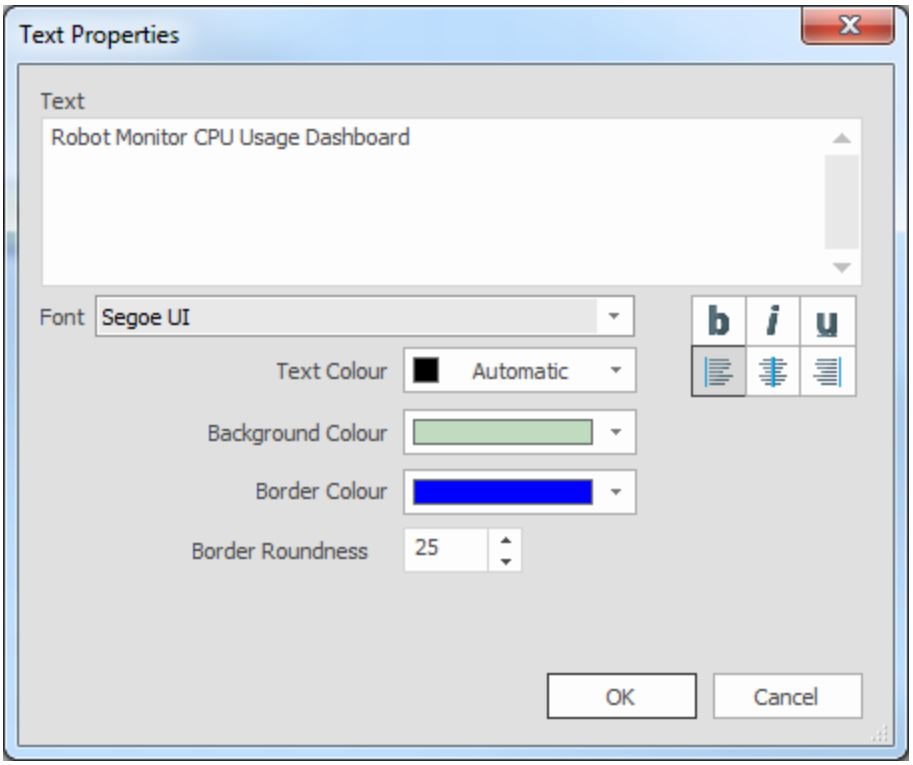
Adding a Text Widget

On the dashboard you want to add the widget to, click the  button in the upper right hand corner to unlock for editing. Then click the  button in the upper right hand corner and select **Text** from the **Static Elements** drop-down list.

Things You Can Do

- You can customize the text to look however you want it to.
  In the below example, a blue border and green background was added to bold text to make it stand out amongst the other widgets. You can also change the text's font type and alignment.



- Click and drag the corners of the widget to change its size and shape.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Image Dashboard Widget

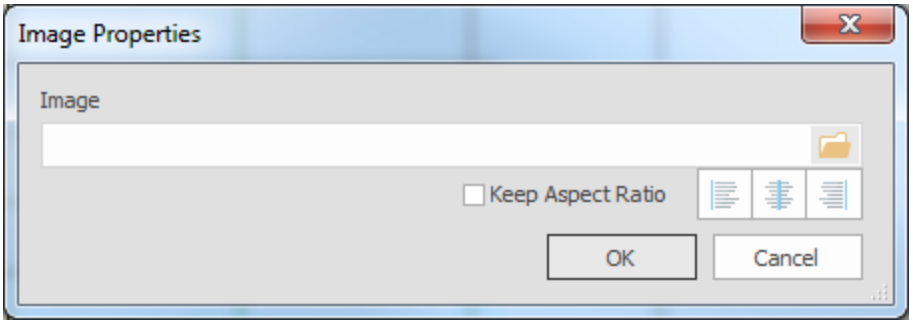
This widget displays any image you want to show up on your dashboard.

Adding an Image Widget

On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Image** from the **Static Elements** drop-down list.

Things You Can Do

- You can choose which image you want to display on your dashboard.



- To keep the image proportional when resizing it on the dashboard, check **Keep Aspect Ratio**. You can also change the image's alignment.
- Click and drag the corners of the widget to change its size and shape.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Threshold Summary Icon Dashboard Widget

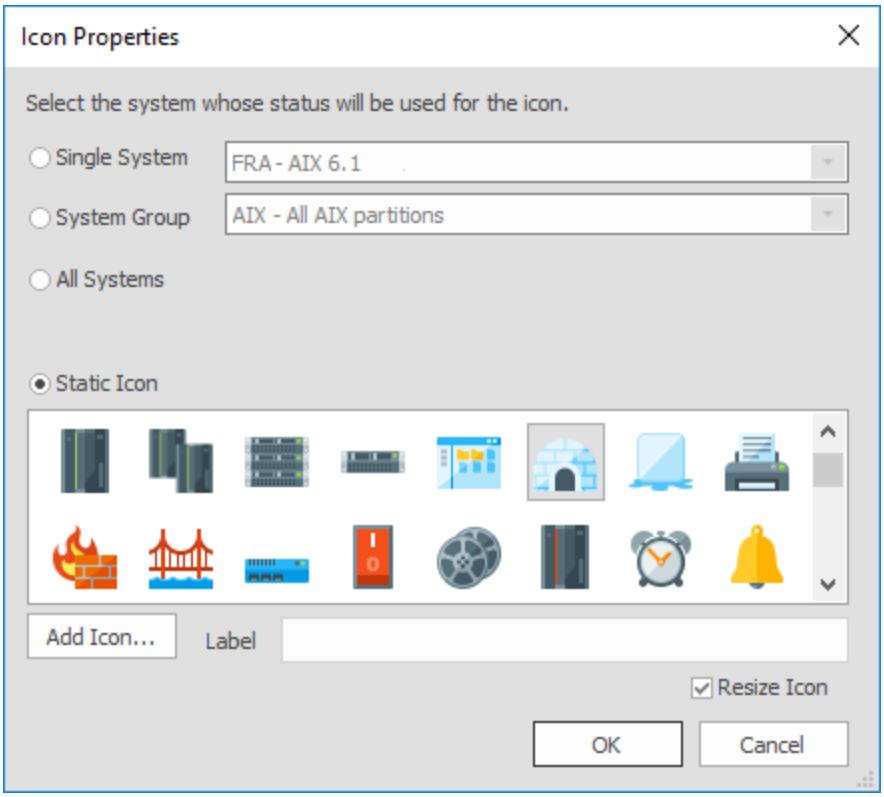
This widget displays any icon you want to show up on your dashboard. The icon provides a summary view of a system and can be arranged to show an overview of a network.

Adding a Threshold Summary Icon Widget

On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Threshold Summary Icon** from the **Live Elements** drop-down list.

Things You Can Do

- You can choose to display the status icon for a specific system on your dashboard.
  The icon allows you to see, at a glance, the status of a particular system. **Note:** If you choose a specific system, the system name will show below the status icon.



- You can also choose a static icon by selecting the desired icon from the list of preexisting icons.

  To add personalized text to a static icon, type the text you want to display in the **Label** field.

  An example of a customized icon

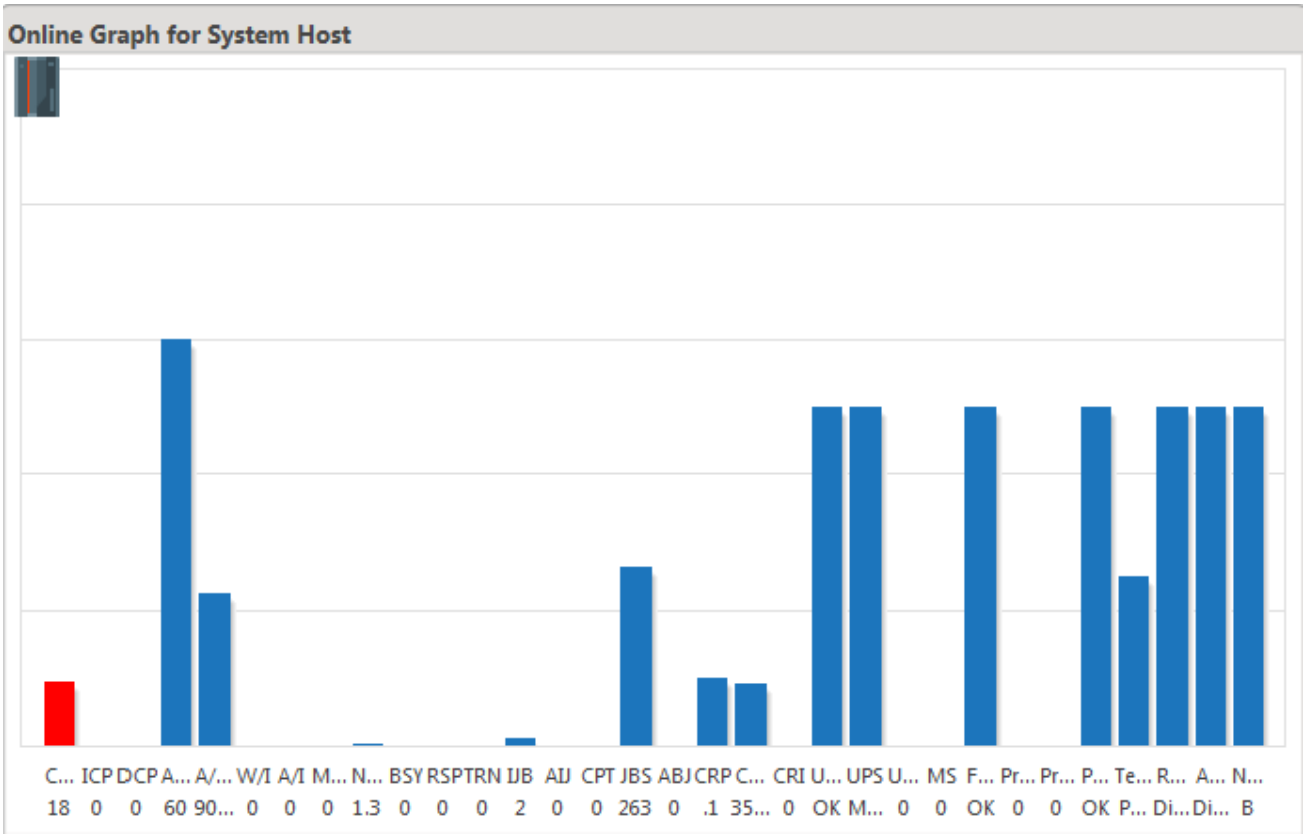
  

  This icon is a customized, static icon. it is not tied to a specific system and will not change. Though it does not give a system summary, the static icon is useful in showing where systems are located on a world map. For example, you can impose a static icon over an image of the United States and assign a short description to it.
- To add a customized icon to the icon list, click **Add Icon** and choose the icon file from your computer.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.
- You can resize the icon by selecting the **Resize Icon** checkbox on the **Icon Properties** window (right-click and select **Properties**) and dragging the icon selection handles to the desired size on the dashboard.
- When the dashboard is locked, double-click the icon to display the Monitor view for the selected system and data. **Note:** This does not work for static icons.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Monitor Graph Dashboard Widget

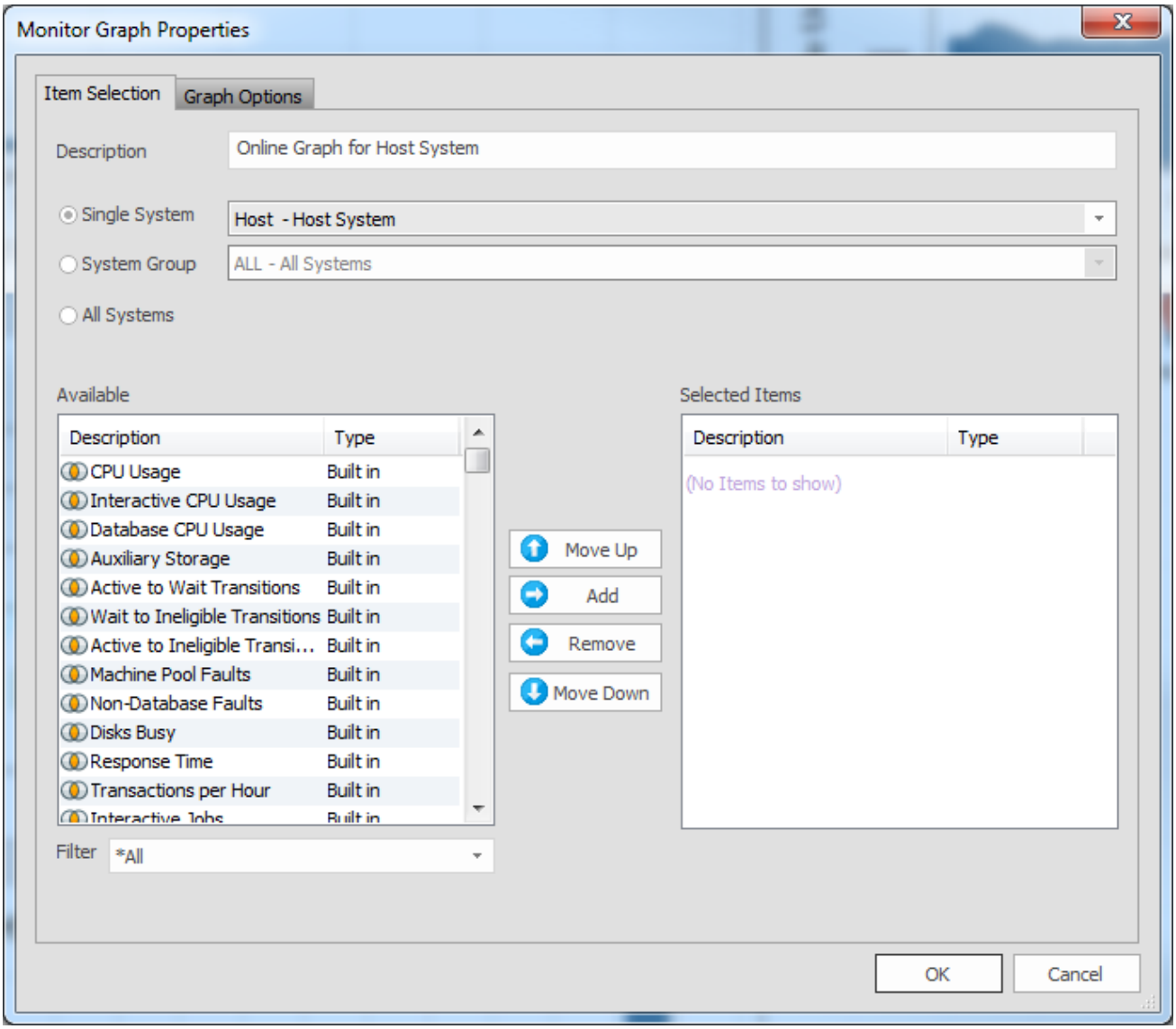
This widget displays real-time data for the systems you want to display on your dashboard.



Adding a Monitor Graph Widget

Use the following steps to set up a monitor graph for your dashboard:

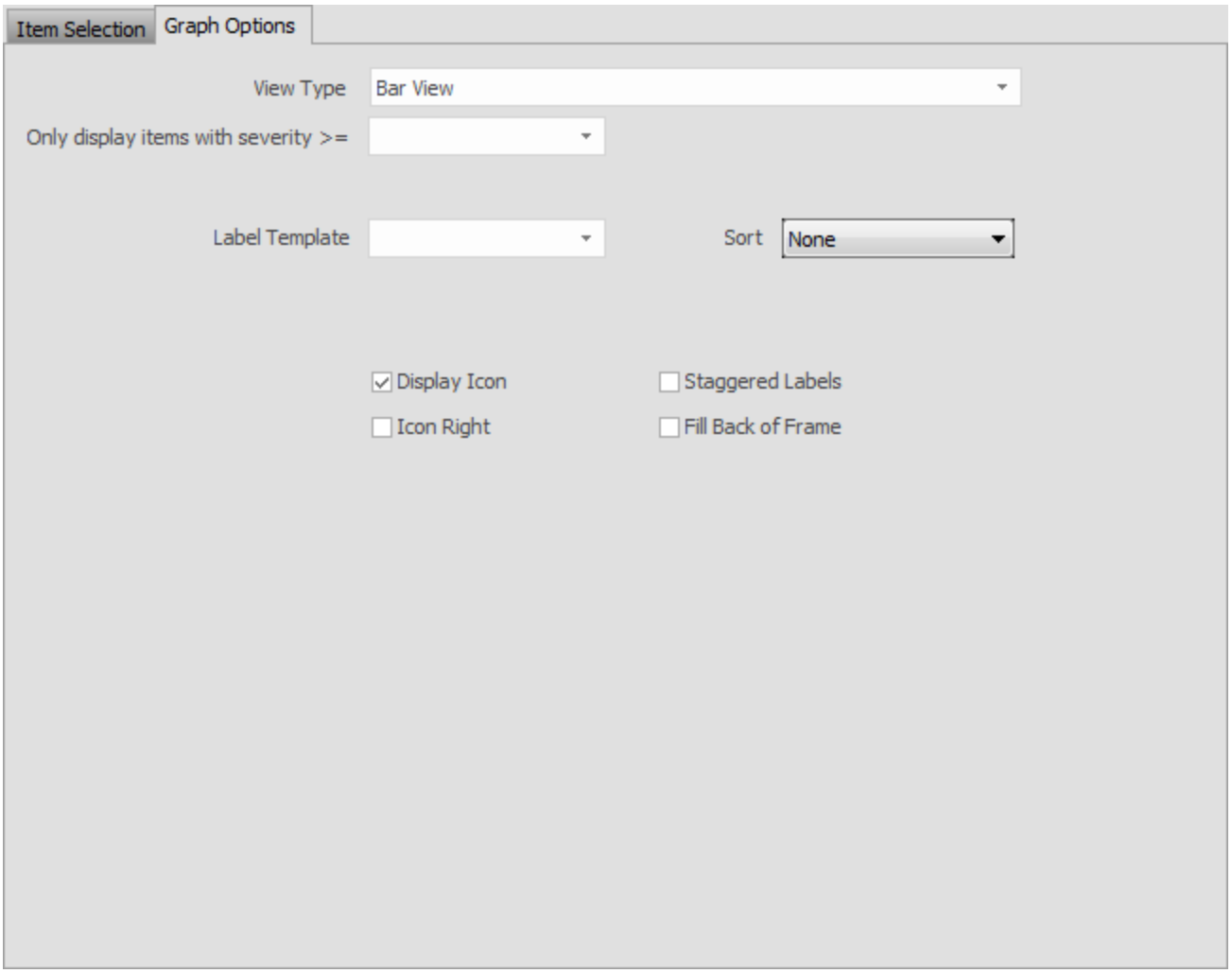
1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Monitor Graph** from the **Live Elements** drop-down list.
   On the Item Selection tab:



2. Type a short name for the widget in the **Description** field.
3. Choose whether you want the graph to be for a Single System, a System Group, or All Systems.
4. Add data items to the graph from the **Available Items** list. You can filter the list by type using the **Filter** drop-down list.

> **NOTE:** The more items you add to the graph, the longer it takes to load. We recommend using multiple monitor graph widgets on your dashboard to break up the items you wish to view.

On the Graph Options tab:



5. Choose whether you want the data to display in a **Bar View** or a **Text View**.
   Text View Only: If you choose the Text View, you have the following options:
   - **Presentation:** Choose whether you want text to show up in a block, bar, histogram, or line.
   - **Rows/Columns:** Choose how many rows and columns you want in your graph. The maximum for each is 20.
   - **Exterior Label:** Select which template string combination you want displayed to the left of the monitored data. An exterior label is used to determine what text will be displayed to distinguish a particular element or group. You can choose any of the following template string combinations:

Template String	Description
&d	A short description of the element or group

Template String	Description
&d &t	A short description of element or group and short description from the threshold
&d &v	A short description of element or group and value (raw data)
&p	All the parameters from the data collection definition
&s	A short system name
&s &d &v	A short system name, short description of element or group, and value (raw data)
&t	A short description from the threshold

6. Choose **Only display items with severity >=** if you want items on the graph to only display when they are greater than or equal to a particular severity level. You can type the severity level in the field or choose a predefined level from the drop-down list.
7. Select which label template combination you want displayed in the bar view or text view data. A label template is used to determine what text will display to distinguish a particular element or group. You can choose any of the following template string combinations:

Template String	Description
&d	Short description of element or group
&d &t	Short description of element or group and short description from threshold
&d &v	Short description of element or group and value (raw data)
&p	All parameters from the data collection definition
&s	Short system name
&s &d &v	Short system name, short description of element or group, and value (raw data)
&t	Short description from threshold

8. Indicate what type of **Sort** organization you would like displayed in the graph.
9. Check the boxes of the settings you would like to apply to the graph. You can choose to display the system icon, place the icon on the right (the default placement is on the left), shade the background, and stagger the labels.
10. When you are finished, click **OK**. The completed graph will now appear on your dashboard.

Things You Can Do

- Click and drag the corners of the widget to change its size and shape.
  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.
- When the dashboard is locked, you can drill down into the monitor data by double-clicking within the widget. For example, you can display the Memory allocated to Partition short-term history view for the selected system and data by double-clicking on a Current Memory monitor graph widget on your dashboard.
- When the dashboard is locked, you can run selected IBM i commands for applicable elements from the widget. See Running IBM i commands from Monitor widgets for more information.

> **NOTE:** To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Running IBM i Commands from Monitor Widgets

The following section discuss some basic information about which elements support running IBM i commands from Monitor Graph dashboard widgets and describes some of the ways you can run those commands to get a better picture of your data.

Currently, IBM i commands are available from the following elements:

Element	Available Commands
Avg wait time for job queue	Release Job Queue, Hold Job Queue
Channel Status	Start Channel, Ping Channel, End Channel, Reset Channel, Resolve Channel
Controller Status	Vary On, Vary Off, Resume Recovery, End Recovery
Device Status	Vary On, Vary Off, Resume Recovery, End Recovery, Hold Device, Release Device
Line Status	Vary On, Vary Off, Resume Recovery, End Recovery
IP Interface Status	Start TCP Interface, End TCP Interface
Job Queue Active Jobs	Release Job Queue, Hold Job Queue

Element	Available Commands
Job Queue Status	Release Job Queue, Hold Job Queue
Listener Status	Start Listener, End Listener
Max wait time for job queue	Release Job Queue, Hold Job Queue
Network Interface Status	Vary On, Vary Off, Resume Recovery, End Recovery
Number of jobs on queue	Release Job Queue, Hold Job Queue
Output Queue Files	Release Output Queue, Hold Output Queue, Clear Output Queue
Output Queue Status	Release Output Queue, Hold Output Queue, Clear Output Queue
Queue Manager Command Server Status	Start Queue Manager Command Server, End Queue Manager Command Server
Queue Manager Status	Start Queue Manager, End Queue Manager
Server Status	Vary On, Vary Off, Resume Recovery, End Recovery
Subsystem Status	Start Subsystem, End Subsystem (Controlled), End Subsystem (Immediate), End Subsystem (Immediate, no logs)

Using IBM i Commands from a Monitor Widget

You can run IBM i commands from any of the elements listed above. As an example, you can run the Vary On and Vary Off command from a Monitor Widget that is displaying a Controller Status element.

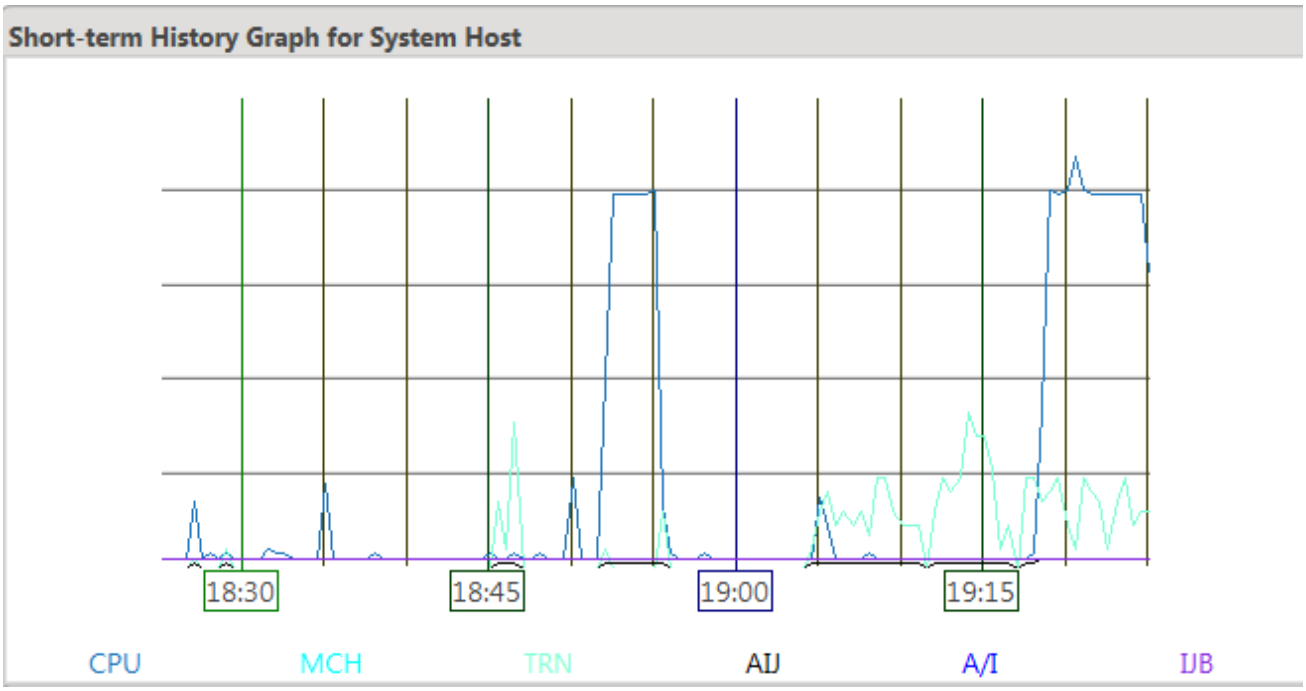
1. On the dashboard of your IBM i partition, create a new Monitor Graph widget that includes a Controller Status element. See Monitor Graph Dashboard Widget for instructions.
2. Lock your dashboard and right-click the graph.

3. Choose **Vary On** or **Vary Off**. A Signon window will open requesting that you enter your IBM i credentials.
4. Enter your user name and password.
5. Click **OK**. If authorized, the command is performed and the controller is varied on (or off).

Short-Term History Graph Dashboard Widget

This widget displays short-term history for the systems you want to display on your dashboard.

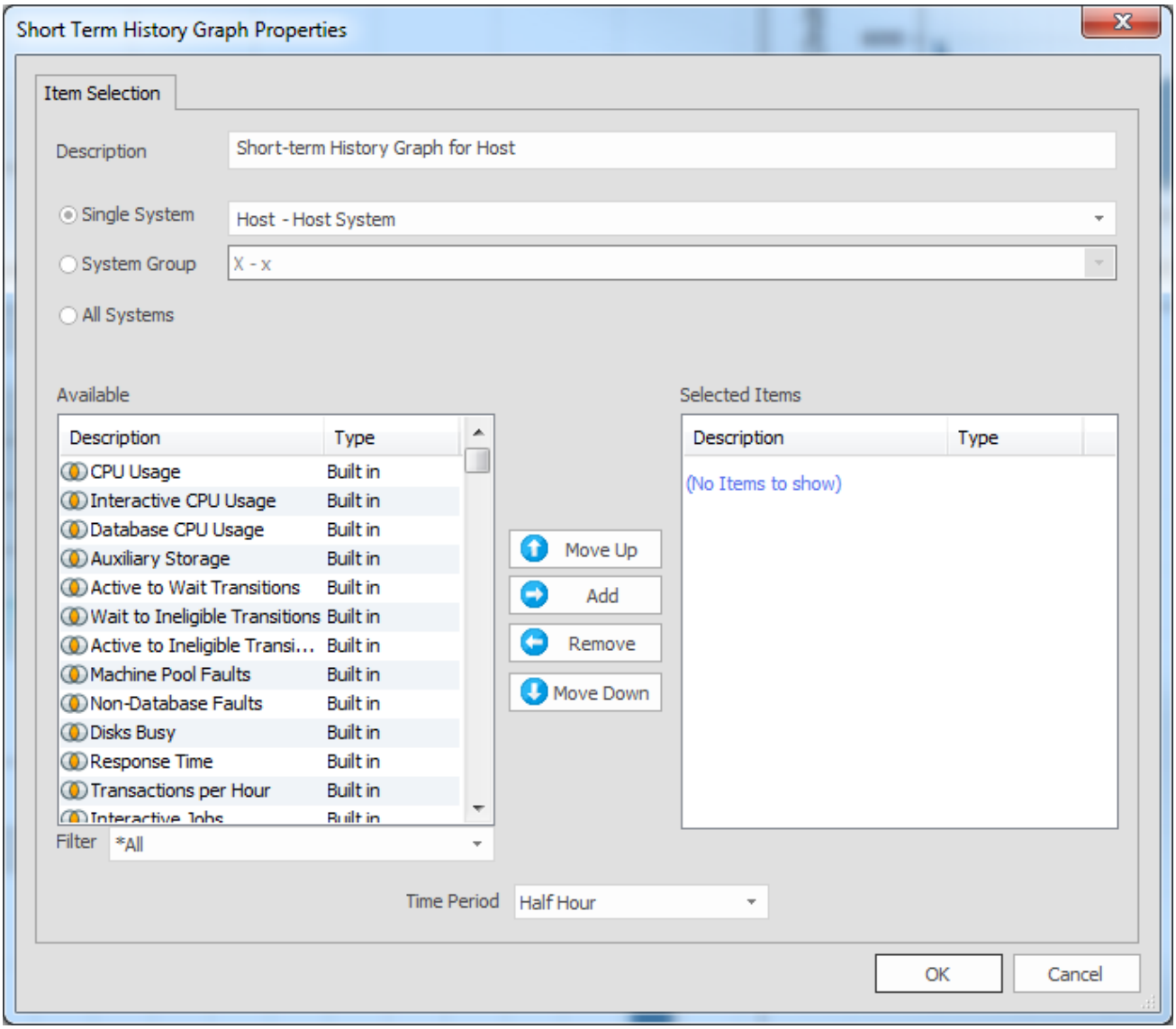
A range of history is shown depending on the time frame you choose (30 minutes to nine hours), and the graph updates in real time as it receives samples from the selected systems.



Adding a Short-Term History Graph Widget

Use the following steps to set up a short-term history graph for your dashboard:

1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Short-Term History Graph** from the **Historical Elements** drop-down list.

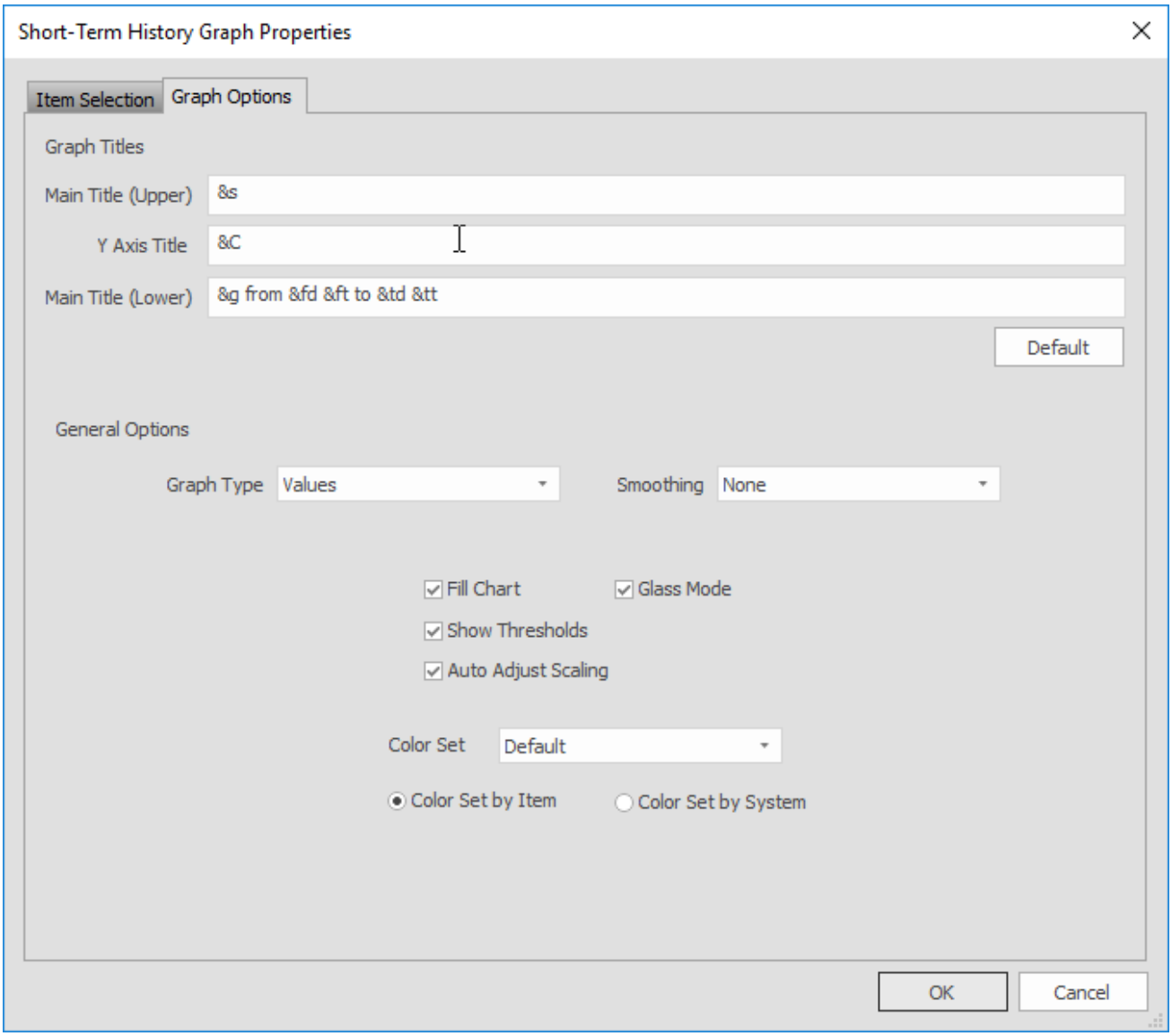


2. Type a short name for the widget in the **Description** field.
3. Choose whether you want the graph to be for a Single System, a System Group, or All Systems.
4. Add data items to the graph from the **Available Items** list. You can filter the list by type using the **Filter** drop-down list.

   > **NOTE:** The more items you add to the graph, the longer it takes to load. We recommend using multiple short-term history widgets on your dashboard to break up the items you wish to view.

5. Select the **Time Period** of the history you want to monitor from the drop-down list. You can choose anywhere between 30 minutes and 9 hours. The default is 30 minutes.

   On the Graph Options tab:



6. Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
7. Select a **Graph Type**.
8. Select a level of **Smoothing** from the drop-down list. The smoothing controls the level of detail in the graph. The more smoothing is selected, the gentler the curve that is drawn. You can choose anywhere between no smoothing and high smoothing.
9. Check the boxes of the settings you would like to apply to the graph. You can choose to fill the graph, have the graph be transparent so you can see the grid (Glass Mode), toggle the thresholds on and off, and auto adjust the graph's scaling.
10. Choose the **Color Set**, which will determine the color of the graph data. The default color is blue. You can also choose to differentiate the graph color by item or system.
11. When you are finished, click OK. The completed graph will now appear on your dashboard.

Things You Can Do

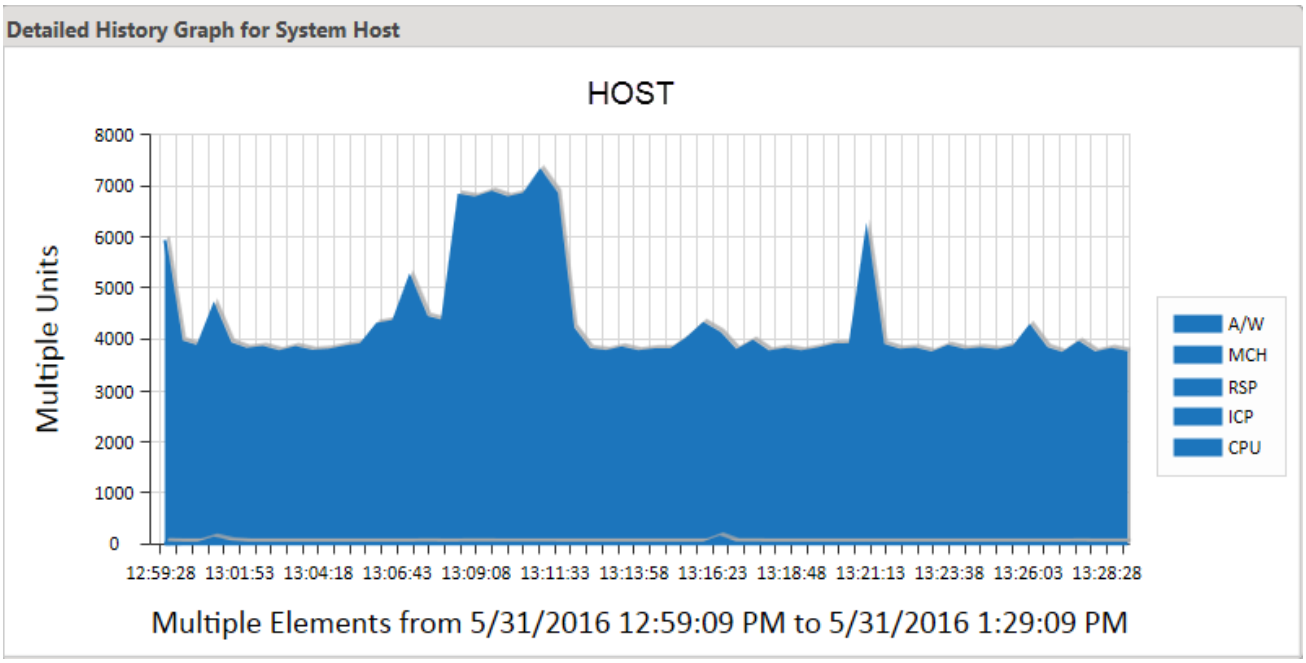
- Click and drag the corners of the widget to change its size and shape.

  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.
- When the dashboard is locked, you can drill-down into the short-term history data by double-clicking within the widget. For example, you can display the Highest CPU Jobs view for the selected system and data by double-clicking on a CPU Usage short-term history graph widget on your dashboard.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Detailed History Graph Dashboard Widget

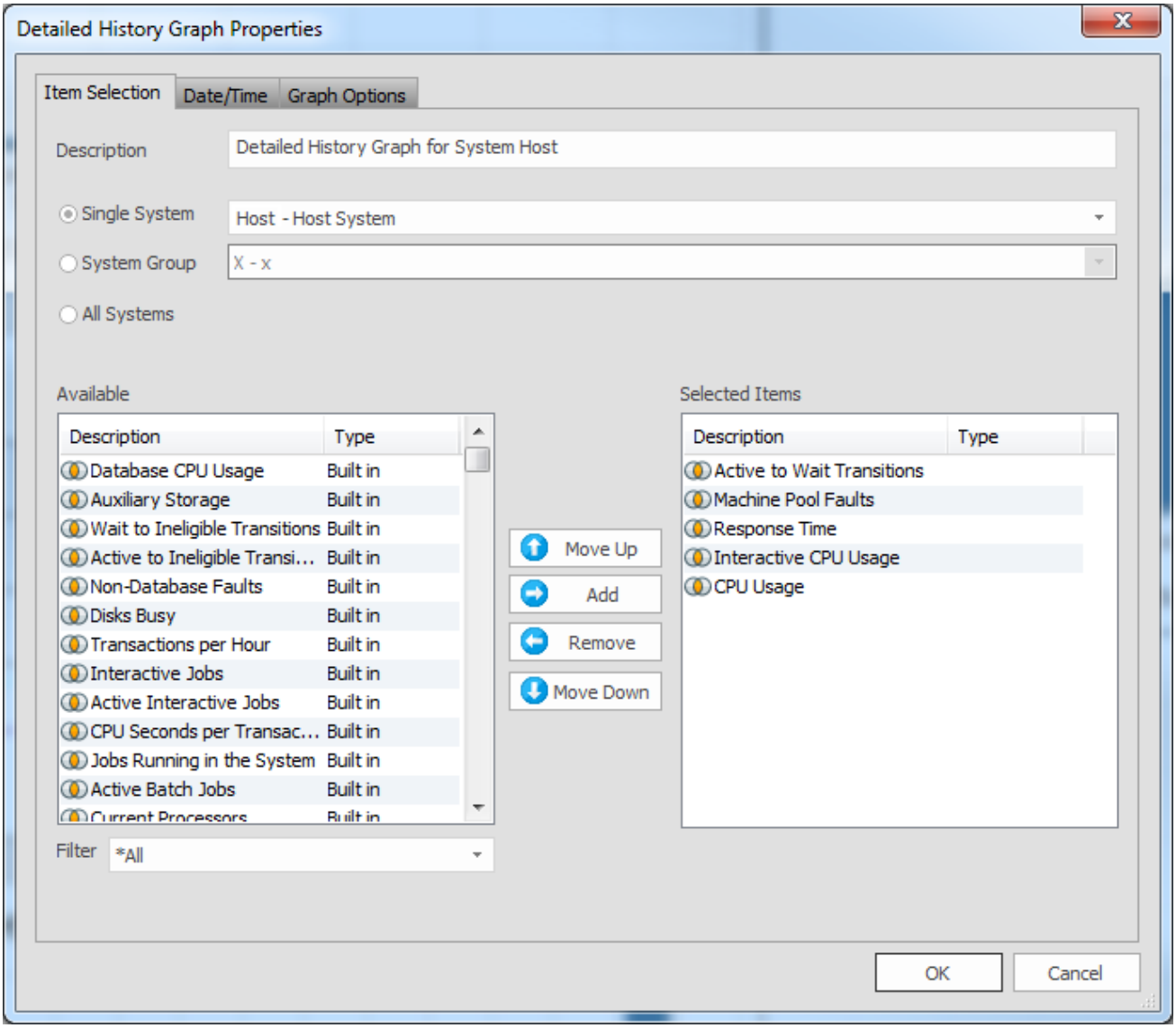
This widget displays line graphs of historical data for the systems you want to display on your dashboard.



Adding a Detailed History Graph Widget

Use the following steps to set up a detailed history graph for your dashboard:

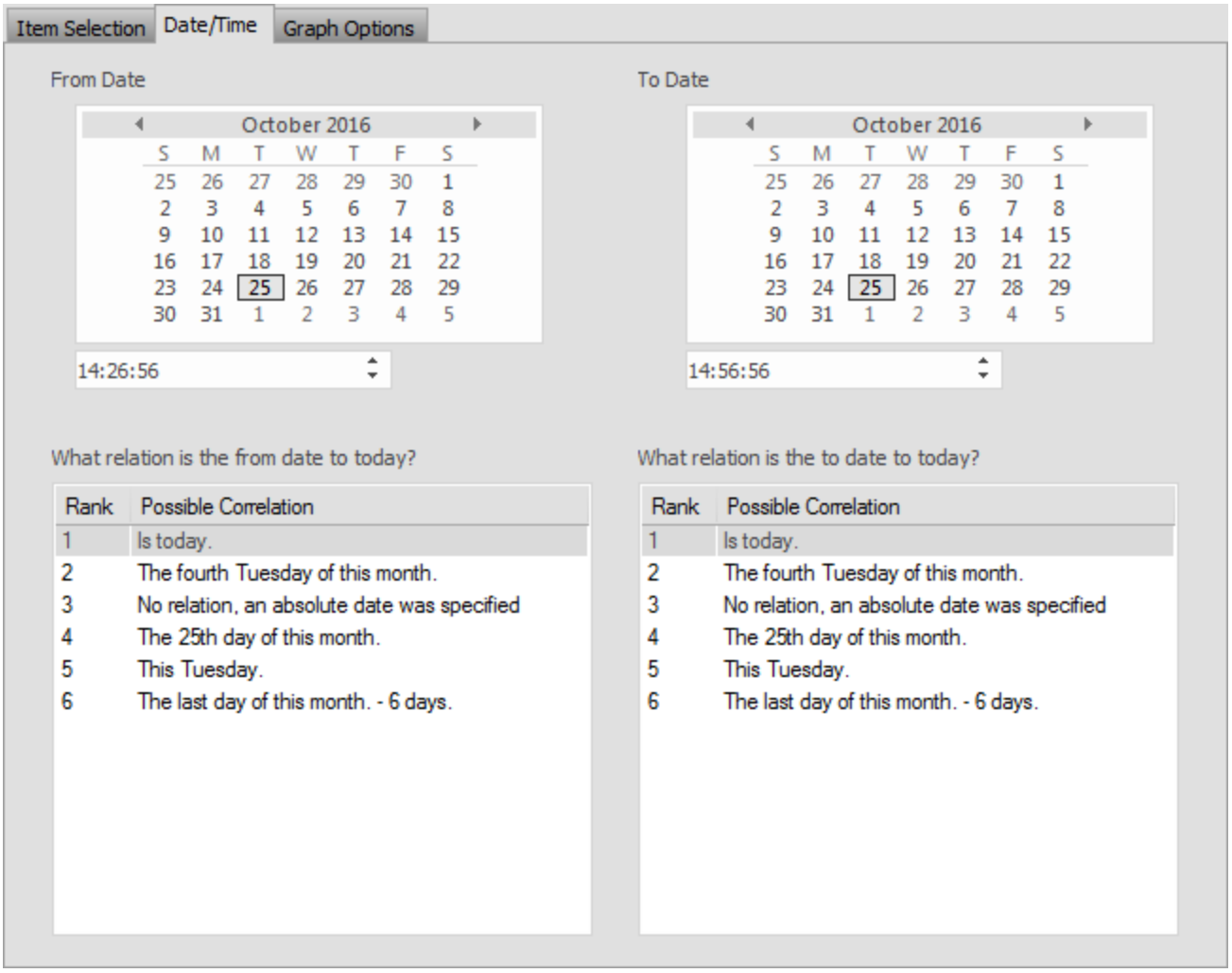
1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Detailed History Graph** from the **Historical Elements** drop-down list.
   On the Item Selection tab:



2. Type a short name for the widget in the **Description** field.
3. Choose whether you want the graph to be for a Single System, a System Group, or All Systems.
4. Add data items to the graph from the **Available Items** list. You can filter the list by type using the **Filter** drop-down list.

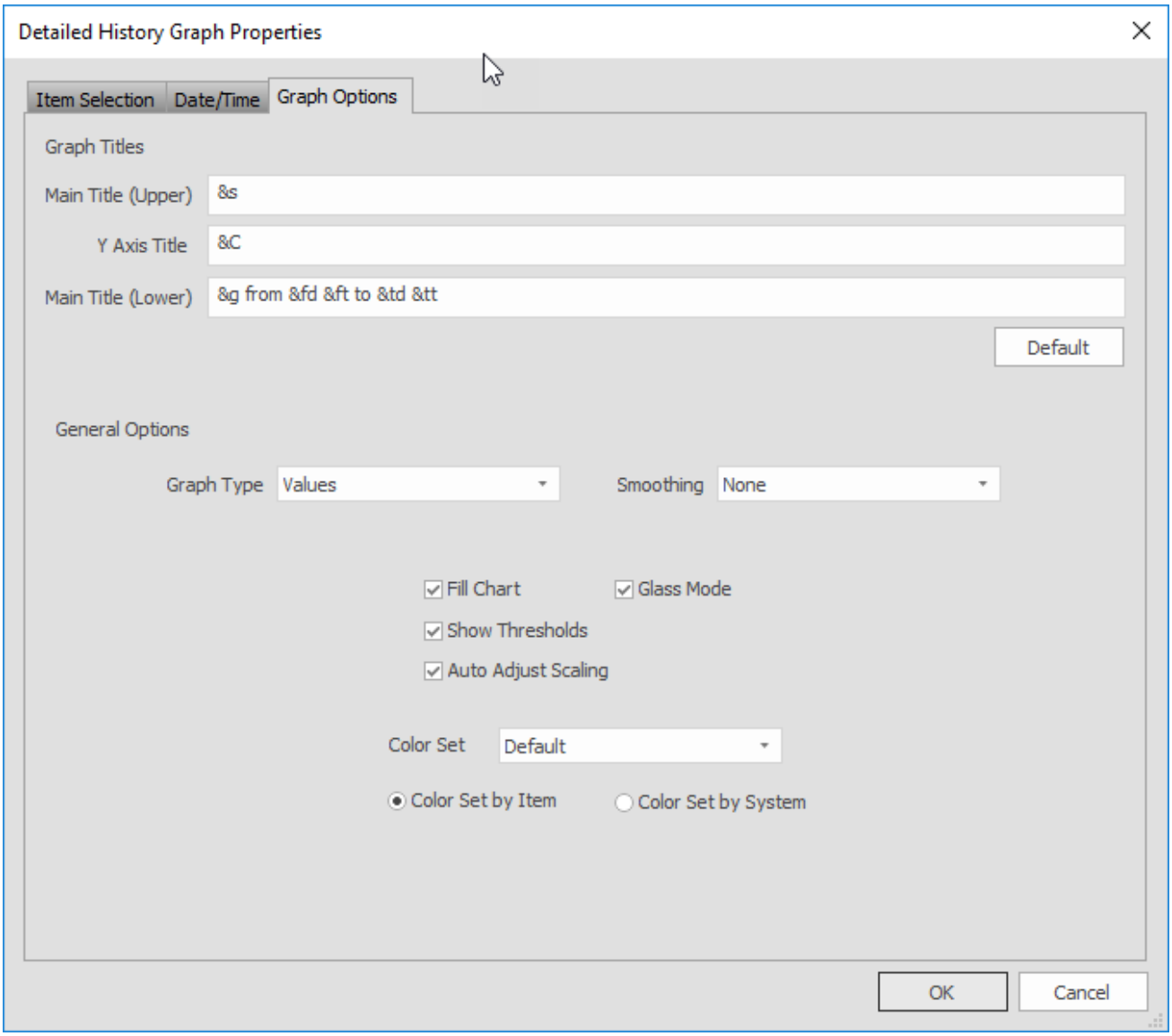
> **NOTE:** The more items you add to the graph, the longer the graph takes to load. We recommend using multiple detailed history widgets on your dashboard to break up the items you wish to view.

On the Date/Time tab:



5. Use the calendars to select the date and time range in which detailed history data should appear in the widget.
6. Select the relationship of the From Date and the To Date to the current date.

On the Graph Options tab:



7. Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
8. Select a **Graph Type**.
9. Select a level of **Smoothing** from the drop-down list. The smoothing controls the level of detail in the graph. The more smoothing is selected, the gentler the curve that is drawn. You can choose anywhere between no smoothing and high smoothing.
10. Check the boxes of the settings you would like to apply to the graph. You can choose to fill the graph, have the graph be transparent so you can see the grid (Glass Mode), toggle the thresholds on and off, and auto adjust the graph's scaling.
11. Choose the **Color Set**, which will determine the color of the graph data. The default color is blue. You can also choose to differentiate the graph color by item or system.
12. When you are finished, click **OK**. The completed graph will now appear on your dashboard.

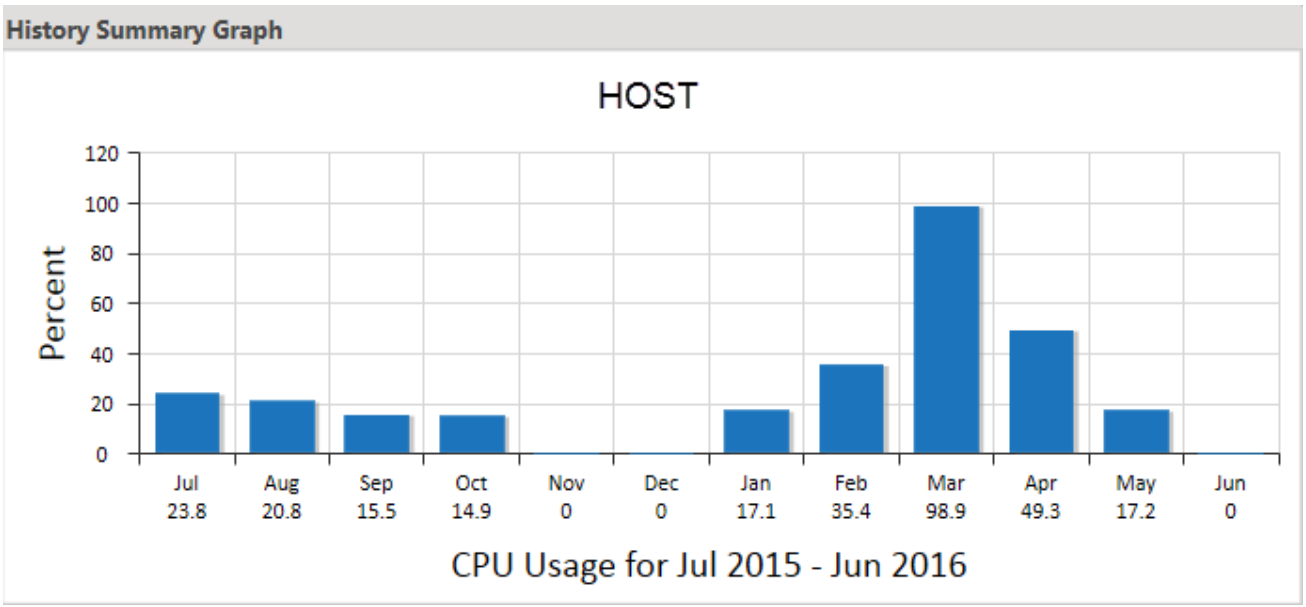
Things You Can Do

- Click and drag the corners of the widget to change its size and shape.
  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.
- When the dashboard is locked, double-click the widget to display the Detailed History view for the selected system and data.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

History Summary Graph Dashboard Widget

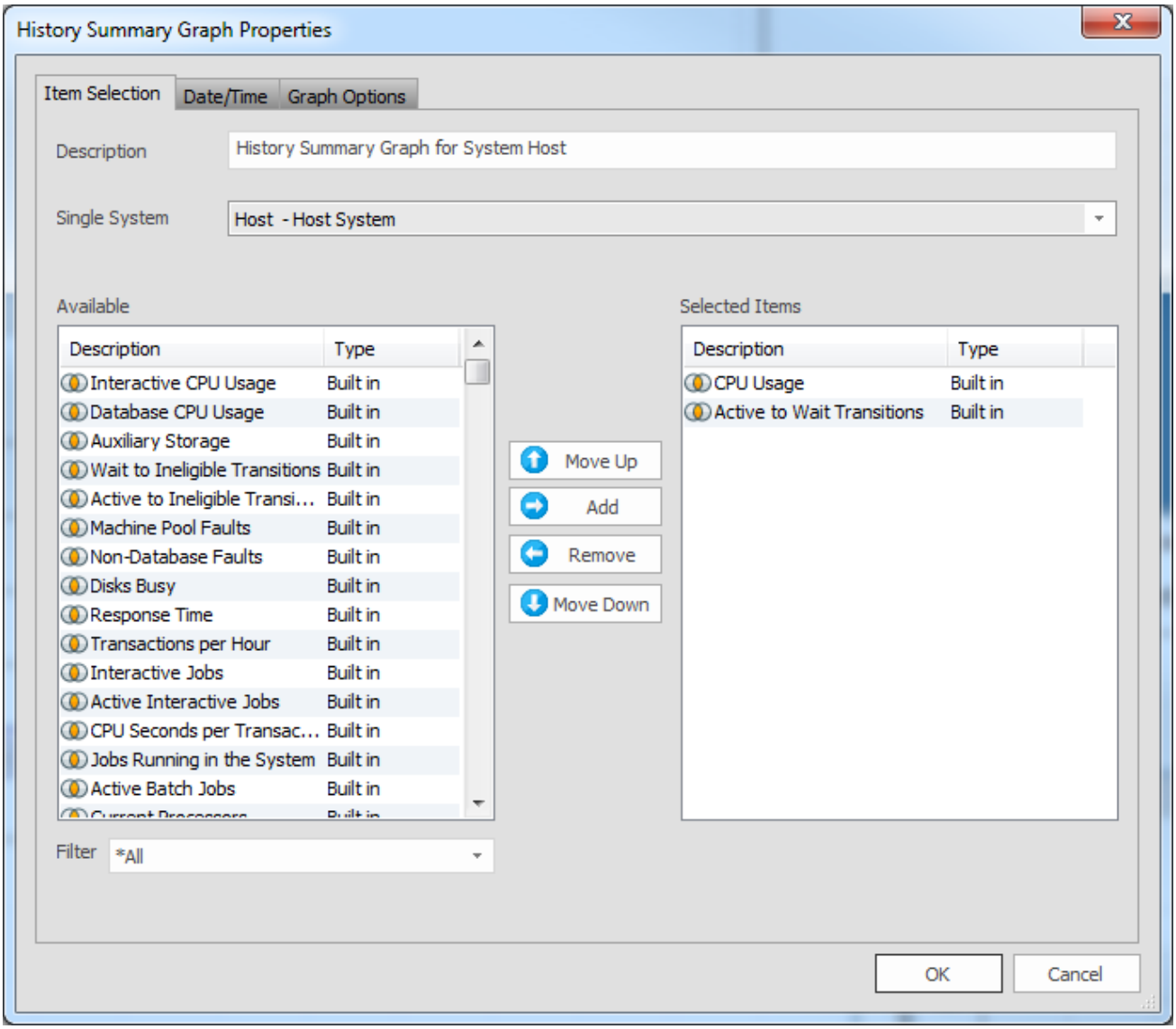
This widget provides a summarized view of performance data for the systems you want to display on your dashboard.



Adding a History Summary Graph Widget

Use the following steps to set up a history summary graph for your dashboard:

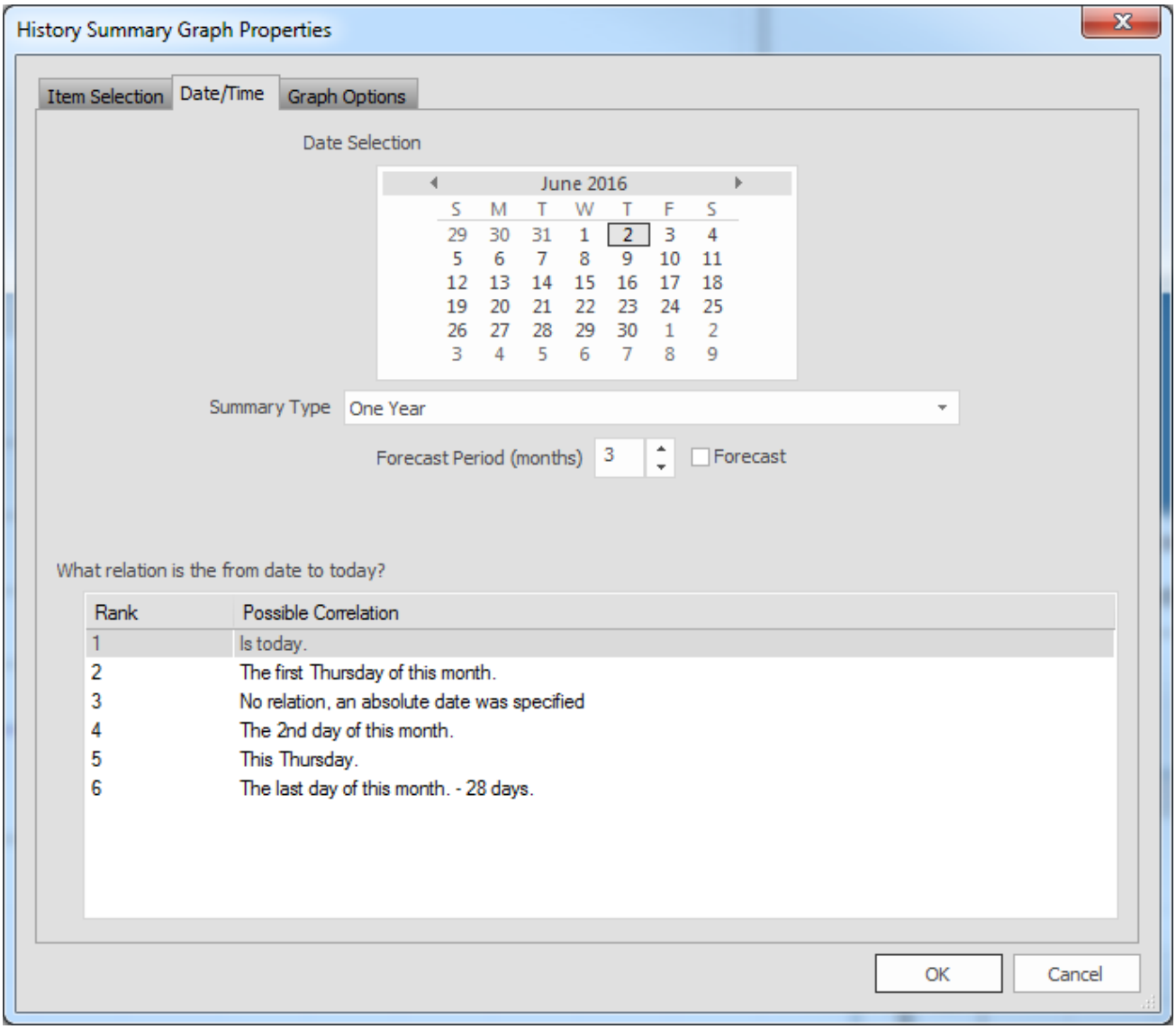
1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **History Summary Graph** from the **Historical Elements** drop-down list.
   On the Item Selection tab:



2. Type a short name for the widget in the **Description** field.
3. Choose a **Single System** to display in the graph.
4. Add data items to the graph from the **Available Items** list. You can filter the list by type using the **Filter** drop-down list.

> **NOTE:** The more items you add to the graph, the longer it takes to load. We recommend using multiple history summary widgets on your dashboard to break up the items you wish to view.

On the Date/Time tab:



5. Select the date you want a summarized view of performance data for, then indicate what type of summary you want displayed in the graph.

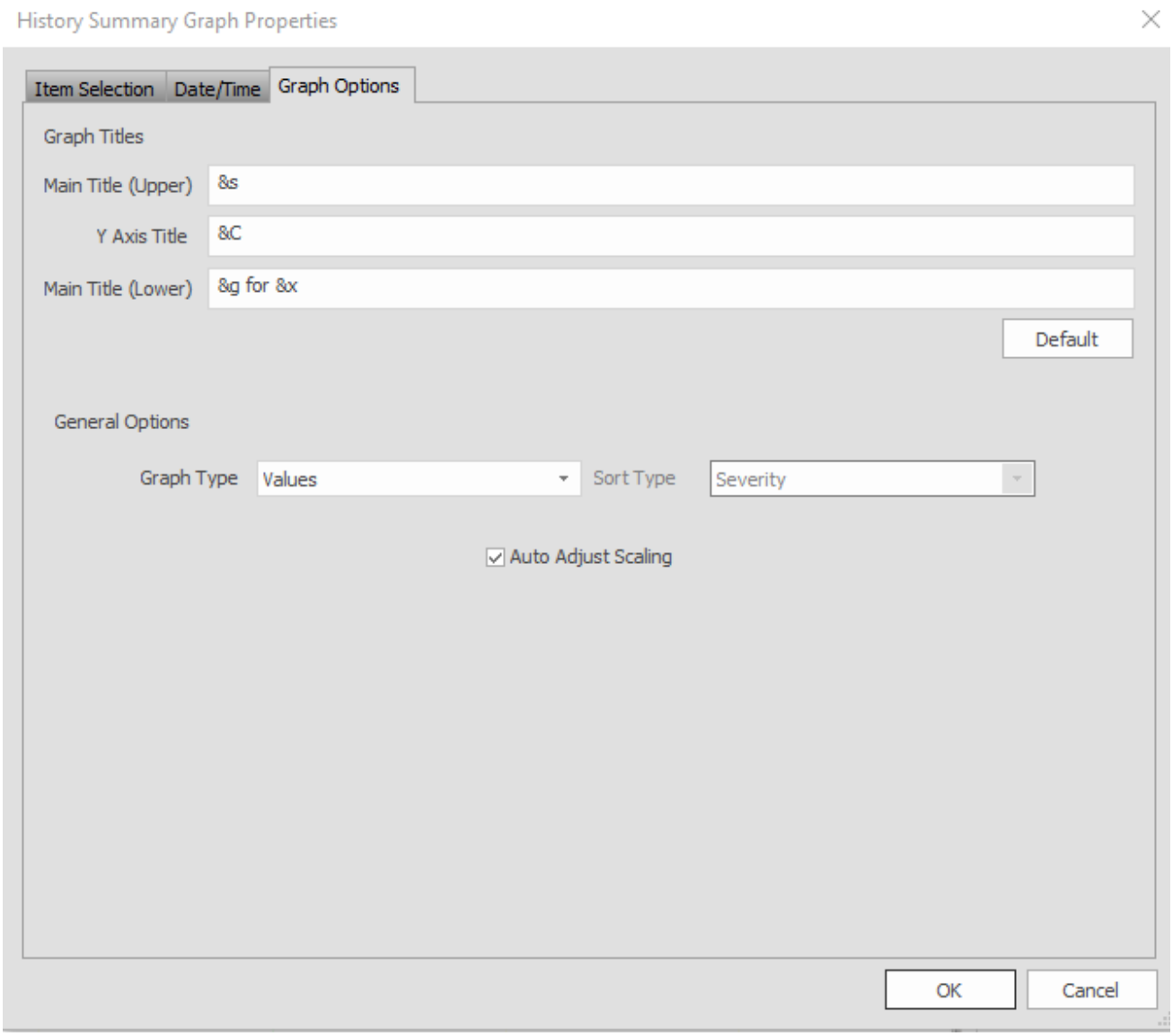
   You can choose one of the following options in the **Summary Type** drop-down list:

Summary Type	Description
One Year	This summary type shows your system's performance data for the previous 12 months. Optionally, if you check **Forecast**, it will also show you a forecast of your system's performance data for up to 24 months.

Summary Type	Description
One Month	This summary type shows your system's performance data for the next month. You can choose to include only certain days of the week in the data summary.
One Month by Hour	This is similar to the One Month summary type, only it shows your system's performance data for the next month by hour instead of day. You can choose to include only certain hours of the day in the data summary, or you can have it include all hours. For example, you could choose for monthly data to be recorded only between the hours of 9 a.m. and 5 p.m.
Month by Element	This summary type shows your system's performance data for the next month by element. If you have more than one element monitored in the widget, all of them will show up on the graph.
One Day	This summary type shows your system's performance data for the next 24 hours. You can choose to include only certain hours of the day in the data summary, or you can have it include all hours. For example, you could choose for the day's data to be recorded only between the hours of 9 a.m. and 5 p.m.
Day by Element	This summary type shows your system's performance data for the next day by element. If you have more than one element monitored in the widget, all of them will show up on the graph.

6. Select the relationship of the date you indicated to the current date.

On the Graph Options tab:



7. Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
8. Select a **Graph Type**. You can choose Values or Translated Values.
9. If you choose Translated Values, you can also choose your sort type. You can sort by severity or values. **Note:** Severity is the default for the Values graph type.
10. Choose whether or not you want the graph's scaling to auto adjust.
11. When you are finished, click **OK**. The completed graph will now appear on your dashboard.

Things You Can Do

- Click and drag the corners of the widget to change its size and shape.

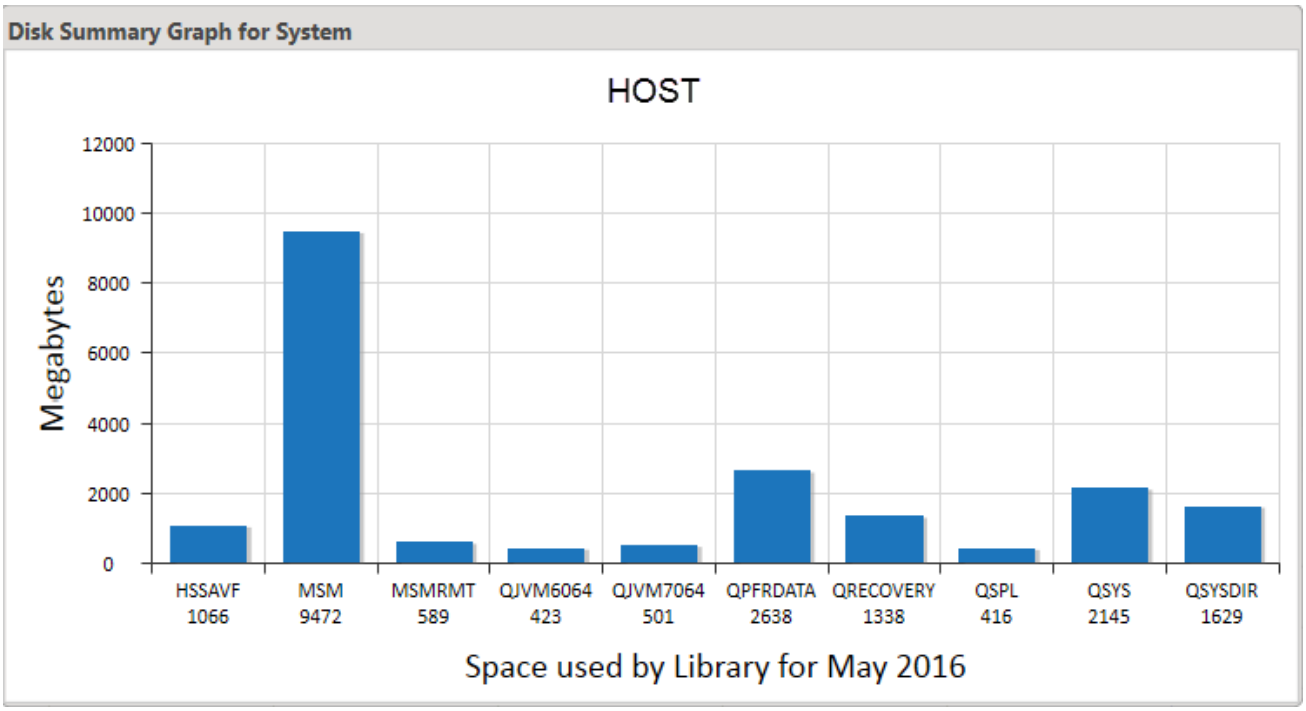
  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.

- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.
- When the dashboard is locked, double-click the widget to display the History Summary view for the selected system and data.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Disk Summary Graph Dashboard Widget

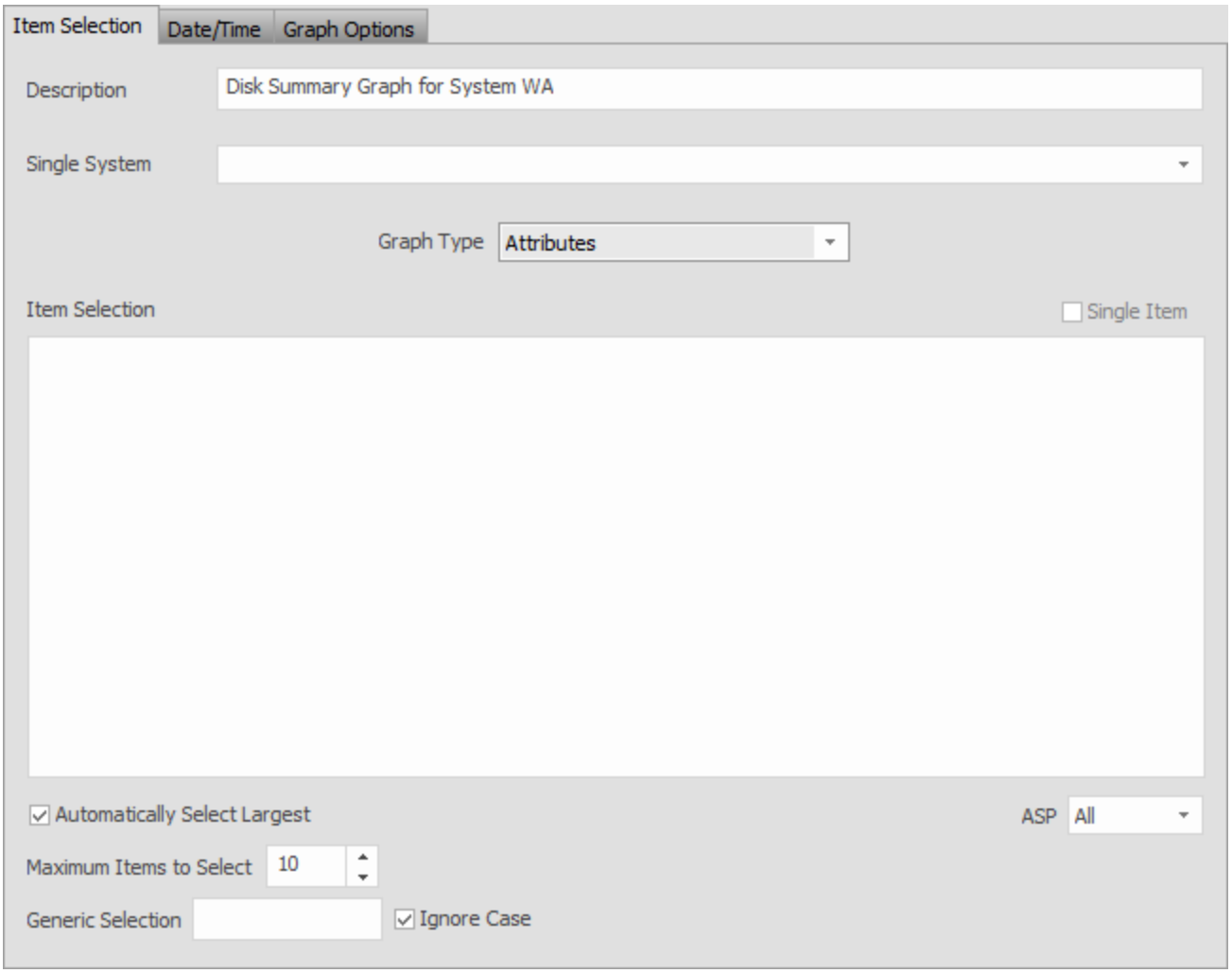
This widget displays summarized disk data for the systems you want to display on your dashboard. Disk data is collected daily and runs according to a schedule set on the central system.



Adding a Disk Summary Graph Widget

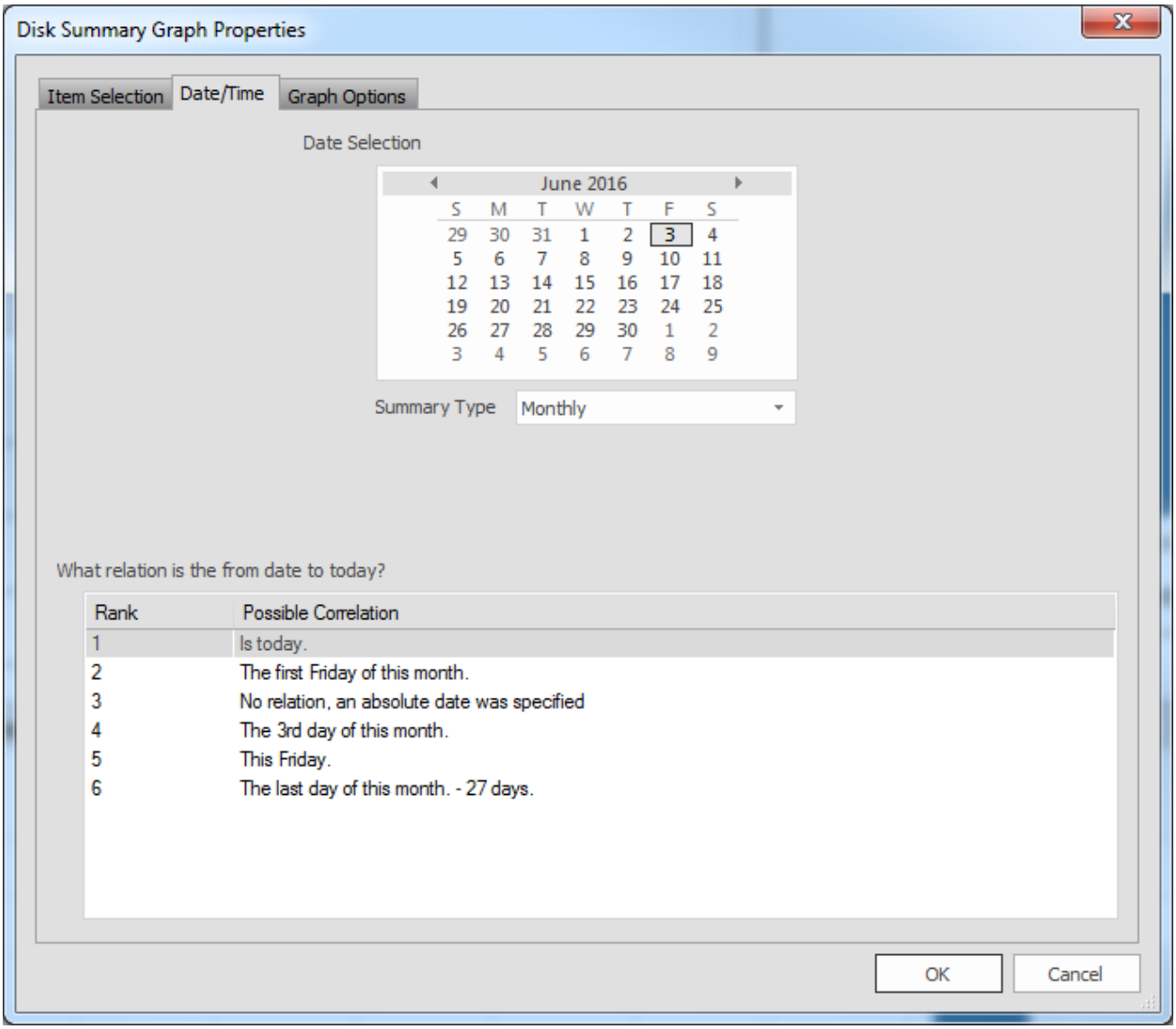
Use the following steps to set up a disk summary graph for your dashboard:

1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Disk Summary Graph** from the **Historical Elements** drop-down list.
   On the Item Selection tab:



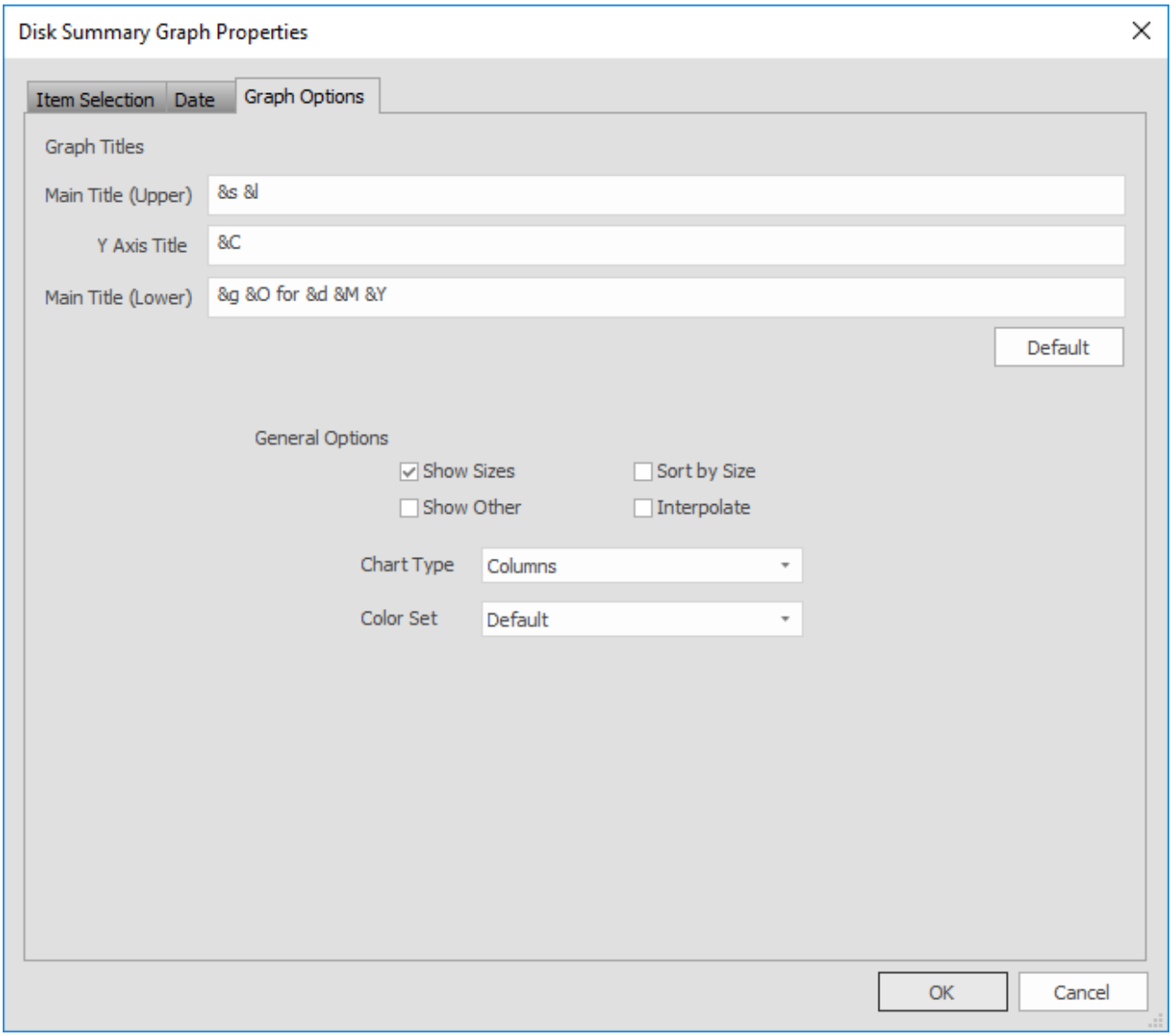
2. Type a short name for the widget in the **Description** field.
3. Choose a **Single System** to display in the graph.
4. Choose a **Graph Type** for the disk summary.
5. Add data items to the graph from the **Item Selection** list.
6. Check **Automatically Select Largest** if you want Robot Monitor to display the largest data classes.
7. In the **Maximum Items to Select** field, specify how many items Robot Monitor should autoselect or select a number from the spinner.
8. Type a **Generic Selection** in the field to select objects. This is a complex version of generics (or wildcards). You can use generics like ABC* (to select all items beginning with ABC) or *CDE* (to select all items that include CDE).
9. Select **Ignore Case** if you want the case of an element name to be ignored when searching. For example, if selected, *abC* will be considered the same as *Abc*.
10. Choose an **ASP** from the drop-down list if you want to limit the data displayed to a particular ASP. **Note:** This is only available for the Daily View summary type when **Single Item** is not selected.

On the Date/Time tab:



11. Select the date you want a summarized view of disk data for, then choose whether you want daily, monthly, or yearly data in your graph.
12. Select the relationship of the date you indicated to the current date.

On the Graph Options tab:



13. Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
14. Select which of the general options you want included in your graph. You can choose to show sizes, sort by size, show other, interpolate, and change the **Chart Type**. You can also choose the **Color Set**, which will determine the color of the graph data. The default color is blue.
15. When you are finished, click **OK**. The completed graph will now appear on your dashboard.

Things You Can Do

- Click and drag the corners of the widget to change its size and shape.

  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.

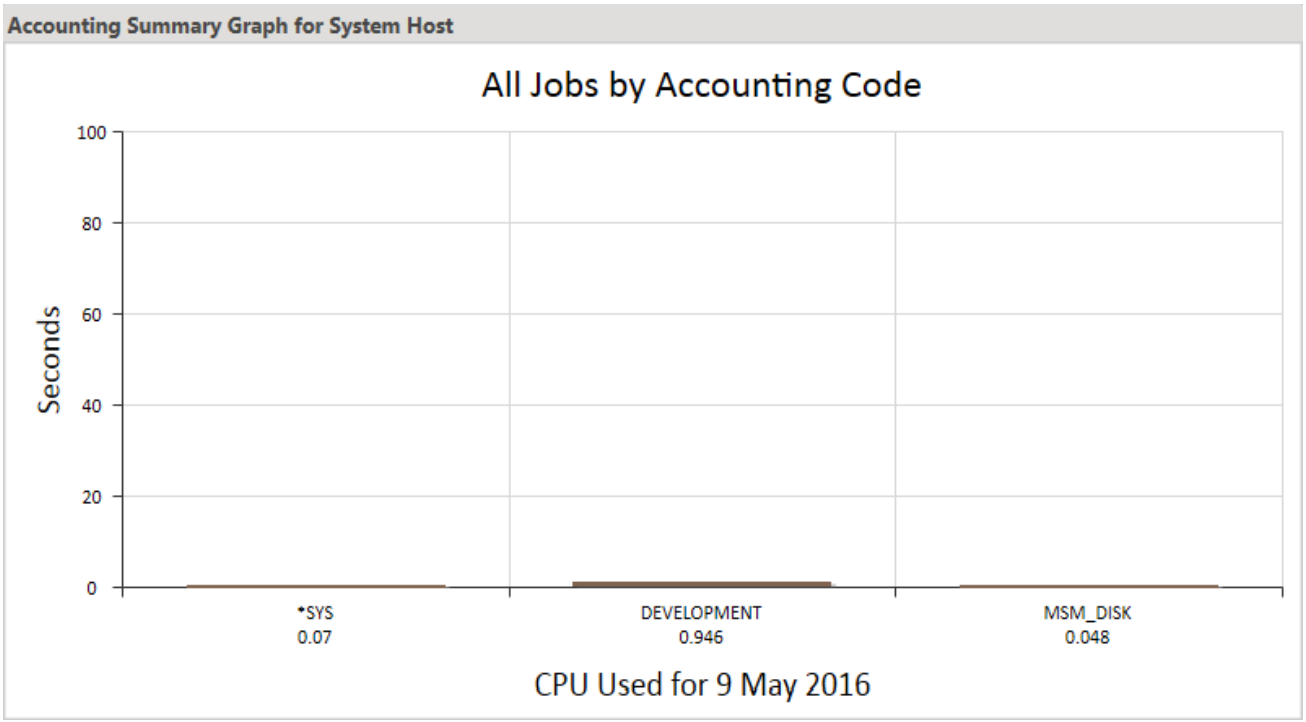
- When the dashboard is locked, double-click the widget to display the Disk Summary view for the selected system and data.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Accounting Summary Graph Dashboard Widget

This widget displays data collected from the host's job accounting system.

Data is collected from remote systems during the disk data collection when job accounting is enabled and the collection function is selected on the central system. For more information, see the Accounting Summary view.

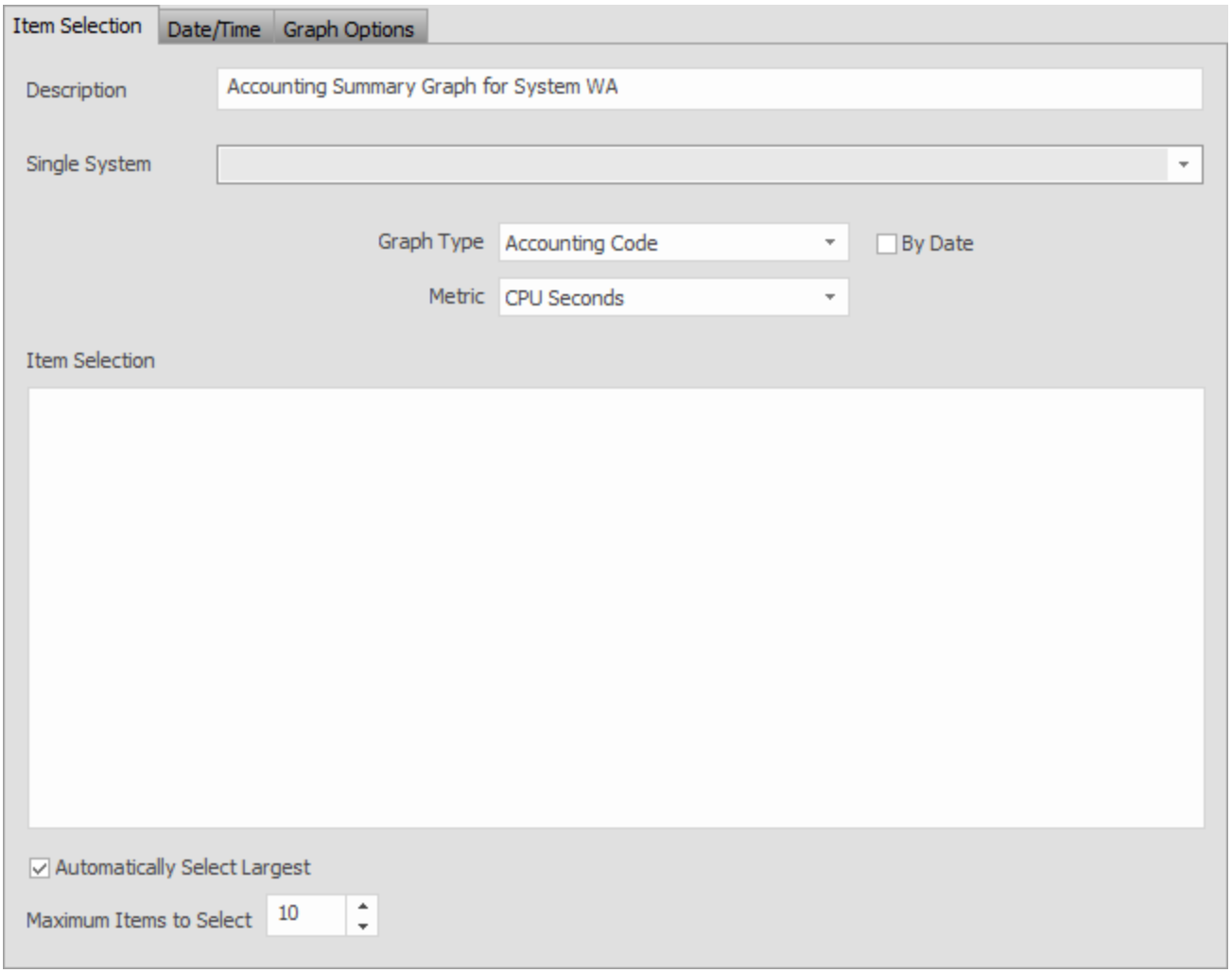


Adding an Accounting Summary Graph Widget

Use the following steps to set up an accounting summary graph for your dashboard:

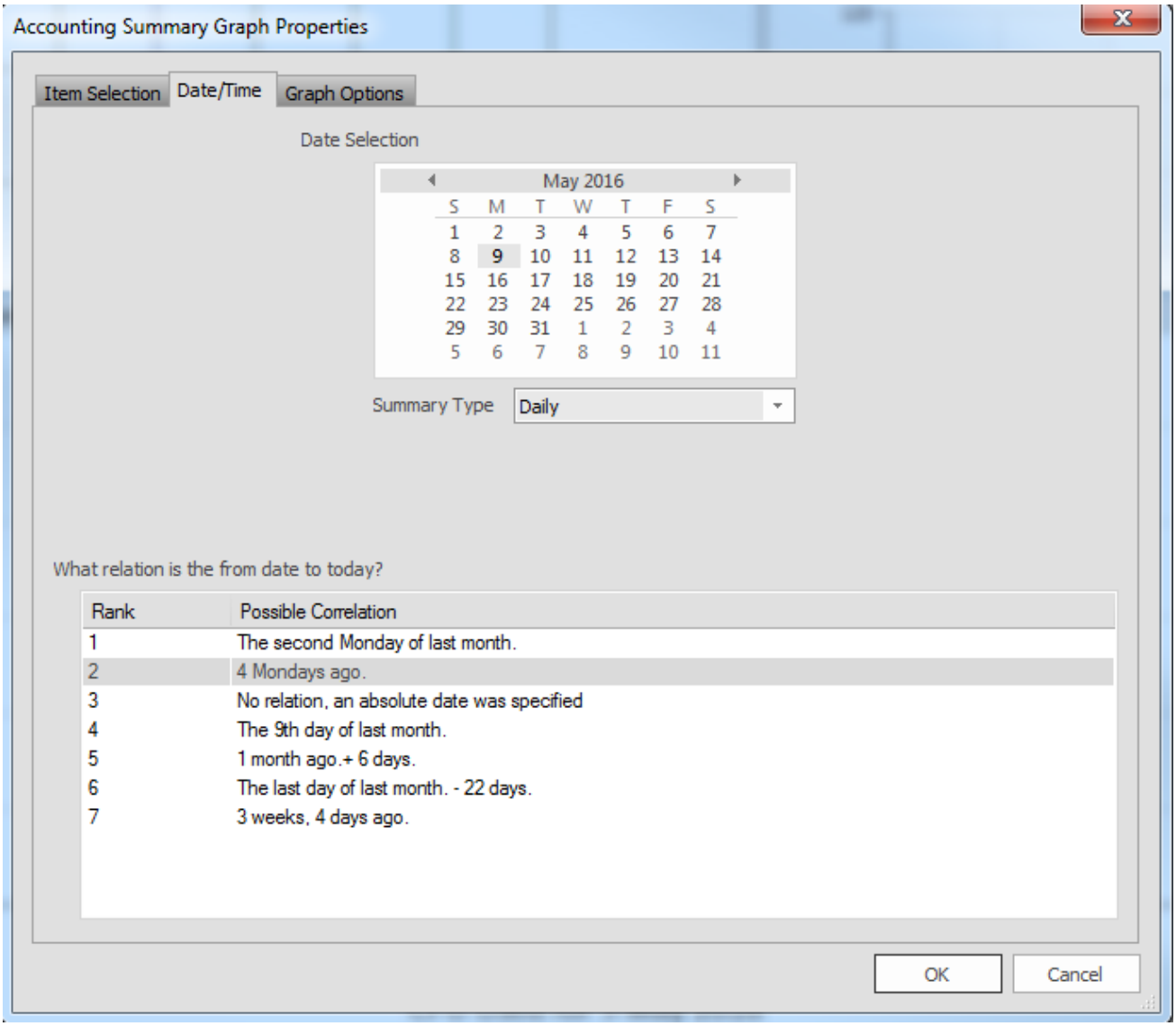
1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and **Historical Elements** from the resulting list, and select **Accounting Summary Graph** from the drop-down list.

   On the Item Selection tab:



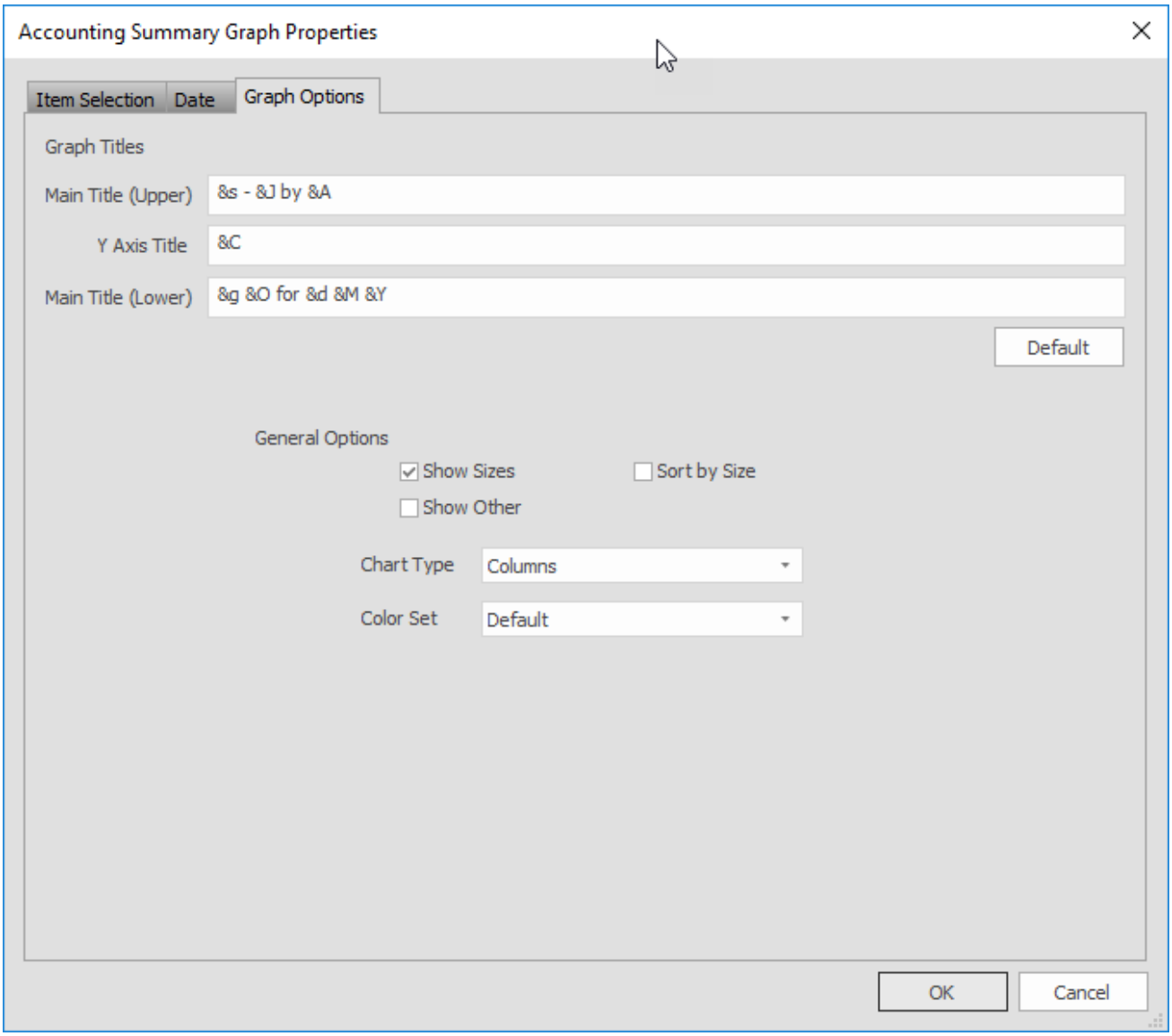
2. Type a short name for the widget in the **Description** field.
3. Choose a **Single System** to display in the graph.
4. Choose a **Graph Type** for the disk summary.
5. Choose a **Metric** for the disk summary.
6. Add data items to the graph from the **Item Selection** list.

On the Date/Time tab:



7. Select the date you want a summarized view of accounting data for, then choose whether you want daily or monthly data in your graph.
8. Select the relationship of the date you indicated to the current date.

On the Graph Options tab:



9. Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
10. Select which of the general options you want included in your graph. You can choose to show sizes, sort by size, show other, and change the **Chart Type**. You can also choose the **Color Set**, which will determine the color of the graph data. The default color is blue.
11. When you are finished, click **OK**. The completed graph will now appear on your dashboard.

Things You Can Do

- Click and drag the corners of the widget to change its size and shape.

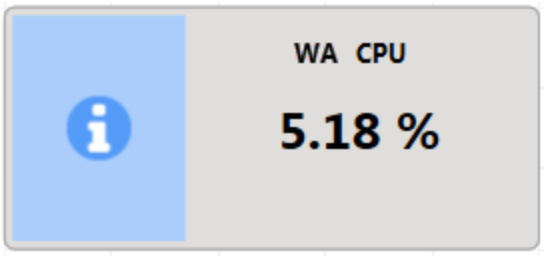
  If you are monitoring several items at once, you may need to make the widget bigger to see the descriptions.
- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time. This only works if the dashboard is unlocked.

- When the dashboard is locked, double-click the widget to display the Accounting Summary view for the selected system and data.

NOTE: To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Key Statistic Dashboard Widget

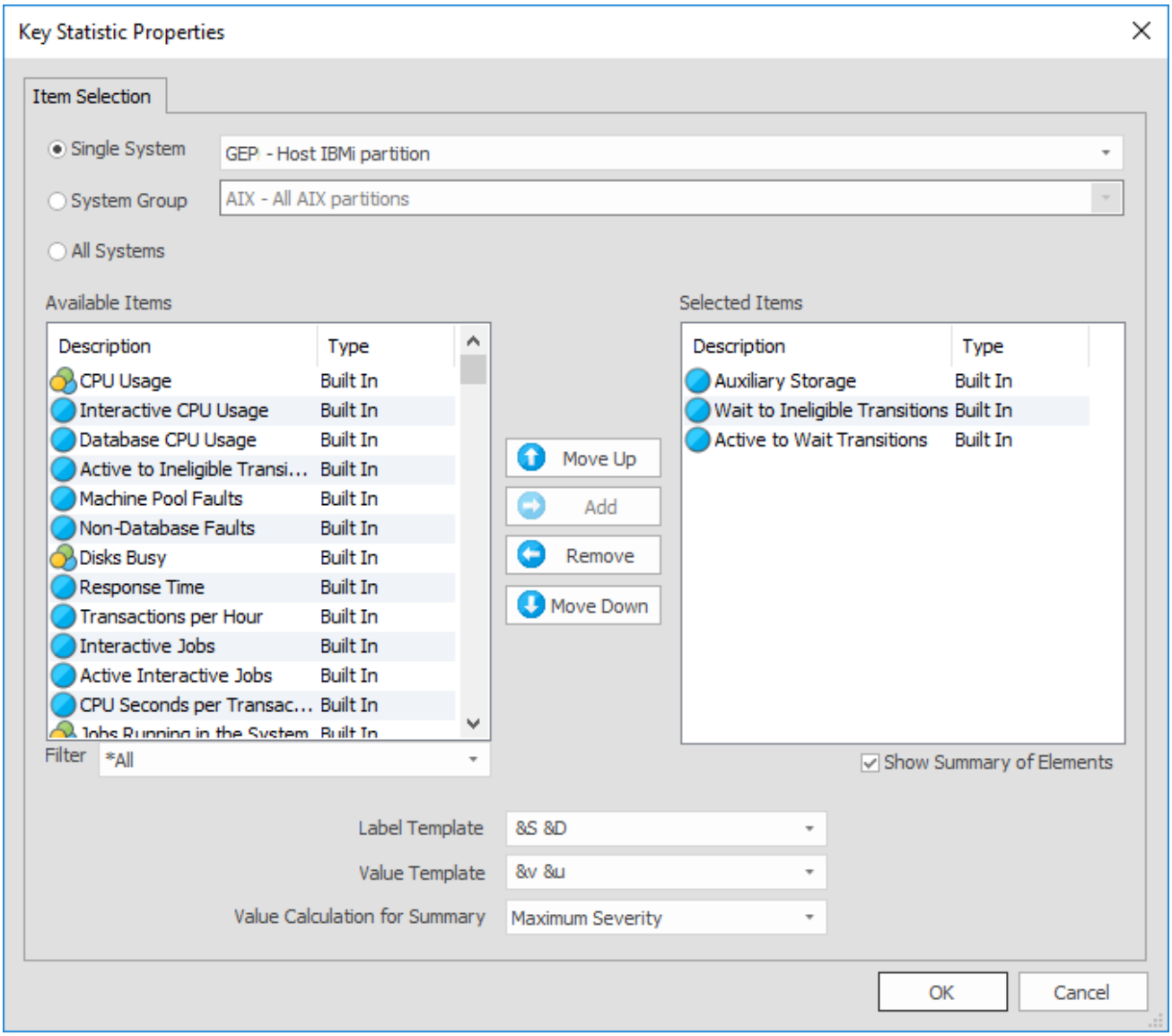
This widget displays data definitions or built-in elements on your dashboard. You can add an element for a single system, system group, or all systems.



Adding a Key Statistic Widget

Use the following steps to set up a key statistic widget for your dashboard:

1. On the dashboard you want to add the widget to, click the button in the upper right hand corner to unlock for editing. Then click the button in the upper right hand corner and select **Key Statistic** from the **Live Elements** drop-down list.



2. Choose a **Single System** or **System Group** that you want to monitor a specific element for. If you want to monitor the element across all systems, select **All Systems**.
3. Select one or more elements from the Available Items list, then click **Add** to move them to the Selected Items list. These are the elements the widget will monitor.
4. If you have chosen more than one element, you can deselect the **Show Summary of Elements** checkbox to view the key statistics for all of your selected elements. Otherwise, keep **Show Summary of Elements** checked to view the single element within your selections that satisfies the chosen **Value Calculation for Summary** (see below).
5. Choose a **Label Template** and **Value Template** from the drop-downs. These templates determine how text is displayed for each data definition or built-in element selected. Label templates are used to change the description formatting and include the value and threshold translation for elements.

Label and Value Templates

Label and value templates are entered as template strings. The following variables can be used in any order:

Variable	Value
&d	Short description of element or group
&t	Short description from threshold
&v	Value
&p	All parameters from the data collection definition
&s	Short system name

6. Choose a **Value Calculation for Summary**. You can display the maximum severity, maximum or minimum value, sum, or average.

   For example, if monitoring CPU Usage, the sum would show the total CPU usage across a single system, system group, or all systems, depending on your choices.
7. When you are finished, click **OK**. The key statistic widget will now appear on your dashboard.

Things You Can Do

- Click and drag the corners of the widget to change its size and shape.

  If you are monitoring an element with a long name, you may need to make the widget bigger to see the full description.

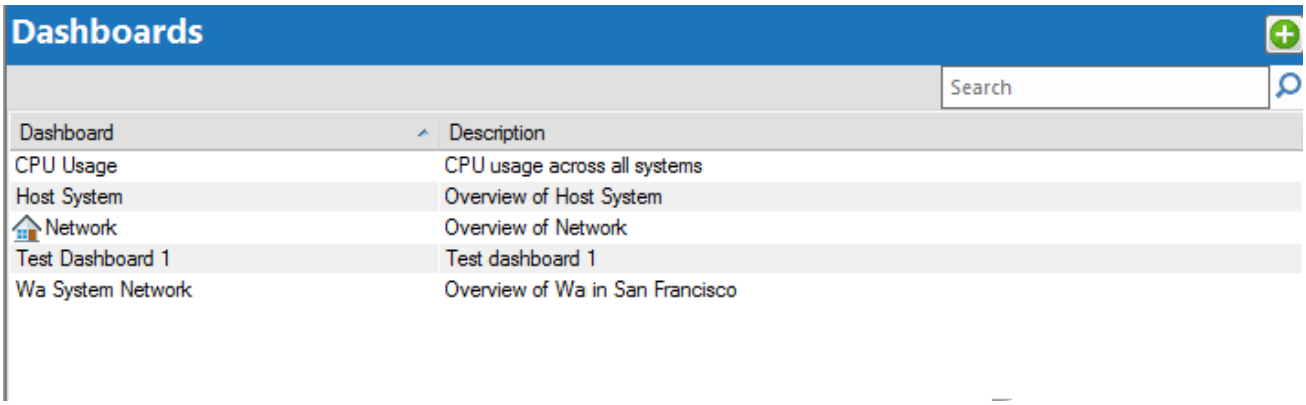
  > **NOTE:** When using multiple item selection, ignore the Label Template and only use the Value Template to display the partition, element description and value information.

- Once the widget has been created, you can right-click it and select **Properties** to change its settings any time.
- When the dashboard is locked, you can drill down into the key statistic data by double-clicking within the widget. For example, you can display the Auxiliary Storage short-term history view for the selected system and data by double-clicking on a Auxiliary Storage key statistic widget on your dashboard

> **NOTE:** To remove a widget from the dashboard, click to select it, then right-click and select **Delete**.

Show Dashboards List

The Show Dashboards List gives you an overall view of the dashboards you have set up in Robot Monitor.



From this screen, you can add a dashboard or double-click an existing dashboard on the list to access it directly. Depending on how many dashboards you have set up in Robot Monitor, you can use the Search bar to find a specific dashboard.

You can also right-click a dashboard in the list to open a context menu that will allow you to Open, see Properties, Add, or Delete the dashboard.

The Home icon indicates the current default dashboard. You can change the default dashboard when adding or customizing a dashboard.

Systems, Groups

These topics describe general information about system and group views in Robot Monitor.

Click one of the following links to learn more about the topic.

- About Elements
- About Groups
- About System Views
- The Item Selection Sidebar
- The Views
- Using the Auto Export Panel

System Views

For each system you configure in Robot Monitor, a view is created. This view contains ten other views made up of graphs, line charts, and detailed information you can use to see the available functions on your system and track system data.

A system view can contain a single system, a group of systems, or all systems.

Single system views are set up when you configure the system in Robot Monitor.

System groups, on the other hand, are set up in two different ways. Some are predefined; others are created manually.

Predefined system groups: Predefined system groups are created by Robot Monitor during start-up. They are created when Robot Monitor sees more than one partition from the same physical system and groups them in the physical box. These group names always begin with PH_ followed by the system serial number. The name and systems included in these groups cannot be changed, but they can be copied or deleted (if deleted, however, it may reappear the next time you start Robot Monitor).

Manually created groups: See Creating and Maintaining System Groups for more information.

Show Systems and Groups

Select **Show Systems and Groups** from the Views Menu to display the System and Groups screen. This lists all the systems, and system groups, you have connected to Robot Monitor. Double-click a system in the list to go to the Monitor view for that system or group.

If you have several systems connected to Robot Monitor, you can search for a specific system by using the **Search** bar. Or, you can view data for all systems.

You can also create or maintain system groups from the Show Systems Lists window. See Creating or Maintaining System Groups for more information.

All Systems

The All Systems view displays selected data definitions for every system configured in Robot Monitor. You can review the data for all systems in two different ways: from the Monitor view or the Short-Term History view. To switch views, choose one from the drop-down list.

To add a new data definition to a view for all systems, see the Item Selection sidebar.

Creating or Maintaining System Groups

You can have system groups in Robot Monitor, but they need to be created manually.

Once created, you can maintain them via the Show Systems and Groups window.

Creating a System Group

Follow these steps to create a system group.

1. Click the **File** menu, then select **Security** and **Log In**.
2. When prompted, enter your **User Name** and **Password**, then click **OK**.
3. Click **Show Systems and Groups** in the Views sidebar.
4. Click the **Maintain System Groups** icon in the top right corner.
5. On the System Groups panel, click **Create New Group**.
6. Enter a **Group Name** for the system group, then click **OK**.
7. Add a **Description** to the system group.
8. Select which systems you want to add to the group.
9. When you are finished, click **OK**.

You can view your new system group by double-clicking it. Only the Monitor view, Detailed History view, and the Short-Term History view are available for system groups.

Copying a System Group

Follow these steps to copy a system group.

1. Click the **File** menu, then select **Security** and **Log In**.
2. When prompted, enter your **User Name** and **Password**, then click **OK**.
3. Click **Show Systems and Groups** in the Views sidebar.
4. Click the **Maintain System Groups** icon in the top right corner.
5. Right-click an existing system group and select **Copy**.
6. Enter a new **Group Name** and click **OK**.

The copied system group will appear in the list. From there, you can edit the system group using the directions below.

Editing a System Group

> **NOTE:** You must log on with a user profile that has SECOFR authorities before you can edit a system group. To do this, click the **File** menu, then select **Security** and **Log In**.

To edit a system group, click the **Maintain System Groups** icon in the top right corner.

Then, choose a system group from the list. You can change the group description, add systems to a group, and remove systems from a group.

Deleting a System Group

> **NOTE:** You must log on with a user profile that has SECOFR authorities before you can delete a system group. To do this, click the **File** menu, then select **Security** and **Log In**.

To delete a system group, right-click a system group and select **Delete**, then click **OK** to proceed. The system group will be removed from the list.

About Groups

The following sections discuss some basic information on groups and what they can have, contain, or do.

Currently, only the following views can have groups. See these sections for additional information on the views themselves:

- The Monitor View
- The Short-Term History View

Groups combine elements and groups

When Robot Monitor is fully configured, it is not unusual to have hundreds of elements defined. This can make it difficult to organize and summarize the information that is collected and reported by Robot Monitor. In order to address this problem, Robot Monitor supports the use of groups.

A group brings together a number of related elements and presents a summary of the part of the system represented by that group. A group can be configured to present its values as bars or as text items.

Bar Groups show numeric values as a bar graph.

Text items show translated values. The source value can be an element with discrete values such as controller status, or it can be a numeric value such as disk space used (which is typically translated into a summary using a threshold list). Text items can also present numeric items as numbers.

Groups can contain groups

Groups can contain other groups, creating a hierarchical structure for the elements being monitored. For instance, you might create a group of communications monitors. This group could then contain groups for line descriptions, controllers, throughput, and so on.

There is no limit to the number of elements in a group, nor is there a limit to the depth of the hierarchy created.

Groups can have values

There are various ways a group can summarize its members. Each of these ends up assigning a value to a group. If a group has a value, it will behave in the same way as an element and can have various attributes assigned to it.

The default value for a group is the item with the maximum severity. This means that at each level in the hierarchy, Robot Monitor selects the element with the threshold that says it has the most serious problem and assigns this value to the group.

Groups can also take the sum, average, maximum, or minimum value from its members. You can exclude members from these calculations if required.

Groups can have thresholds

A group with a calculated value (sum, average, maximum or minimum) can have a threshold assigned to it, as with a simple element.

Groups can be automatically updated

If you want a group to contain all elements of a particular type, you can add a selector to the group. A selector is an element that causes all elements of a particular type to be shown in the group, even if they are created by other users. Elements are added to or removed from the group as they are created and deleted by you or other users.

Group Terminology

The following terms are commonly used to describe groups in Robot Monitor.

Group

A text group or bar group, depending on how the elements are displayed.

Child Group

A group or element within another group.

Parent Group

A group containing an element or group.

Ancestors

The collective of parent, grandparent, and great-grandparent groups.

Root

A top-level group.

Creating Groups

You can create groups in the Monitor view and the Short-Term History view.

Follow these steps to create a new group for your view.

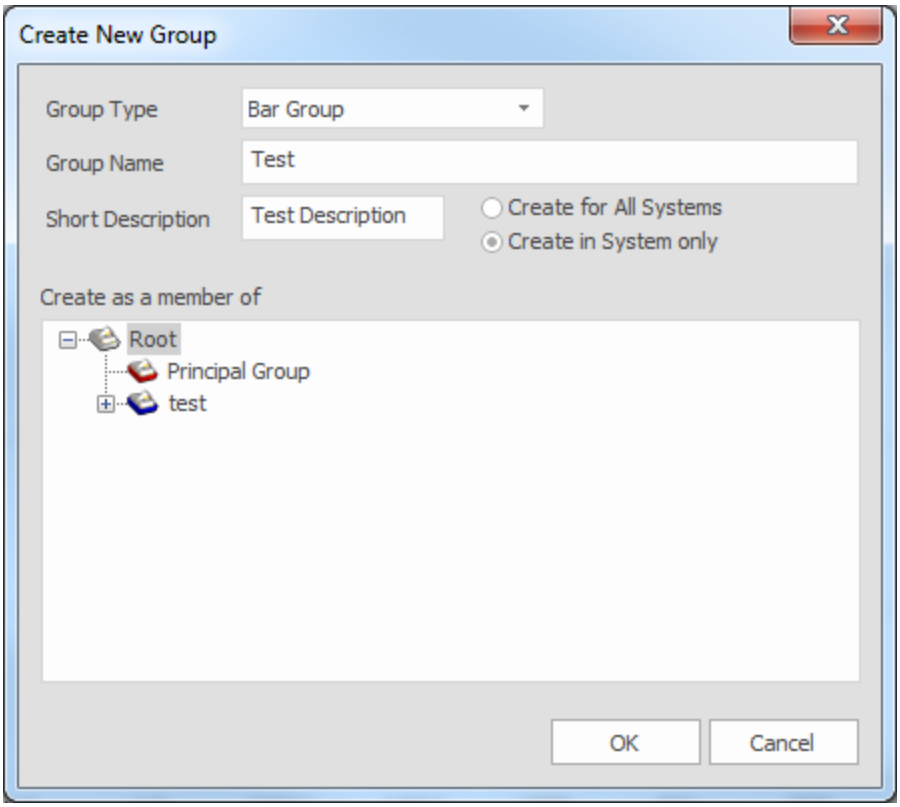
1. Open the view you want to create a new group for.
2. Right-click the group in which the new group is to be created, then select **Group** and **Create New Group**.
3. On the Create New Group panel, select a **Group Type**. You can choose bar group or text group.
4. Enter a **Group Name** and **Short Description**.
5. Select **Create in System Only** if you want to create this group for your current system only. Otherwise, the default is **Create for All Systems**. You can check any or all of the **Native**, **Aix**, **Linux**, **Vios**, and **System Groups** checkboxes to include this group just within those selected systems.
6. Choose where you want the new group to be created. You can select an existing group to make it a subgroup, or you can select *Root* to make it a parent group.
7. Click **OK**. The new group will be automatically added to the view.

Once you have created a new group, you can right-click it and select **Properties for Group X** in the Group drop-down to add items and thresholds to monitor.

Create New Group Panel

You can use the Create New Group panel to add a new group to your current view. To get there, open the Monitor view or the Short-Term History view, then open the right-click menu and select **Create New Group** under the Group drop-down.

For more information on how to use the panel, see Creating Groups.



Group Types

The following is a little more information on the different group types:

Text Groups are typically used for items with discrete values, such as Subsystem Status. Each item is displayed as a rectangle containing a textual representation of the value and threshold. The background color is taken from the threshold record.

Bar Groups are typically used for numeric values, where the value is the important aspect of the data. Values are shown as a bar graph, and their color is taken from the current threshold record.

Editing Groups

You can edit groups in the Monitor view and the Short-Term History view.

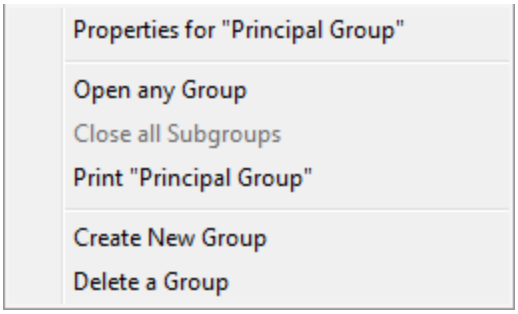
Follow these steps to edit an existing group:

1. Open the view that contains the group you want to edit.
2. Right-click the group and select **Properties for Group X** in the Group drop-down.

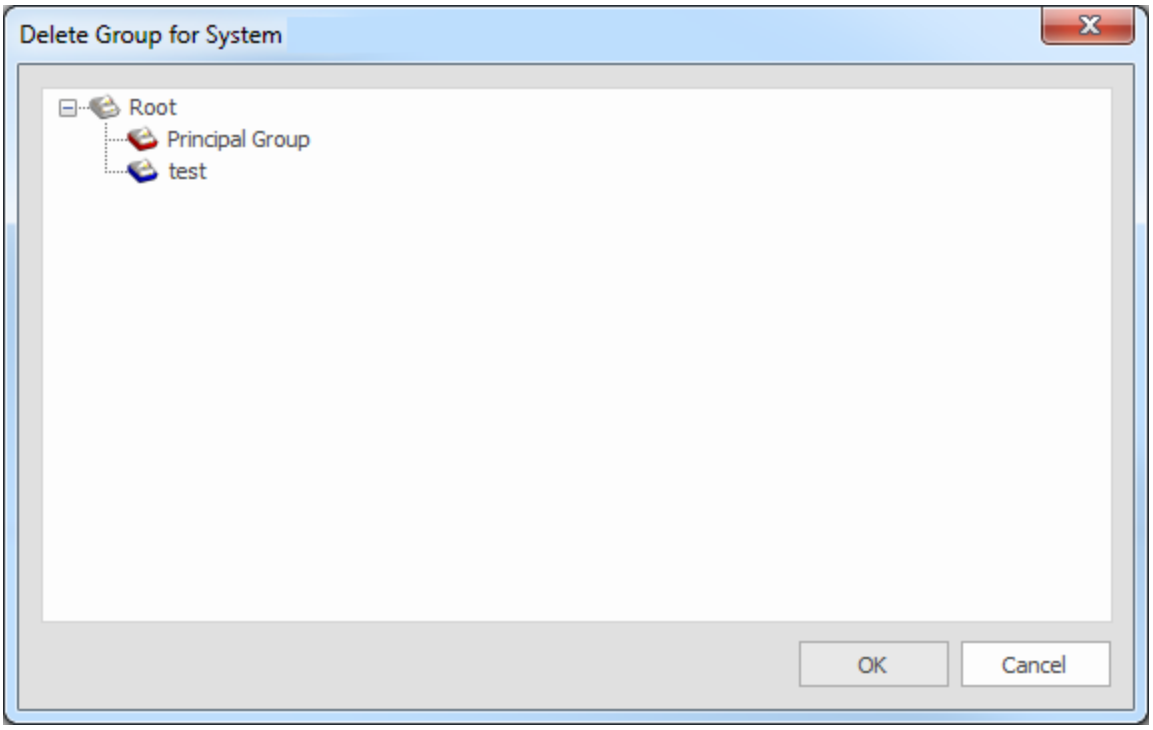
This displays the Group Properties panel. See the aforementioned topic for more information on what you can change in the group.

Deleting Groups

You can delete a group from your current view in Robot Monitor. To do this, right-click any group and select **Delete a Group**.



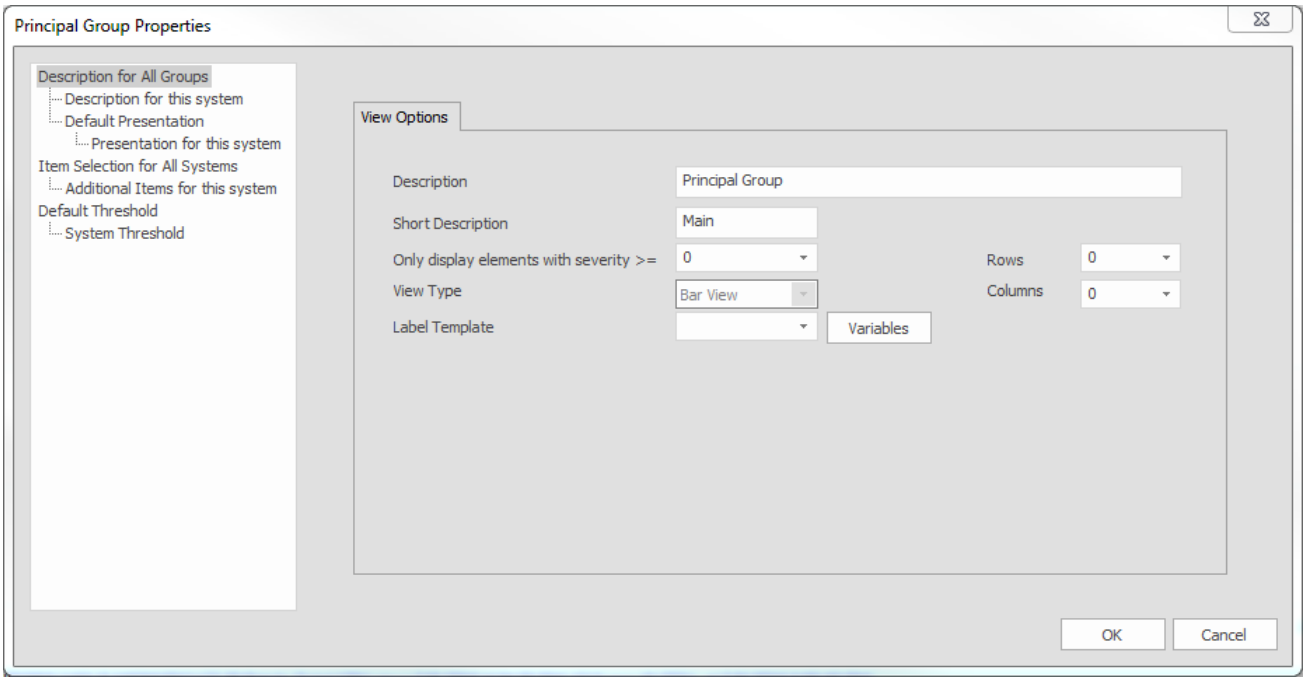
This displays the Delete Group for System X panel.



Select the group you want to delete and click **OK**. If the group was inherited from the default view, you will be asked whether you want to delete it from the system or just the default view.

Group Properties Panel

The Group Properties panel displays when you right-click a group and select **Group Properties for X** from the Group drop-down. **Note:** *X* being the name of the group you want to open.



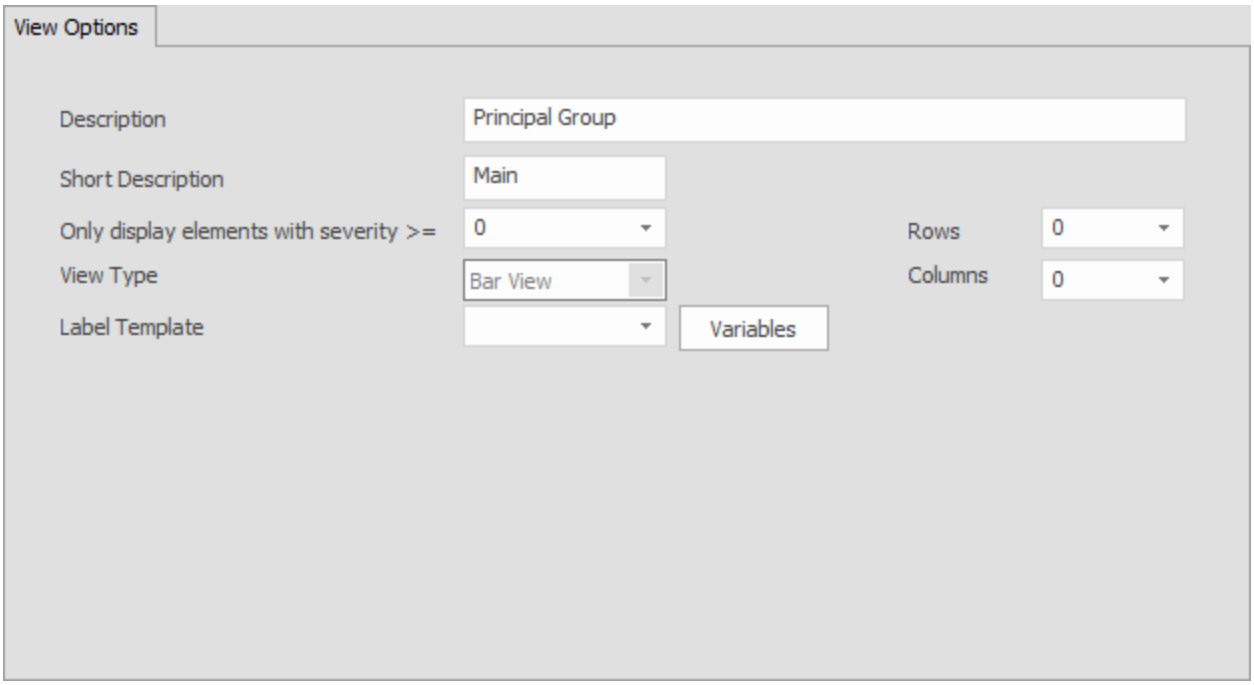
There are several tabs in this panel that can be used to change the group properties. Click any entry to display the settings for that tab.

The following table describes the tabs you may see in the Group Properties panel, depending on the view and type of group currently selected.

Tab	Description
Description for All Groups	Displays the View Options screen, allowing you to set the default options for this group. Changes here will affect all views inheriting this groups definition from the default view.
Description for this System	Displays the View Options screen, allowing you to set options that affect only the currently selected system. Changes here will override options set in the default view.
Default Presentation	Displays the Presentation in this Group screen, allowing you to set options determining how this group is displayed for all systems. Changes here will affect all views inheriting this groups definition from the default view.
Presentation for this System	Displays the Presentation in this Group screen, allowing you to set options determining how this group is displayed for the currently selected system. Changes here will override settings made in the default view.
Item Selection for All Systems	Displays the Item Select screen, allowing you to select elements and groups and create new elements to be added to this group. Changes made here will affect all views inheriting groups from the default view.
Additional Items for this System	Displays the Item Select screen, allowing you to select elements and groups and create new elements to be added to this group. Changes made here will only affect the currently selected view. Items added will become part of this group in addition to those inherited from the default view.
Default Threshold	Displays the Threshold screen, allowing you to select, replace, or edit the threshold attached to this group. Changes on this panel affect all this group on all systems.
System Threshold	Displays the Threshold screen, allowing you to select, replace, or edit the threshold attached to this group. Changes on this panel affect only the selected system, overriding any threshold selected at the default level.

View Options Screen

This screen, located in the Group Properties panel, allows you to change the settings for the group's description and label template. You can access this screen for all systems under *Description for All Groups*, or for your current system under *Description for This System*.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Description, Short Description

Enter a description for the group. The short description is typically used as a label in the groups, and the long description is used when selecting items from lists.

Only display elements with severity >=

Enter a severity filter if required. When a filter is specified, the group only displays items whose threshold has assigned them a severity equal to or greater than this value.

The drop down list can be used as a shortcut to entering common values.

View Type

Choose how you want your group to be presented. **Text groups** are used for items with discrete values, and items are displayed as rectangles containing textual representation of the value and threshold. **Bar groups** are used for numeric values and are displayed as bars.

Label Template

This field determines how text is displayed for the elements in the group. Label templates are often used in text groups to change the description and include the value and threshold translation for elements.

If the label template field is left blank, it inherits a template from the closest ancestor that has one specified. If no template is found, a bar group will use the default value of **&d** for a single system view or **&s** for a multiple system view. A text view will use **&d &t** for a single system view or **&s &d** for a multiple system view.

See the section on Label Templates below for a list of variables you can use or click **Variables** to display the descriptions in the GUI.

Label Templates

Label templates are entered as template strings. The variables that can be used are as follows:

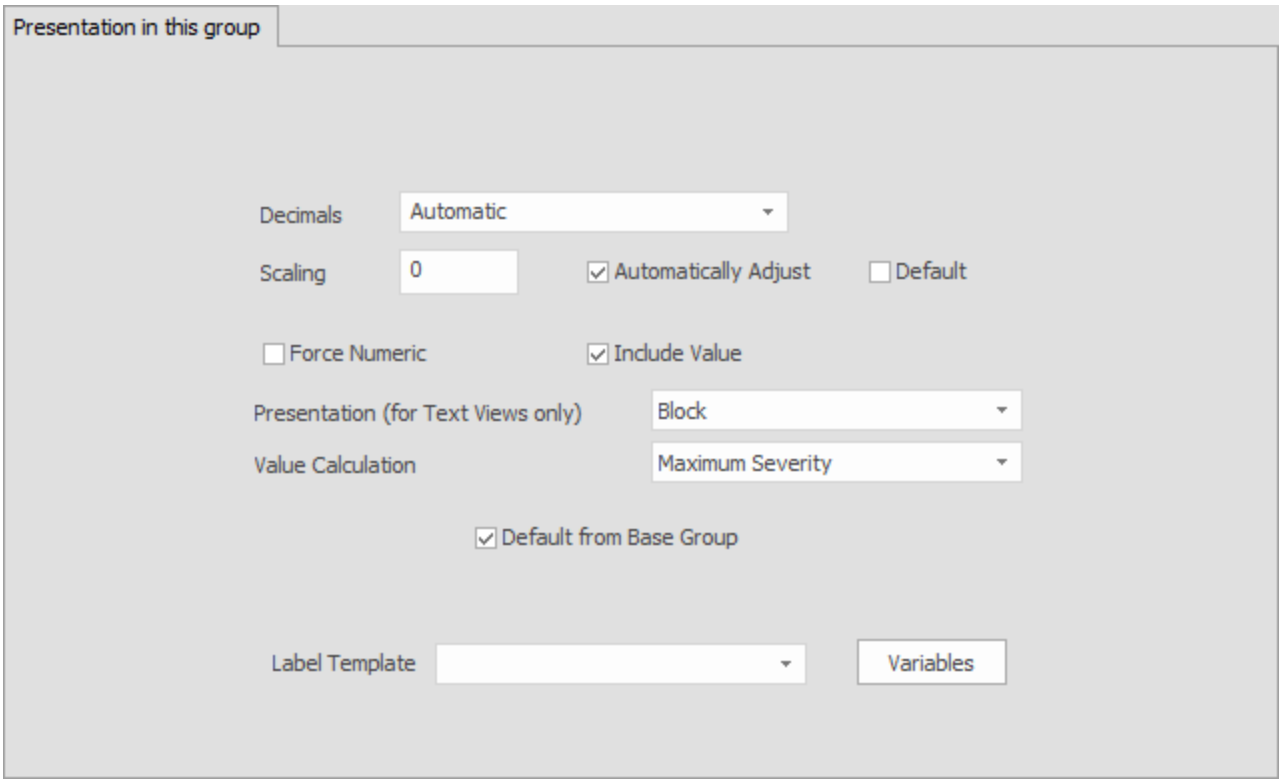
Variable	Value
&d	Short description of element or group
&D	Long description of element or group
&t	Short description from threshold
&T	Long description from threshold
&u	Unit Description
&U	Long Unit Description
&v	Value
&S	System name
&s	Short system name
&1...&99	Parameters 1-99 from the data collection definition
&p	All parameters from the data collection definition
&y	Type of check, abbreviated (built in, output queue status, and so on)
&Y	Type of check, full

Rows, Columns (Text groups only)

You can specify a number of rows or a number of columns to be used when arranging elements for display.

Presentation in this Group Screen

This screen, located in the Group Properties panel, allows you to specify how elements should be displayed within the group. You can access this screen for all systems under *Default Presentation*, or for your current system under *Presentation for This System*.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Decimals

Type the number of decimals that should be used when displaying a numeric value, or choose an option from the drop-down.

If the value *Automatic* is selected, Robot Monitor will make a decision for you based on the magnitude of the number shown.

Scaling

Enter the maximum value that should be allowed when scaling this group as a numeric value.

Automatically Adjust: Select this option to increase the maximum scaling value when the group value exceeds the current scale value.

Default: Select this option to share the scale value between all instances of this group.

Force Numeric

Select this option to always display a numeric value as part of the label. This is different from the usual behavior in text groups, where the translated value is generally displayed.

Include Value

Select this option to have the item contribute to its parent value. Otherwise, the item value will be ignored in any sum, average, minimum, maximum, or maximum severity calculations.

Presentation (Text groups only)

Choose the presentation for your text group. This only applies to numeric values.

Block: This is the default value. When chosen, the item is displayed as a single area of color with a label determined by the selected label template.

Bar: When chosen, items are displayed with a horizontal bar behind the text, showing the magnitude of the current value.

Histogram: When chosen, items are displayed with a histogram behind the text, showing the current value and a certain amount of history.

Line: When chosen, items are displayed with a line graph behind the text, showing the current value and a certain amount of history.

Value Calculation

Choose an option to determine how the value for the group should be calculated.

Label Template

This field determines how text is displayed for the elements in the group. Label templates are often used in text groups to change the description and include the value and threshold translation for elements.

If the label template field is left blank, it inherits a template from the closest ancestor that has one specified. If no template is found, a bar group will use the default value of **&d** for a single system view or **&s** for a multiple system view. A text view will use **&d &t** for a single system view or **&s &d** for a multiple system view.

See the section on Label Templates below for a list of variables you can use or click **Variables** to display the descriptions in the GUI.

Label Templates

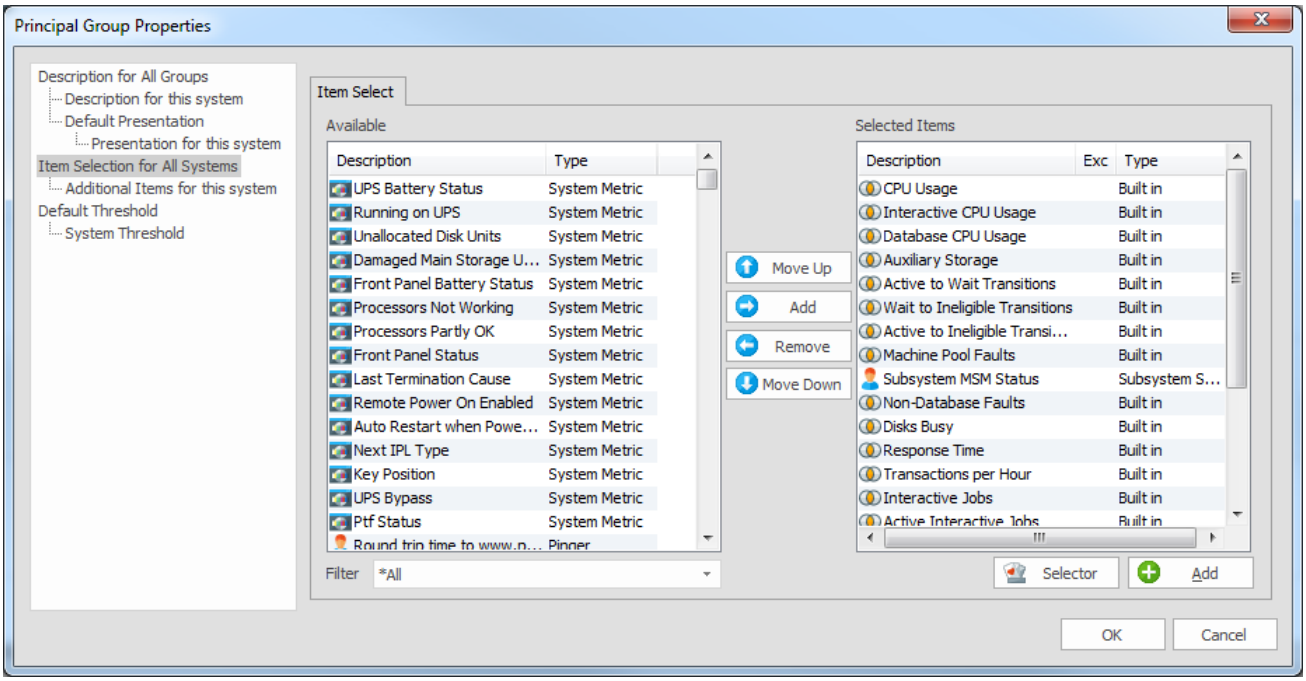
Label templates are entered as template strings. The variables that can be used are as follows:

Variable	Value
&d	Short description of element or group
&D	Long description of element or group
&t	Short description from threshold
&T	Long description from threshold
&u	Unit Description
&U	Long Unit Description
&v	Value
&S	System name
&s	Short system name

Variable	Value
&1...&99	Parameters 1-99 from the data collection definition
&p	All parameters from the data collection definition
&y	Type of check, abbreviated (built in, output queue status, and so on)
&Y	Type of check, full

Item Select Screen

This screen, located in the Group Properties panel, allows you to select which elements and groups should be children of this group. You can access this screen for all systems under *Item Selection for All Systems*, or for your current system under *Additional Items for This System*.



Things You Can Do

You can take the following actions on this screen:

Select items

You can select one or more items to monitor from the available list. To select multiple items, use `Shift` (to select many at once) or `Ctrl` (to select one at a time).

When you have the items you want to add, click **Add** to move them to the *Selected Items* list.

If there are items already in the *Selected Items* list, new items will be added to the bottom of the list.

Change item order

You can change the order of selected items.

Select one or more items from the *Selected Items* list, then click **Move Up** or **Move Down** to move them.

Remove items

If you do not want a certain item to be monitored, you can remove it from the list.

Select one or more items from the *Selected Items* list, then click **Remove**. The items will be removed from the group and returned to the *Available* items list.

Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Available items

The *Available* panel lists all groups and elements that can be added to the group. Items that have already been added to the group will not appear in this list.

Selected Items

The *Selected Items* panel shows all items currently selected as part of this group. On the graph, they are displayed in the order shown here. However, if a group takes items from the default view *and* the system view, items from the default view are displayed first and items specific to the system are displayed second.

Right-click one or more items to display a menu with the following options:

Option	Description
Properties	Displays the Data Definition panel for the selected item.
Copy	Creates a copy of the selected item, from which you can create a new item. Choosing this option will display the Data Definition panel.
Include in Value	Tells Robot Monitor to include this item when calculating the value of a group.
Exclude from Value	Tells Robot Monitor to ignore this item when calculating the value of a group.
Print	Allows you to open and print a file on your PC.

Filter

Use the filter drop-down list to quickly find the item you want to monitor. You can filter by type, such as ASP Status and CPU Usage.

Selector

You can create a new selector. A selector is used to automatically add all elements of a selected type to a group.

Click **Selector** to open the Data Definition panel and define a new selector.

Add

You can add a new element to the *Available* list.

Click **Add** to open the Data Definition panel and define the element, which will then be added to the group.

Adding Selectors

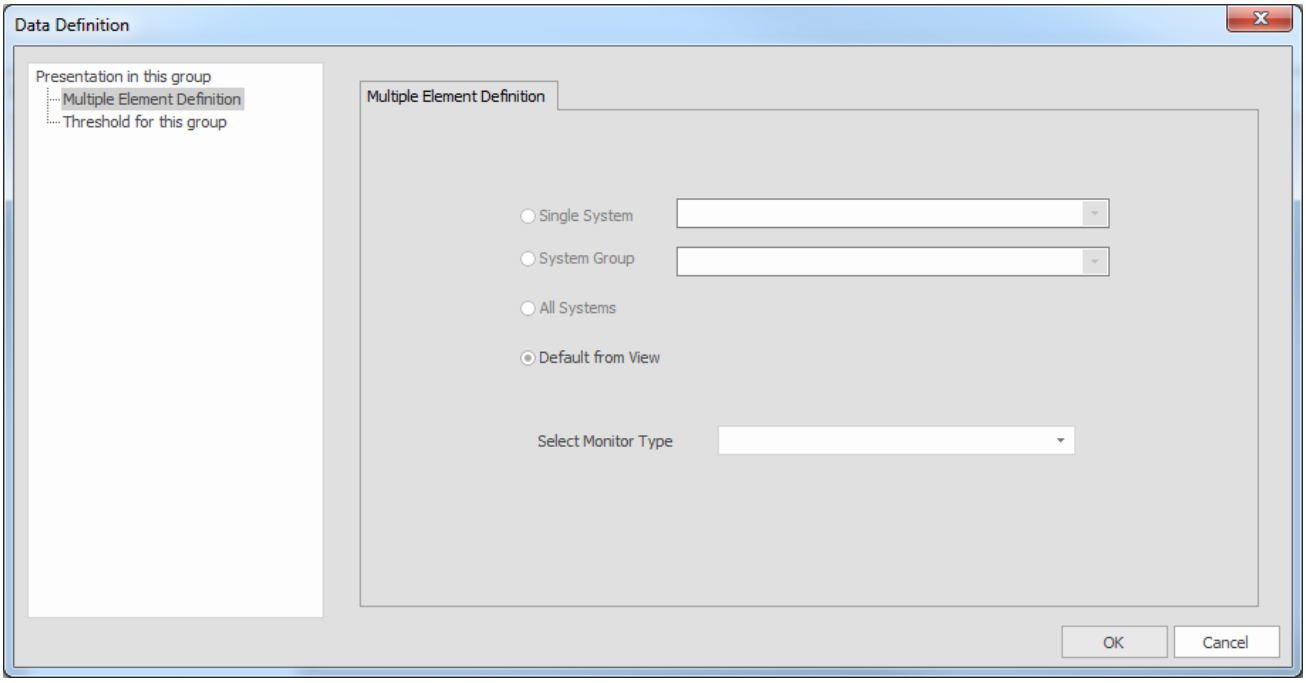
You can add a select to a group to cause it to contain all data elements of a desired type.

Follow these steps to add a new selector to a group.

1. Right-click a group and select **Properties for X Group** under the Group drop-down.

   > **NOTE:** *X* being the name of the specific group.

2. Click **Item Selection for All Systems** or **Additional Items for this System** to open the Item Select screen.
3. Click **Selector** to open the Data Definition panel.



4. On the Data Definition panel, you have a couple options:
   - If the view is a multiple system view, choose the system or system group that elements should be added to. You can also choose all systems.
   - If the view is a single system view, the only valid option is **Default from View**, which takes the system selection from the view.
5. Select a monitor type from the drop-down. The group will contain all of that type for the entire system.

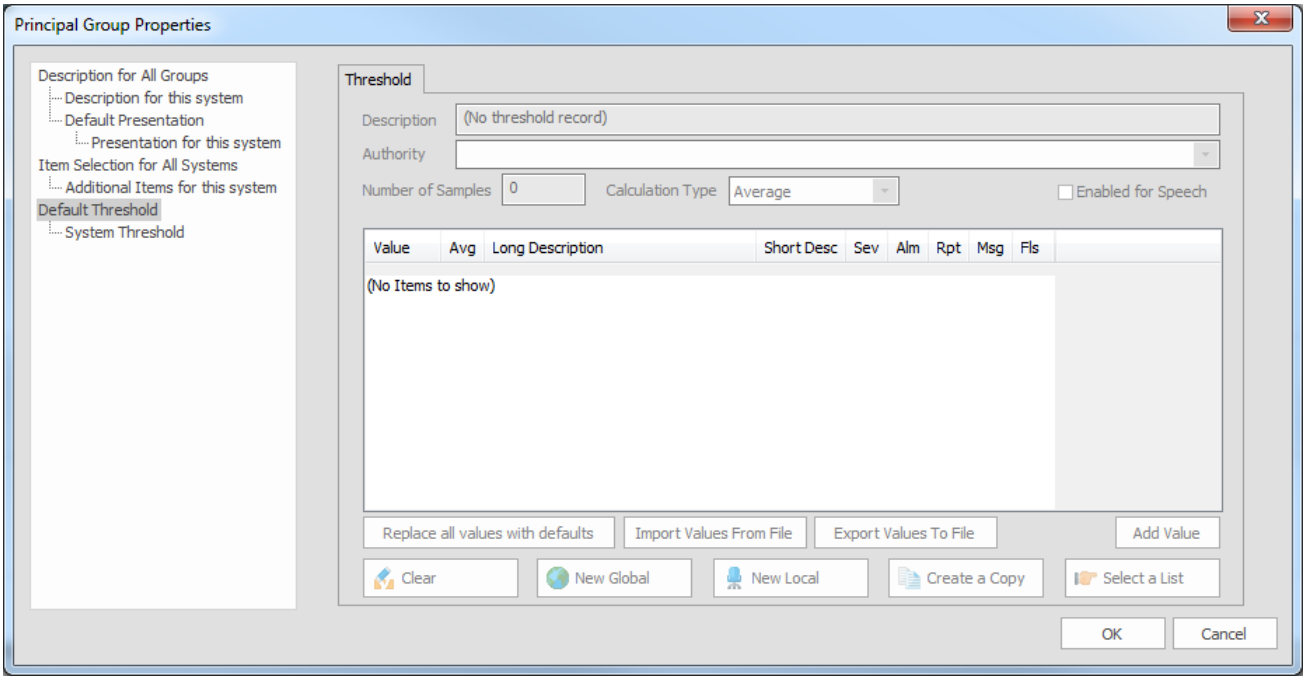
   > **NOTE:** Selectors update dynamically. If you or someone else create a new element with the monitor type you chose, it will be immediately added to the group with this selector.

6. When you are finished, click **OK** to create the selector and add it to the *Selected Items* list.

NOTE: A group can contain more than one selector. You might, for instance, choose to have all controller and device status monitors in a group. To do this, add two selectors to the group: one for controller status and one for device status.

Threshold Screen

This screen, located in the Group Properties panel, allows you to add thresholds to your elements and groups. You can access this screen for all systems under *Default Threshold*, or for your current system under *System Threshold*.



About Elements

The following sections discuss some basic information on elements and what they can do.

Currently, only the following views can have elements. See these sections for additional information on the views themselves:

- The Monitor View
- The Short-Term History View

An element is a single item being monitored. There are three different types of elements:

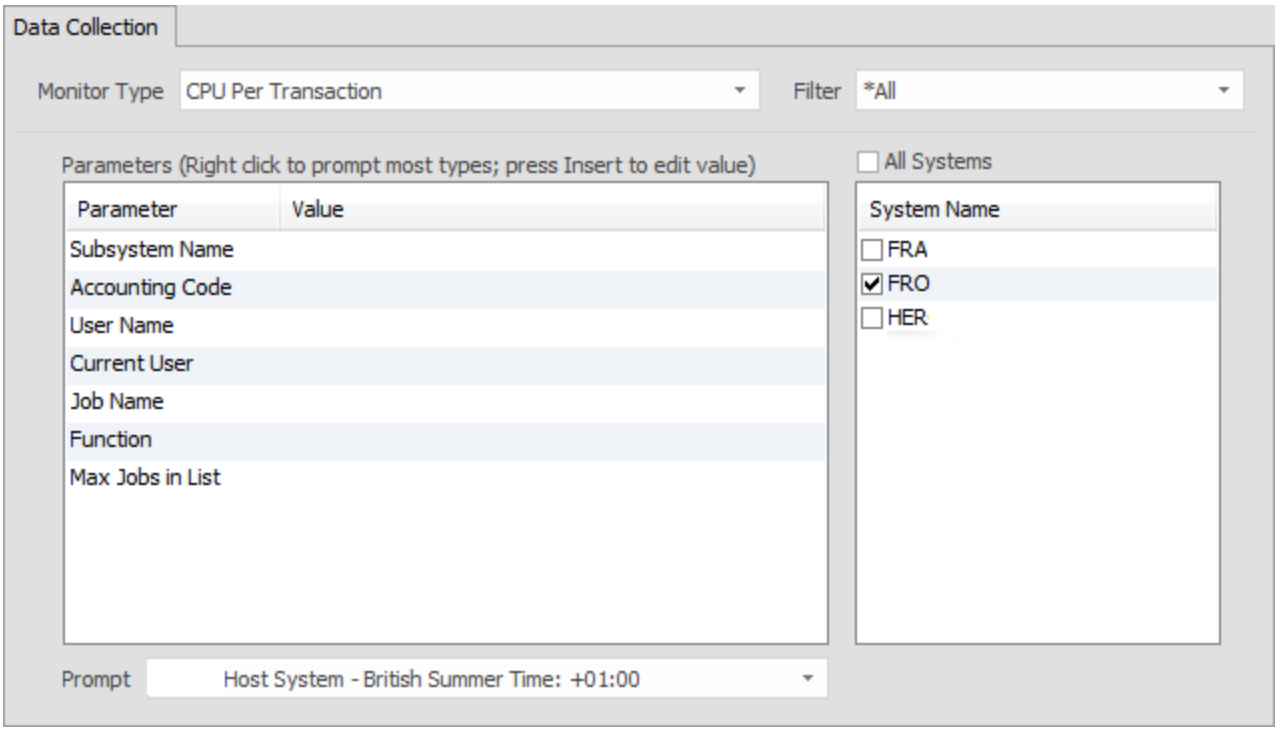
- **Built-in elements**, such as CPU usage and response time, reflect the performance of the partition as a whole.
- **User defined elements** display data provided by the user.
- **Built-in user defined elements** monitor a single object or class of objects. You can create these as needed. There are some built-in user defined elements that always monitor the whole system and others that monitor the whole system only if they are configured to do so.

An element always has a single value. For some element types, this value is derived from multiple underlying items. These can be displayed by right-clicking an element and selecting Show Details.

If the current value for an element or group is blank, it is shown as *(b)*. If there is no value present, it is shown as *NA*.

Creating an Element

Use these steps to create a single item (built-in element, user-defined element, or configurable element) to monitor in a group.



How to Get There

There are three ways to reach the Data Definition panel and create an element:

In the Item Selection sidebar on the Monitor view, click **Monitor something new**.

OR

In the Data Definitions view, click **Monitor something new**.

OR

From the Monitor view:

1. Right-click the group you want the new element to be a child of.
2. Select **Properties for X Group** under the Group drop-down, where *X* is the name of the specific group.

3. On the Group Properties panel, open the **Item Selection for All Systems** tab if the element should be defined for multiple systems or the **Additional Items for this System** tab if the element should be defined for a single system.
4. On the Item Select screen, click **Add** to display the Data Definition panel.

Creating an Element

Follow these steps on the Data Collection screen to create a new element:

1. Select a **Monitor Type** from the drop-down list to display which parameters are available. You can use the Filter list to narrow down your monitor types by class.
2. Select which systems you want to add the parameters to. If you want them added to all systems in Robot Monitor, click **All Systems**.
3. Choose which system should be used for prompting values from the **Prompt** drop-down. When you prompt for values that exist on the host system, Robot Monitor will fetch the list from the prompt system specified.
4. Right-click the parameters and select a value from the object list. You can also press the **Insert** key to enter a value manually.

   For some parameters, you can choose to define multiple elements. See Creating Multiple Elements for more information.

   > **NOTE:** Certain parameters may require a value before you can continue.

5. Click **OK**.

Robot Monitor will make sure the definition does not already exist. If it does not, it will create the element on the IBM i and add it to either the Item Selection sidebar (if you accessed the Data Collection screen by clicking "Monitor something new") or to the *Selected Items* list for the group (if you accessed the Data Collection screen through a group).

The element you defined is available on all PCs immediately after you create it, but it is only added to the group (if applicable) on your local machine. The only exception to this is if there are groups defined with threshold selectors for the selected data type. The new element will be added to those groups immediately.

Each new element is given a description and the default threshold for its type. These attributes may be overridden by either right-clicking the element in the Item Selection sidebar and choosing **Properties** (if you accessed the Data Collection screen by clicking "Monitor something new") or by right-clicking the element in the *Selected Items* list and choosing **Properties** (if you accessed the Data Collection screen through a group).

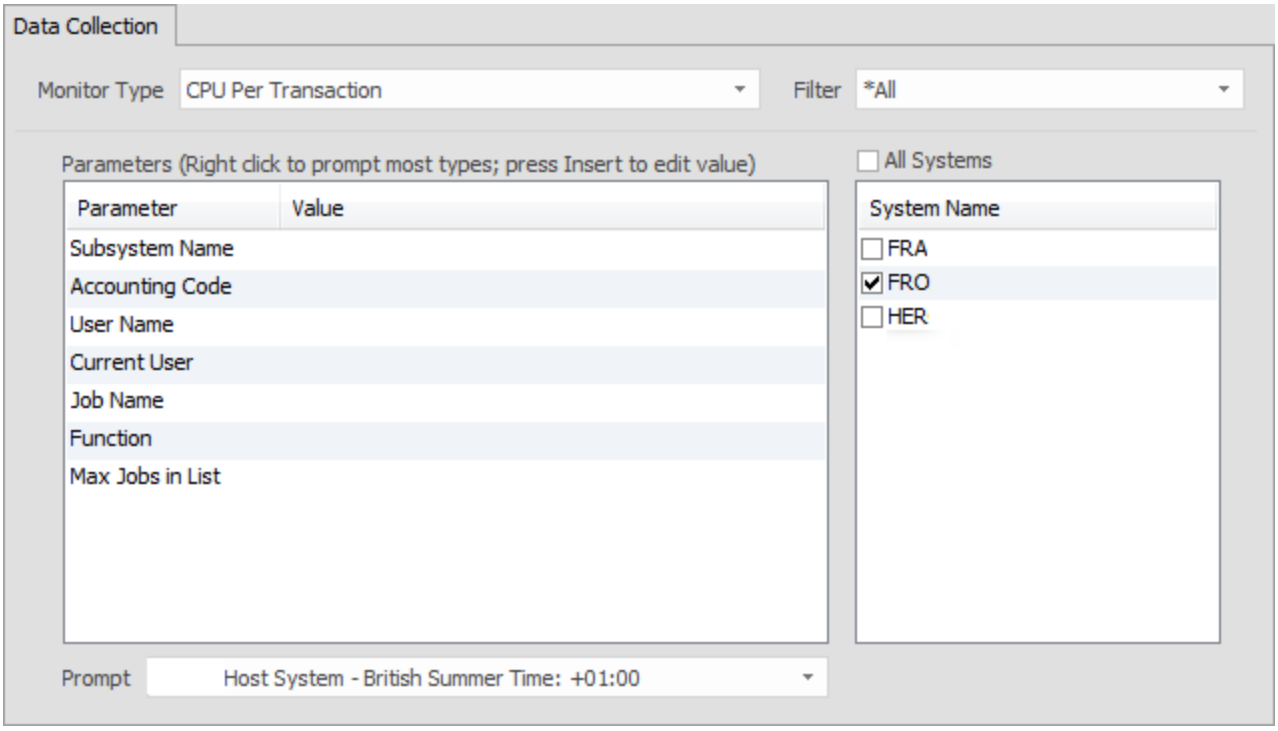
Creating Multiple Elements

You can also create a set of elements of the same type in Robot Monitor.

To create multiple elements:

1. Right-click the group that you want the new element to be a child of.
2. Select **Properties for X Group** under the Group drop-down, where *X* is the name of the specific group.

3. On the Group Properties panel, open the **Item Selection for All Systems** tab if the element should be defined for multiple systems or the **Additional Items for this System** tab if the element should be defined for a single system.
4. On the Item Select screen, click **Add** to display the Data Definition panel.
5. Open the **Data Collection** tab.



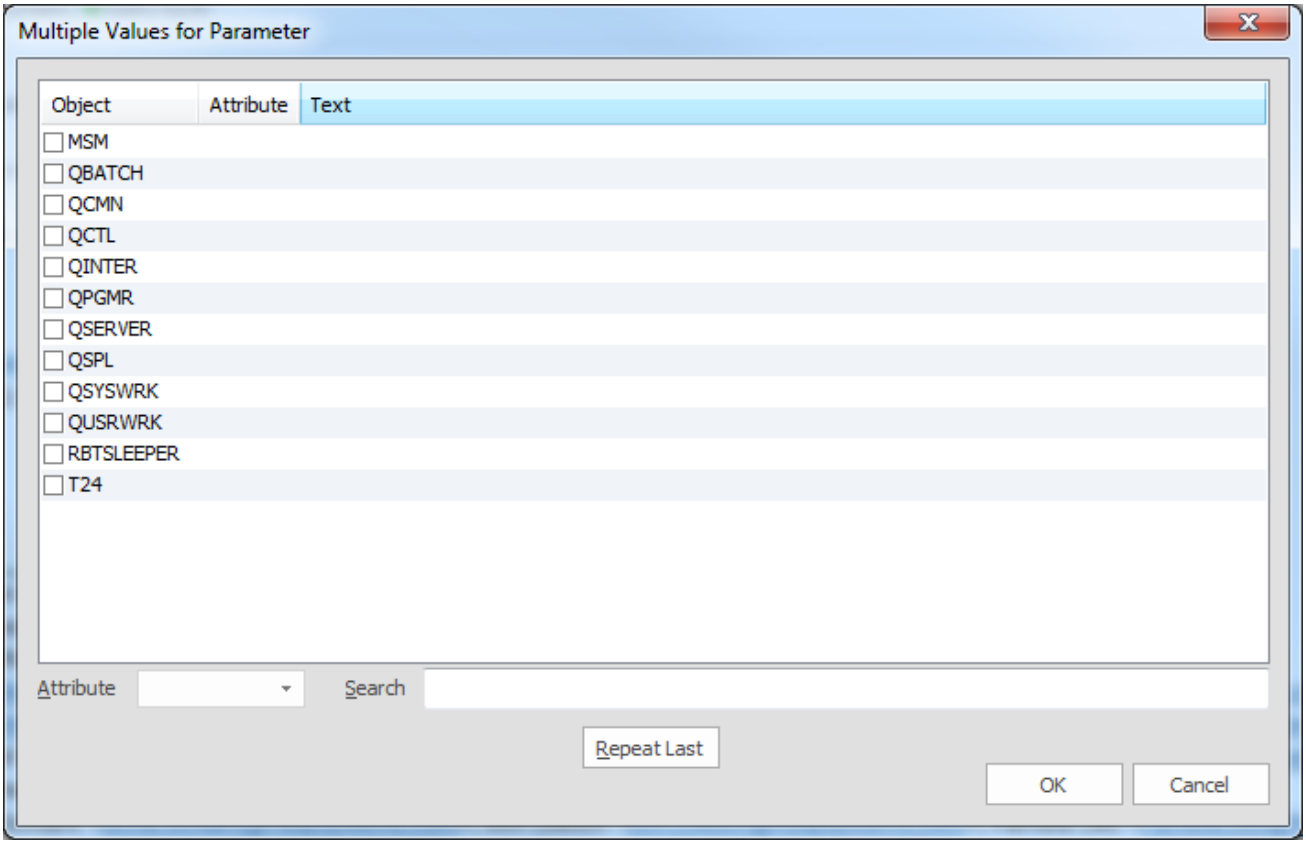
6. Select a **Monitor Type** from the drop-down list to display which parameters are available. You can use the Filter list to narrow down your monitor types.
7. Select which systems you want to add the parameters to. If you want them added to all systems in Robot Monitor, select **All Systems**.
8. Select which system should be used for prompting values from the **Prompt** drop-down. When you prompt for values that exist on the host system, Robot Monitor will fetch the list from the prompt system specified.
9. Right-click the parameter you want to vary across a series of new element definitions and select **Multiple**.

   On the Multiple Values for Parameter panel, select the objects you want to create elements for. Use the **Search** bar to find an object quickly.
10. Click **OK**. Robot Monitor will check that all selected objects exist for all selected systems. If objects are missing from some systems, Robot Monitor will change the system selection list to exclude those systems.
11. Click **OK** again to close the Group Properties panel.

Multiple Values for Parameter Panel

The Multiple Values for Parameter panel allows you to define multiple elements in a single operation. You can display this panel by right-clicking a parameter on the Data Collection screen and selecting **Multiple** from the drop-down.

On this panel, the list shows all valid selections taken from the prompt system. One element is created for each selected object.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Object

Select the objects you want to create elements for. You can right-click the list and choose to select all objects, clear all objects, or invert the current selection.

Attribute

Use the Attribute drop-down to filter the list by a single object attribute. Any selections made are kept even if they are not displayed, so when an attribute is selected, not all selected items may be visible.

Search

To find a specific object or group of objects, use the Search field to filter by object, attribute, and text.

Repeat Last

Use Repeat Last when you want to use a series of different element types for the same list of objects. Create the first set of multiple elements as normal. When you create subsequent entries, click **Repeat Last** to repeat the selections you made for the first set.

Adding and Deleting Elements

You can add an existing element to a group or delete an element.

> **NOTE:** You must be logged on with a user profile that has special authorities in order to add or delete elements.

Adding Elements to a Group

An element can be added to more than one group.

To add an element to a group, right-click the group and select **Properties for X Group** under the Group drop-down, where *X* is the specific name of the group.

On the Group Properties panel, click the *Item Select* tab and find the element you want from the list of available items. Double-click it to add it to the *Selected Items* list.

Deleting Elements

You can also delete elements from a group. There are two ways to do this.

Permanently delete elements

Do the following to delete elements directly from the Data Definitions view.

1. Open the Data Definitions view under Configuration in the Views Menu.
2. Select the elements you want to remove, then right-click and select **Delete**.
3. When prompted, click **OK** to confirm the deletion.

> **NOTE:** Detailed and historical data will be marked for removal from the database during the next purge (MONPURGE).

Disable elements

Do the following to disable elements in the group but keep them for later use.

1. Right-click the group you want to remove an element from and select **Properties for X Group** under the Group drop-down, where *X* is the specific name of the group.
2. On the Group Properties panel, click the *Item Select* tab and find the element you want from the list of *Selected Items*.
3. Right-click it and select **Properties**, then click the *Data Collection* tab.
4. Clear the boxes to disable the element for all systems.
5. Click **OK**.

Disabling the element stops Robot Monitor from collecting data, but the historical data will still be available and the element can be reactivated if needed.

Working with Elements

You can see a list of all defined elements by choosing **Data Definitions** under Configuration in the Views Menu. From the Data Definitions view, you can edit element definitions, filter definitions by type and description, and find out which groups elements are being used in.

For more information about working with elements, see the topic on the Data Definition view.

Show Details

The following sections discuss some basic information about which elements support the Show Details functionality and some of the ways you can use Show Details to get a better picture of your data.

Currently, Show Details is available in the following elements:

List of Elements

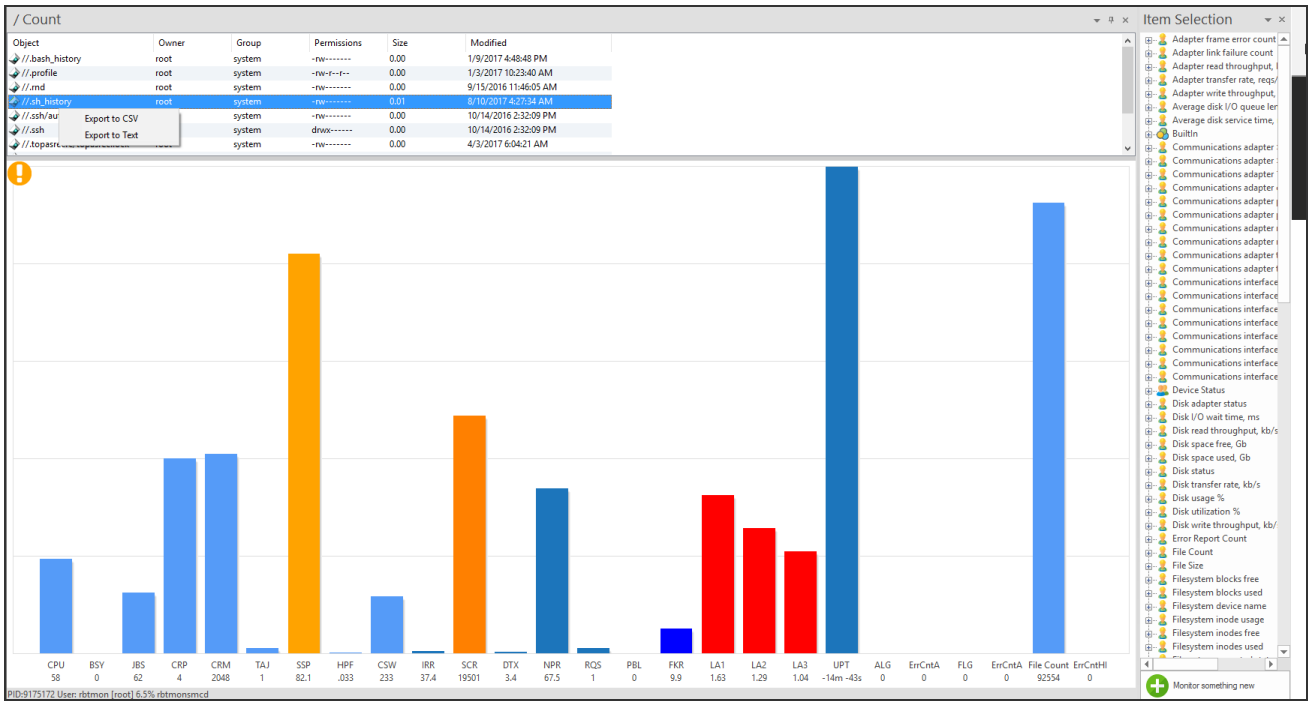
- Active Batch Jobs
- Active Interactive Jobs
- Batch Job Count
- Cache Battery Life
- CFInt Overhead
- Check Job CPU and Hinder
- CPU Seconds per Transaction
- CPU Usage
- Database CPU Usage
- Disk I/O
- Error Report Count
- Faults per Second
- File Count
- File Size
- Interactive CPU Usage
- Interactive Job Count
- Job Count
- Job Status
- Largest Library
- Largest Object
- Lock Wait Time
- Maximum Job Run Time
- Maximum Process Run Time
- Microcode Overhead
- Process Count
- Process I/O Rate

- Process Thread Count Total
- Process Total CPU Usage
- Process Virtual Memory
- QTemp Count
- QTemp Size
- Response Time
- System Overhead
- Temporary Storage per Job
- Temporary Storage Total
- Thread Count per Job
- Thread Count per Process
- Thread Count Total
- Total Job CPU
- Total Process CPU

Using Show Details to Export Data

You can use the Show Details feature on an element to export a listing of underlying data in either a CSV or text format. For example, you can export a list using the File Count element.

1. Add one of the elements listed above to either the Monitor view or the Short-Term History view using the Item Selection sidebar.
2. Right-click the element and choose **Show Details**. A detail panel opens within the view.
3. Right-click the detail data within the view to see the export menu.

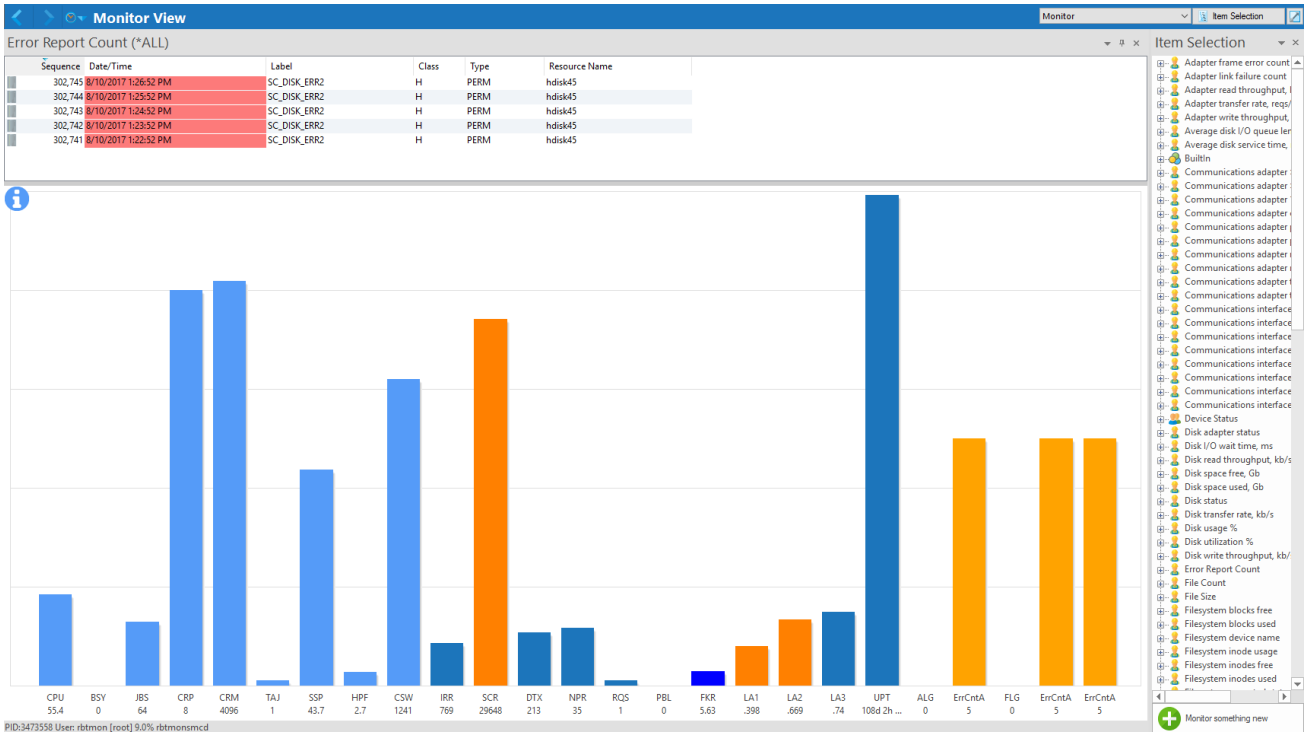


4. Select either **Export to CSV** or **Export to Text**.
5. Select a location to save the file. Click **Save**.

Using Show Details for Error Logging

If you are monitoring data on a, AIX, Linux or VIOS partition, you can use the Show Details feature on the Error Report Count element to list and gather details of underlying errors.

1. Within a, AIX, Linux, or VIOS partition, add the Error Report Count element to either the Monitor view, Short-Term History view, or a user-defined group (see Creating Groups for more information) added to one of those views using the Item Selection sidebar.
2. Right-click the element and choose **Show Details**. An error detail panel opens within the view.
3. Right-click the detail data within the view to see the menu.



4. Select either **Export to CSV** or **Export to Text** OR select **Details** to bring up an Error Log Details window that displays specific information related to the error.

Element Groups

One of the principle functions of views is to record the presentation of elements.

Elements are normally collected into groups, and groups can also be collected into groups. A group is a collection of items displayed in Robot Monitor as a set.

Every group has a value and in many instances can be used in the same way as an element. The value of a group is usually the item with the greatest severity from the group; however, it can be the sum, average, maximum, or minimum value from the items in the group.

Groups allow you to organize elements into a logical framework. They create a simple, uncluttered display that summarizes hundreds of individual items in your network.

Element Groups on Multiple Systems

When you create a group, you are given the option to create it on your current system or on all systems. A group that exists for all systems is defined for all single system views. This allows you to keep the same structure for all systems, making it simple to find your way around the groups.

When adding items to a group that exists in the default view, you can add them to your current system or to all systems.

EXAMPLE: Example #1
Suppose you are setting up monitors for subsystems on a network of two systems, Artemis and Apollo. Artemis processes order entry and stock control while Apollo does accounting and payroll. Each has special subsystems for critical online work, and we want to monitor these as well as the basic supplied subsystems. The elements to perform the monitoring have already been created.
We create a group in the default view called *Subsystems*. On the Item Select tab in the Subsystems Group Properties panel, we add elements for subsystems QBATCH, QINTER, and QCTL.
In the view for Artemis, we find this group and add the elements for ORDERS and STOCK. In the view for Apollo, we add the monitors for BACKOFFICE and PAYROLL.
The result is a group in Artemis, showing the status of QBATCH, QINTER, QCTL, ORDERS, and STOCK, and a group in Apollo, showing the status of QBATCH, QINTER, QCTL, BACKOFFICE, and PAYROLL.

EXAMPLE: Example #2
You can also add monitors to the default view that cover a subset of systems, rather than adding them to each system individually.
Suppose we have a network of four systems: Artemis, Apollo, Herakles, and Hermes. Herakles and Hermes are similar systems, running data mining applications for different parts of the company. They each have a subsystem called MINER, which we want to monitor.
We create a subsystem monitor for MINER and select systems Herakles and Hermes for the element definition. Then, we then add this monitor to the defaults group. Because the element definition specifies only these two systems, the monitor will only appear in the SUBSYSTEMS groups on these two systems.

About Robot Monitor Views

There are eleven views in the Robot Monitor GUI that you can use to see the available functions on your host system and track system data. At a glance, you can check CPU usage and auxiliary storage percentages for a system, drill down to view short-term history for specific data, view a list of high CPU users, and more.

NOTE: There is a difference in the views available to you if you have a single system selected or a system group. Certain views are system specific (Disk Summary, History Summary, Accounting Summary, Highest CPU Jobs, System Data and ASP Information views) and cannot be used when a system group is selected. So, when a system group is selected in the **Systems, Groups** area of the **Views** panel, the data is not stored in a manner that allows the system specific views to be displayed and therefore only the Monitor, Detailed History and Short-Term History views are available.

Click any of the following links to view more information about these views.

- The Monitor View
- The Short-Term History View
- The Detailed History View
- The History Summary View
- The Disk Summary View*
- The Accounting Summary View*
- The System Data View
- The ASP Information View*
- The Storage Information View**
- The Box View*
- The Highest CPU Jobs View

NOTE:
* These views are only available on IBM i systems.
** These views are only available on AIX, Linux, and VIOS systems.

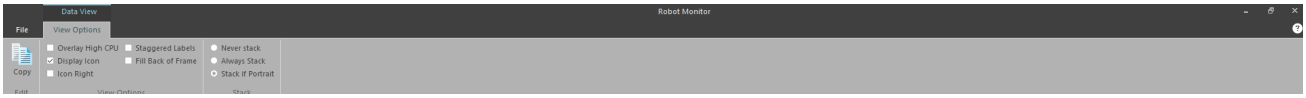
The Monitor View

The Monitor view is where most of the current data for the selected system is displayed. This view brings together all the groups and elements on your system and displays information, including current thresholds, in real time.

Monitor View Options

The following sections contain general information about the settings you can use to customize your Monitor view.

The Data View Options Ribbon



Actions you can take:

- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Select **Overlay High CPU** to add a marker to the CPU bar. This marker shows the amount of CPU being used by the highest CPU user on the system.
- Select **Display Icon** to display the status icon for the current system. The icon changes depending on the system status and thresholds.
- Select **Icon Right** to move the status icon to the upper right-hand corner of the window (the icon defaults to the left).
- Select **Staggered Labels** if you want the labels beneath the graph bars to display on alternate lines. This is particularly useful for long labels.
- Select **Fill Back of Frame** to change the background of the frame to a slightly darker color.
- Select **Never Stack** if you want the graph bars to always display in a single line.
- Select **Always Stack** if you want the graph bars to always appear stacked (half on the bottom row, half on the top).
- Select **Stack if Portrait** if you only want the graph bars to appear stacked when the window length is adjusted to a portrait, rather than landscape, view.

Minimizing and Restoring the Data View Options Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click  in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **View Options** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **View Options** tab. When you are done, click anywhere in the Monitor view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

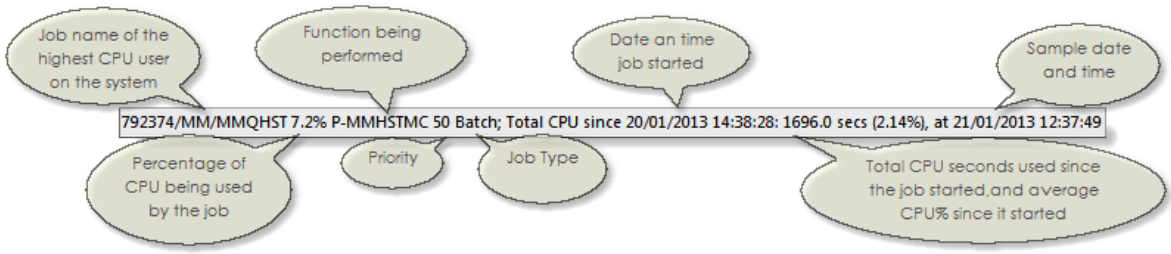
- Click **Item Selection** to open the Item Selection sidebar.
- Click **New Window** to open the Monitor view in a separate GUI window.
- Click the **Monitor** view, then select a new view from the drop-down list to visit that window.

Printing View Details

Use the following steps to print detailed related to the Monitor view.

1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

The CPU Percentages Bar



An informational bar displays at the bottom of the view window. It shows data about the job that used the most CPU during the last sample capture.

For more information about the highest CPU jobs for the selected system, double-click the CPU percentages bar to view the Highest CPU Jobs view.

The Summary Icon

The summary icon is selected by the monitor to show the current status of each system. This is normally displayed in the top left corner of the main bar group, but it can be moved using the Monitor view options.

The summary icon changes depending on the system status and is associated with the threshold record with the greatest severity. For example, if the CPU usage for a job is higher than the allotted threshold, the icon changes and alerts you of this severity.

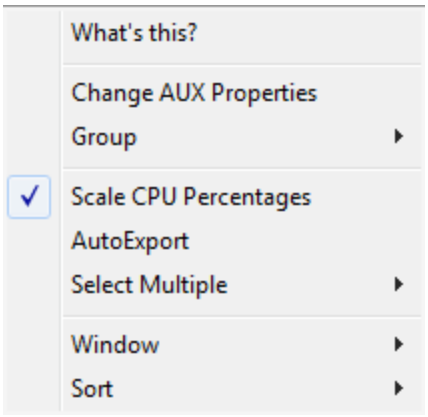
At certain times, it is possible that there are multiple severities for the selected system. To view the system status, right-click the summary icon and select *What's This?*. This displays a text-based summary of all problems currently known for the Monitor view.

The Right-Click Menu

When you right-click the Monitor View, a context menu displays. This menu provides a list of options you can select or configure for the current view.

> **NOTE:** If you have more than one group open in the Monitor view, right-click the specific group you want to see options for.

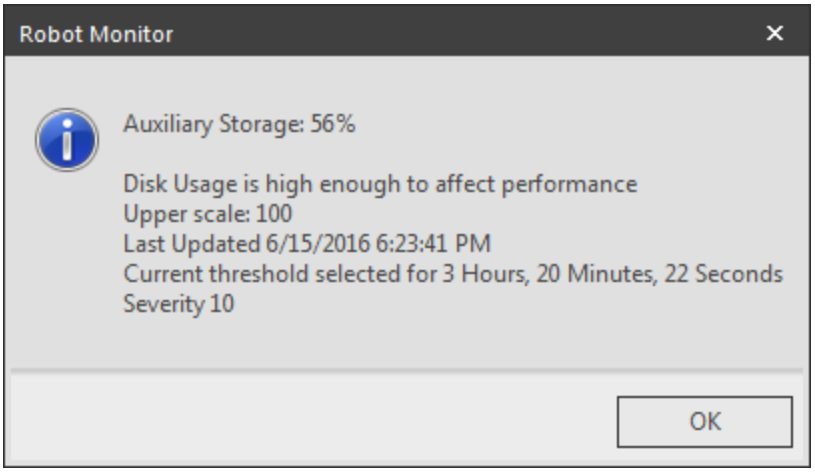
> **NOTE:** The options available in the list may change depending on where you click in the window.



What's This?

Selecting **What's this?** from the right-click menu gives you helpful information about the selected item. Depending on the item type, the information could be help text or extended status information.

For example, selecting What's this? for Auxiliary Storage could give you the following dialog:



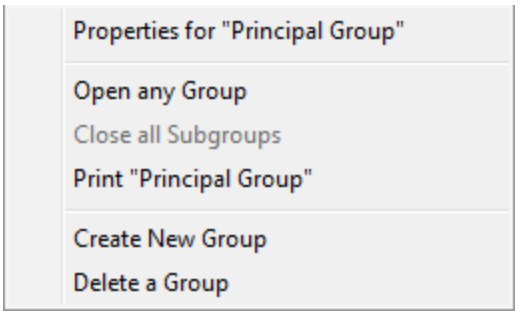
Change Properties

Selecting **Change *X* Properties** opens the Data Definition panel. From here, you can change the data description, scaling level, authority list, and more.

> **NOTE:** *x* being the name of the data you selected to change properties for.

Group

Selecting **Group** from the right-click menu gives you a list of things you can do with groups, such as create a new group, print the current group, or open another group.



Actions you can take:

- Click **Properties for "*xyz*"** to open the Group Properties panel. **Note:** *xyz* being the name of the current group open in your monitor view.
- Click **Open any Group** to change the current group displayed on the screen. If you choose a text group and the current group is a bar group, the text group with display below the bar group instead of replacing it.
- Click **Close all Subgroups** to close all open subgroups within the group you right-clicked on.
- Click **Print "*xyz*"** to open the Print panel and send the group to the printer. **Note:** *xyz* being the name of the current group open in your monitor view.
- Click **Create New Group** to configure the settings for a new group. The new group will be created within the group you right-clicked on.
- Click **Delete a Group** to delete a group.

Scale CPU Percentages

Select **Scale CPU Percentages** to scale CPU to the number of configured processors. The range when scaled is normally 0-100%, but it may be exceeded if capacity on demand is used for the partition.

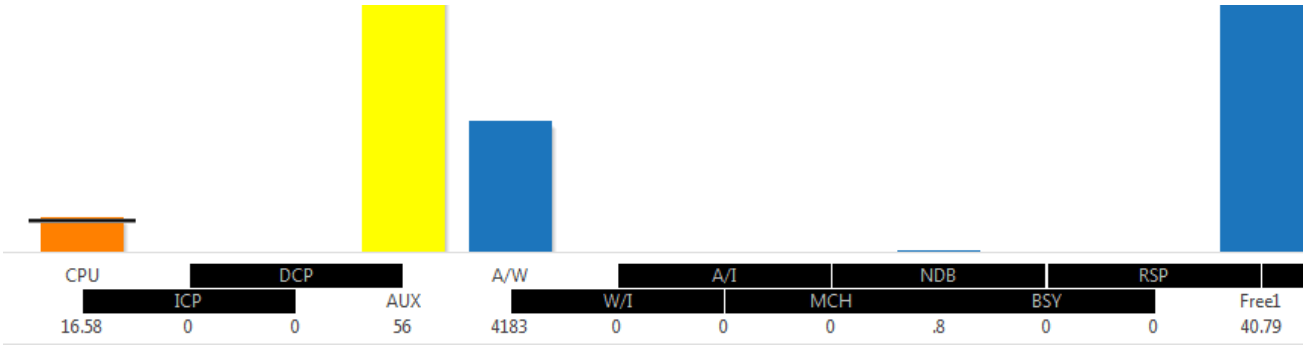
Auto-Export

For information on this option, see Using the Auto-Export Panel.

Select Multiple

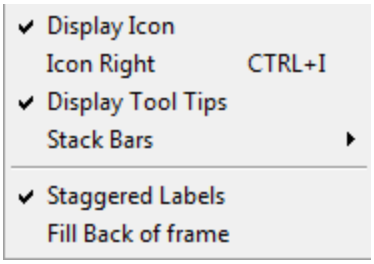
In the **Select Multiple** drop-down list, you can choose to highlight certain elements with the same types.

For example, if your CPU usage is at 15% and you choose to select those elements that are *Less or Equal to* 15%, all other elements that have a percentage of 15% or less will be highlighted for easy viewing.



Window

Selecting **Window** from the right-click menu shows you your display options for the Monitor view.

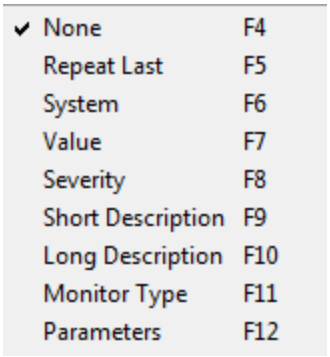


Actions you can take:

- Select **Display Icon** to display the status icon for the current system. The icon changes depending on the system status and thresholds.
- Select **Icon Right** to move the status icon to the upper right-hand corner of the window (the icon defaults to the left).
- Select **Display Tool Tips** if you want a screen tip to appear when you hover over data (bar or text groups) on the graph.
- In **Stack Bars**, you can choose the following options:
  - Select **Never Stack** if you want the graph bars to always display in a single line.
  - Select **Always Stack** if you want the graph bars to always appear stacked (half on the bottom row, half on the top).
  - Select **Stack if Portrait** if you only want the graph bars to appear stacked when the window length is adjusted to a portrait, rather than landscape, view.
- Select **Staggered Labels** if you want the labels beneath the graph bars to display on alternate lines. This is particularly useful for long labels.
- Select **Fill Back of Frame** to change the background of the frame to a slightly darker color.

Sort

Selecting Sort from the right-click menu allows you to sort your elements by system, parameter, severity, and so on.



For more information on sort options, see Sorting Elements.

Sorting Elements

You can change the order of displayed elements using the sort functions in the right-click menu.

Sorting does not permanently change the order of elements in the view. They return to their configured order when you re-open the Monitor View or change the sort sequence to None.

The Monitor View defaults to an ascending or descending sort sequence depending on the sort type. To reverse the sort sequence, select the sort option from the right-click menu again or use the sort option keyboard shortcut.

There are two ways to choose a sort order. You can select the sort option you want from the right-click menu, or you can press the matching function key.

Name	Keyboard Shortcut	Description
None	F4	Returns the elements to the default sequence
Repeat	F5	Opens the last sort option selected or refreshes the current sort option with updated system data
System	F6	Sorts by system name
Value	F7	Sorts by current value
Severity	F8	Sorts by severity (from the threshold records)
Short Description	F9	Sorts by a short description from the element definition
Long Description	F10	Sorts by a long description from the element definition
Monitor Type	F11	Sorts by the element type (for example: subsystem status and controller status)
Parameters	F12	Combines the parameters into a single string and uses this to sort, so that elements referring to the same objects are brought together

Groups

There are two types of groups you can set up in the Monitor View: bar groups and text groups.

- **Bar groups** are used for numeric data, such as CPU usage and response time. The Monitor View always has at least one bar group displayed.
- **Text groups** are used for items with discrete value, such as subsystem statuses or subsystem job counts, and display useful information in a small space. They rely on the threshold to assign a description and color the item in the list.

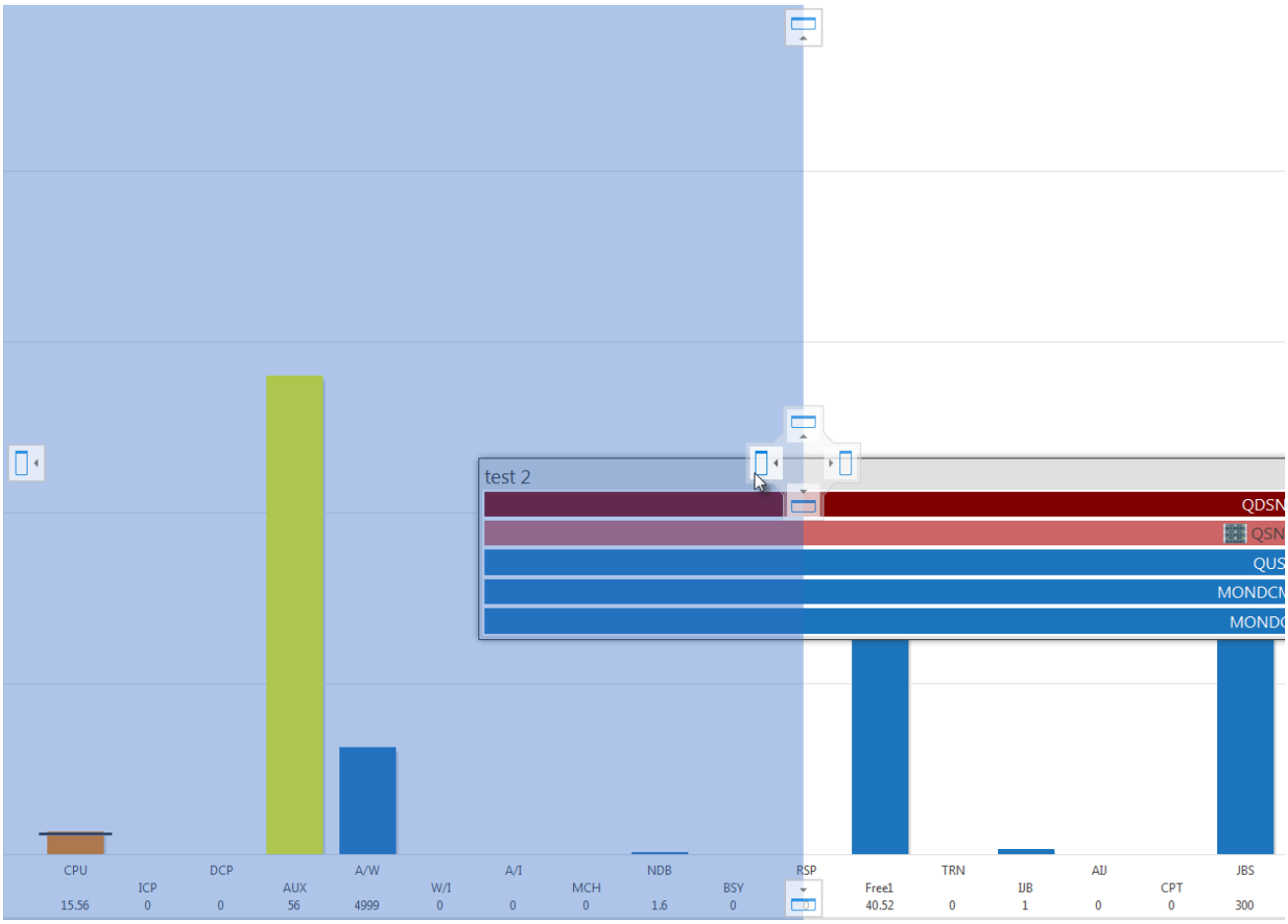
Groups, no matter the type selected, are derived from their children. The children can be other groups or simple elements. Normally, a group takes the value of the descendant with the highest severity, but it can also be used to calculate other values, such as averages and sums.

Arranging Groups

When using groups, we recommend you arrange them in a hierarchy. This allows you to keep the main text group open during normal operations while keeping the clutter of data to a minimum. Then, when a problem arises and a threshold brings something to the top level, you will see it immediately and be able to investigate.

You can arrange groups (if there is more than one open) around the window and change their size and position.

- To change the size, drag the edge of the group window in the direction you want it to go. It can move left, right, up, and down depending on the group's current position.
- To change the position, click the group's title bar and drag it to a new location. The available locations are shown through icons on the screen and area highlights (see image below).



- If you want the group to be separate from the Monitor View window, right-click the title bar and select **Floating**. To reattach the group to the Monitor View window, right-click the title bar and select Docking. You can also click the button to select either of these options.
- If you want to auto hide the group from the Monitor View window, right-click the title bar and select **Auto Hide** or click the button.
- To remove the group from the screen, click the **Close** button. You can reopen a group at any time by selecting **Open any Group** from the right-click menu.

Opening a Group

The following sections cover a few ways you can open a group from the Monitor View.

Opening a random group

You can open a random group by selecting **Open any Group** from the right-click menu. When the **Open Group for system** panel appears, select a group from the displayed hierarchy, then click OK.

Opening a group in another group

You can open a group by double clicking on a group shown within another group, as long as it is not a calculated result. If it is a calculated result (sum or average), the group will be treated as an element and open in the Short-Term History view.

Finding the element that triggered the threshold

If a high level group is displayed and a group within that group shows a problem with an element, you can open the group containing that element no matter where it is in the hierarchy.

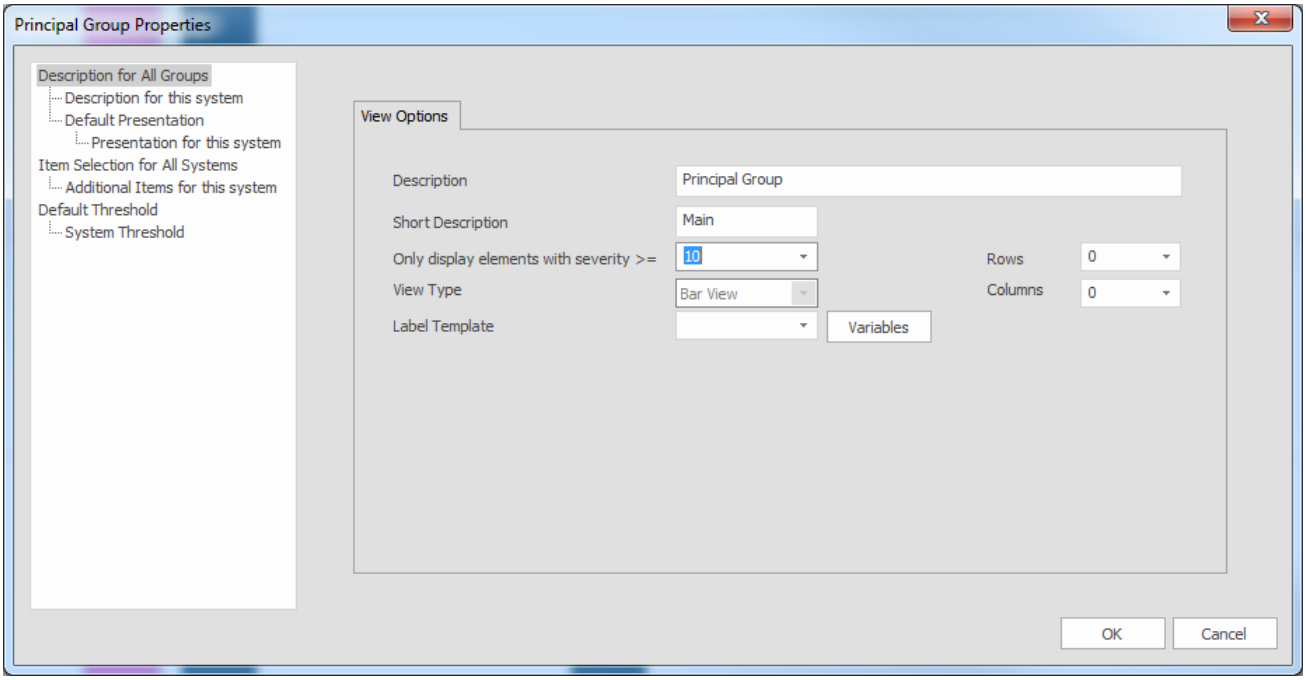
To open a group and see the problematic element, right-click the high level group and select **Open Threshold Source**. Otherwise, you can open the threshold source by holding down `Ctrl` and double clicking on the item.

Filtering by Severity

You can filter items in a group by the severity of the current threshold for each group element.

To set up a severity filter:

1. Select **Properties for X Group** for the desired group from the right-click menu. This opens the Group Properties panel.
2. On the View Options panel in the Description for All Groups tab, enter a severity level in the **Only display elements with severity >=** field, or select a predefined level using the drop-down list.



3. Click **OK** to save the new severity filter.

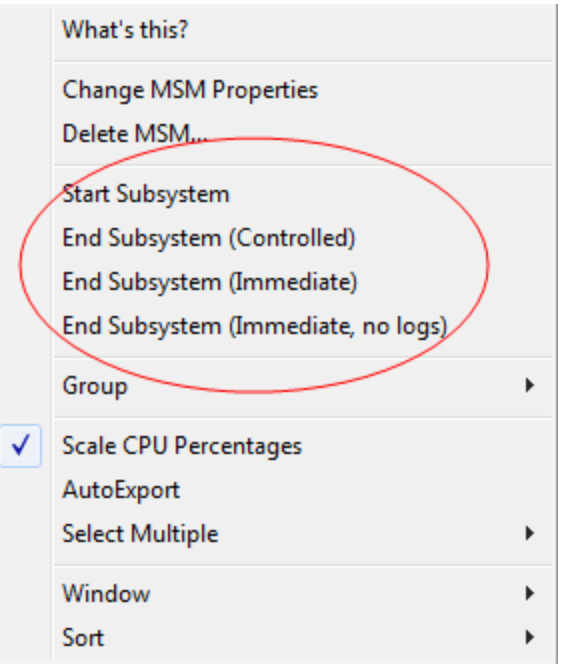
Once the severity filter is in place, only elements with the desired severity or greater will display in the group. If no elements are selected, a message will display, indicating that all items have been excluded by the filter.

Running Commands against Monitored Objects

Many elements, depending on the type of object being monitored, allow commands to be run. For example, you can start or end the subsystem for a monitored subsystem status through the Monitor view.

Running Commands

To run a command, select an element in a table or graph and open the right-click menu.



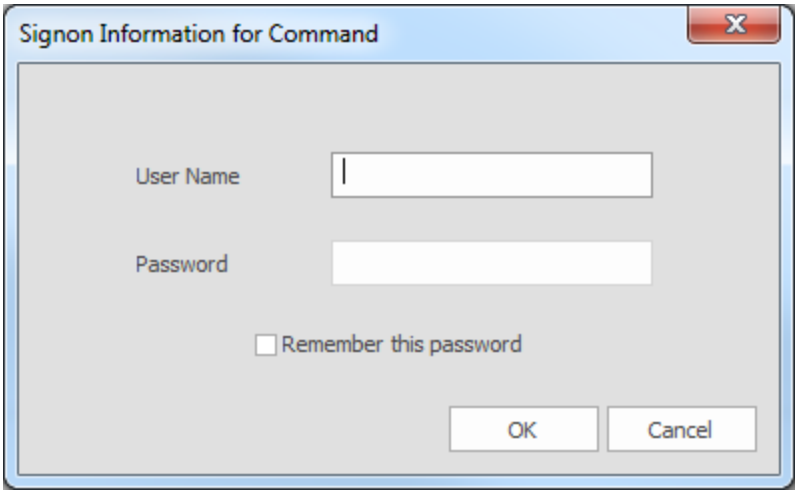
Depending on which monitored object you want to view, certain commands may not be available. See the table below for a list of elements and their commands.

Actions you can take:

- You can select multiple objects of the same type and run a command for all of them. To do this, left-click the first element, then hold down `Ctrl` and select the others you want in the batch.
- You can select multiple objects based on their value or type. To do this, right-click an element and hover over **Multiple Select**. Choose an option from the drop-down list to select the items you want in the group.

Things you should know:

- You may be prompted for a user name and password before you can run a command.



> **NOTE:** If you select Remember this password, your sign on information will be retained for as long as Robot Monitor is running. Your sign on information is used across all systems unless otherwise prompted.

- If the command name ends in three dots, it will be prompted using Operations Navigator before running.
- When you run a command, an information window appears. This window allows you to follow the command's progress and results.

Available Commands

The following element types and commands are available in Robot Monitor.

Element Type	Commands	Confirmation Required
Line Status		
	Vary On	
	Vary Off	Yes
	Resume Recovery	
	End Recovery	
Controller Status		
	Vary On	
	Vary Off	
	Resume Recovery	Yes
	End Recovery	

Element Type	Commands	Confirmation Required
	Vary On	
Device Status		
	Vary On	
	Vary Off	Yes
	Resume Recovery	
	End Recovery	
	Hold Device	
	Release Device	
Subsystem Status		
	Start Subsystem	
	End Subsystem (Controlled)	Yes
	End Subsystem (Immediate)	Yes
	End Subsystem (Immediate, no logs)	Yes
Job Queue Count		
	Release Job Queue	
	Hold Job Queue	Yes
Job Queue Status		
	Release Job Queue	
	Hold Job Queue	Yes
Spooled File Count		
	Release Output Queue	
	Hold Output Queue	Yes
	Clear Output Queue	Yes
Network Interface Status		
	Vary On	
	Vary Off	Yes
	Resume Recovery	

Element Type	Commands	Confirmation Required
	End Recovery	
Network Server Status		
	Vary On	
	Vary Off	Yes
	Resume Recovery	
	End Recovery	
Output Queue Status		
	Release Output Queue	
	Hold Output Queue	Yes
	Clear Output Queue	Yes
Job Queue Active Job Count		
	Release Job Queue	
	Hold Job Queue	Yes
Job Queue Max Wait Time		
	Release Job Queue	
	Hold Job Queue	Yes
Job Queue Avg Wait Time		
	Release Job Queue	
	Hold Job Queue	Yes

Collapsing Duplicate Items

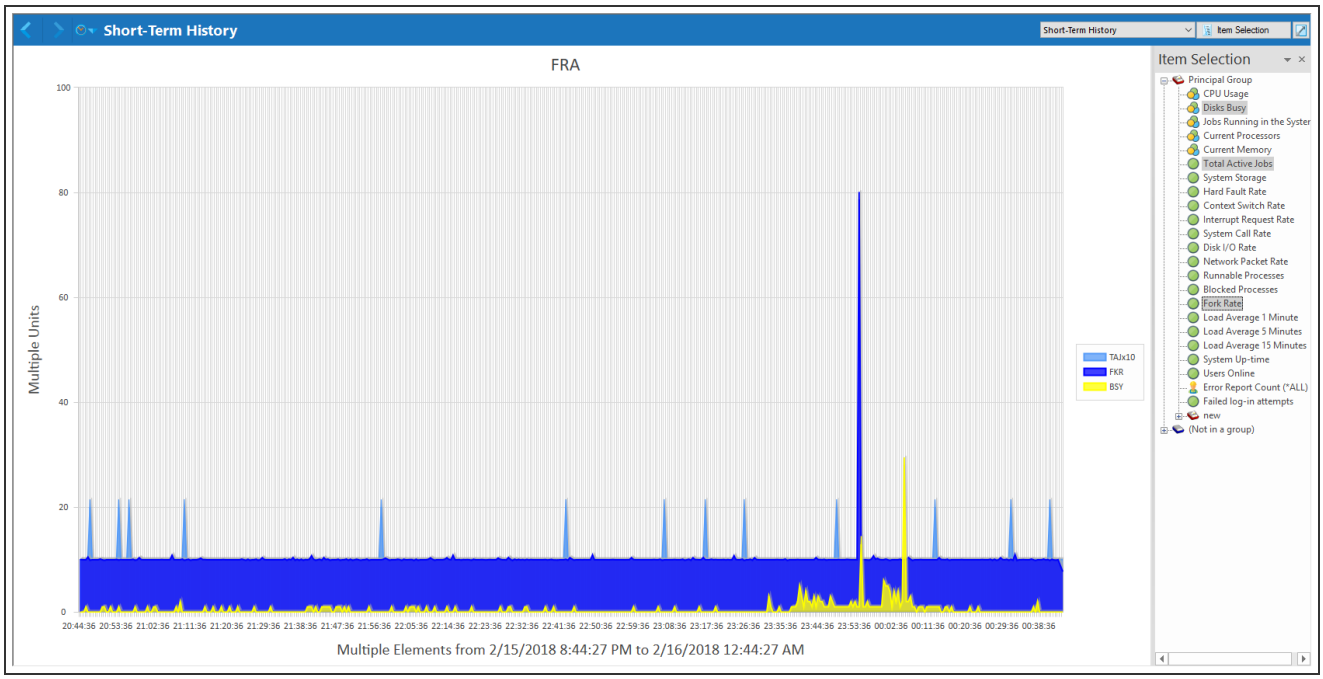
You can collapse duplicate items in a multiple system view in order to produce a cross system summarization of performance data. Choosing to collapse items by **Using Default Summarization** will summarize the various data types in ways that make sense. However, you can also choose to summarize by average value, maximum severity, sum of items, maximum value, and minimum value.

To summarize each performance element for the entire window, right-click the background and select an option under Collapse All Items to Group. You can also collapse individual items by right-clicking on them and selecting an option from the Collapse All Items to Group list.

When duplicate items are collapsed, an additional line of labels appears at the bottom of the bar view. For a group summarized by maximum value, the short name for the system from which the value has been taken is displayed. For other summarization types, and for maximum value when all values of zero, this line displays the summarization type.

The Short-Term History View

The Short-Term History view displays up to nine hours of history for one or more elements. History is shown from a selected point in the past to the present, and the graph updates continuously as it receives samples from the central system.



When the Short-Term History view is opened, Robot Monitor checks to see whether the required history is available for viewing. If it is not, Robot Monitor will schedule a download of the missing data. This download is performed in the background, and only one download is performed at a time.

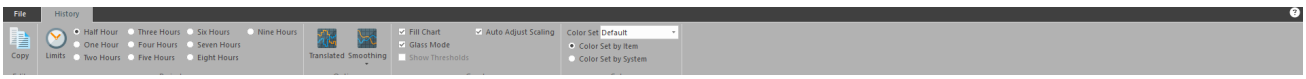
Short-Term History View Options

The Item Selection Sidebar

Short-Term History View Options

The following sections contain general information about the settings you can use to customize your Short-Term History view.

The Line View History Ribbon



Actions you can take:

- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Select **Limits** to view the Short-Term History Properties panel. From here, you can choose the date/time range you want downloaded and plotted on the graph.

- Select the radio button that corresponds to the time period you want shown on the current graph. For example, if you choose **Two Hours**, the graph will show you two hours of data. If you choose **Nine Hours**, the graph will expand to show you nine hours of data.
- Click **Translated** to switch between translated and numeric data graphs. Translated graphs show the threshold levels at a particular point in time.
- Click **Smoothing** to apply smoothing to the graph. This allows easier identification of trends. For some examples of the differences between options, see Example: Smoothing.
- Select **Fill Chart** to fill the line graph with your selected color.
- Select **Glass Mode** to make the data fill color transparent.
- Select **Show Thresholds** to display the threshold ranges by adding colored bands to the background of the graph.
- Select **Auto Adjust Scaling** to automatically adjust the scaling on the sides of the graph to fit the current data.
- Choose a **Color Set** from the drop-down to apply to your graph. This changes the color of the line graph data. The default color is blue.
- Select **Color Set by Item** to color differentiate the graph by item or **Color Set by System** to color differentiate the graph by system.

Minimizing and Restoring the Line View History Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **History** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **History** tab. When you are done, click anywhere in the Short-Term History view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

- Click the **New Window** to open the Short-Term History view in a separate GUI window.
- Click the **Item Selection** to select or deselect different items to display in the Short-Term History view.
- Click the **Short-Term History** view, then select a new view from the drop-down list to visit that window.

- Click the navigation buttons  to move back or forward from a Short-Term History drill-down or other previously viewed screens.

Printing View Details

Use the following steps to print details related to the Short-Term History view.

1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

The Short-Term History Window

Actions you can take:

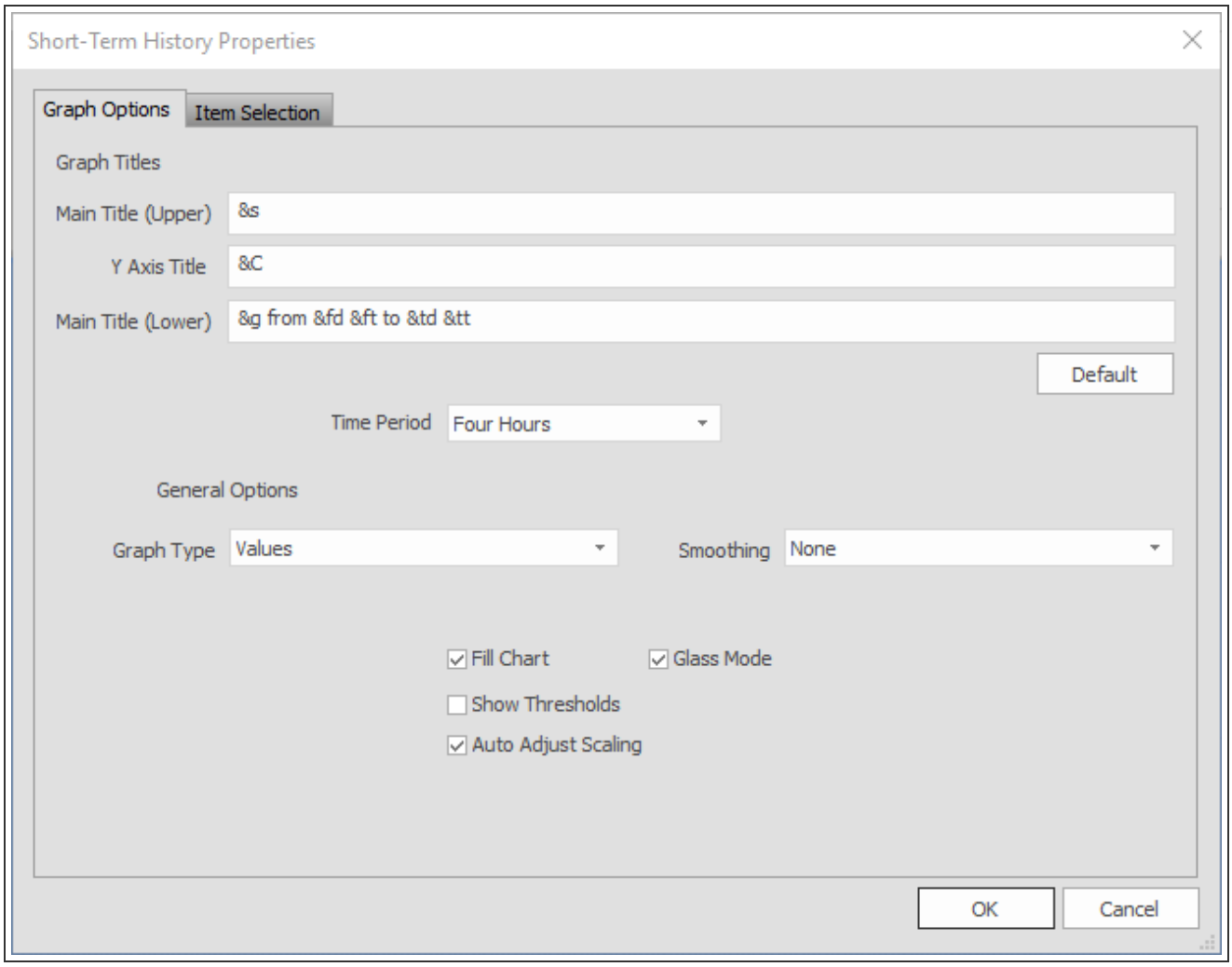
- When the Short-Term History view displays multiple elements, you can add or subtract them by using the Item Selection bar.
- You can copy the view to a dashboard by clicking the **Copy** button in the Line View menu and pasting into the dashboard of your choosing.
- Double-click a time slot on the graph to open the Highest CPU Jobs view for that time.

Short-Term History Properties Panel

This panel opens when you click the **Limits** button in the Short-Term History Options ribbon on the Short-Term History view. There are two tabs you can use on this panel.

Graph Options

This tab allows you to change the graph settings and the look/feel of the data shown.



Actions you can take:

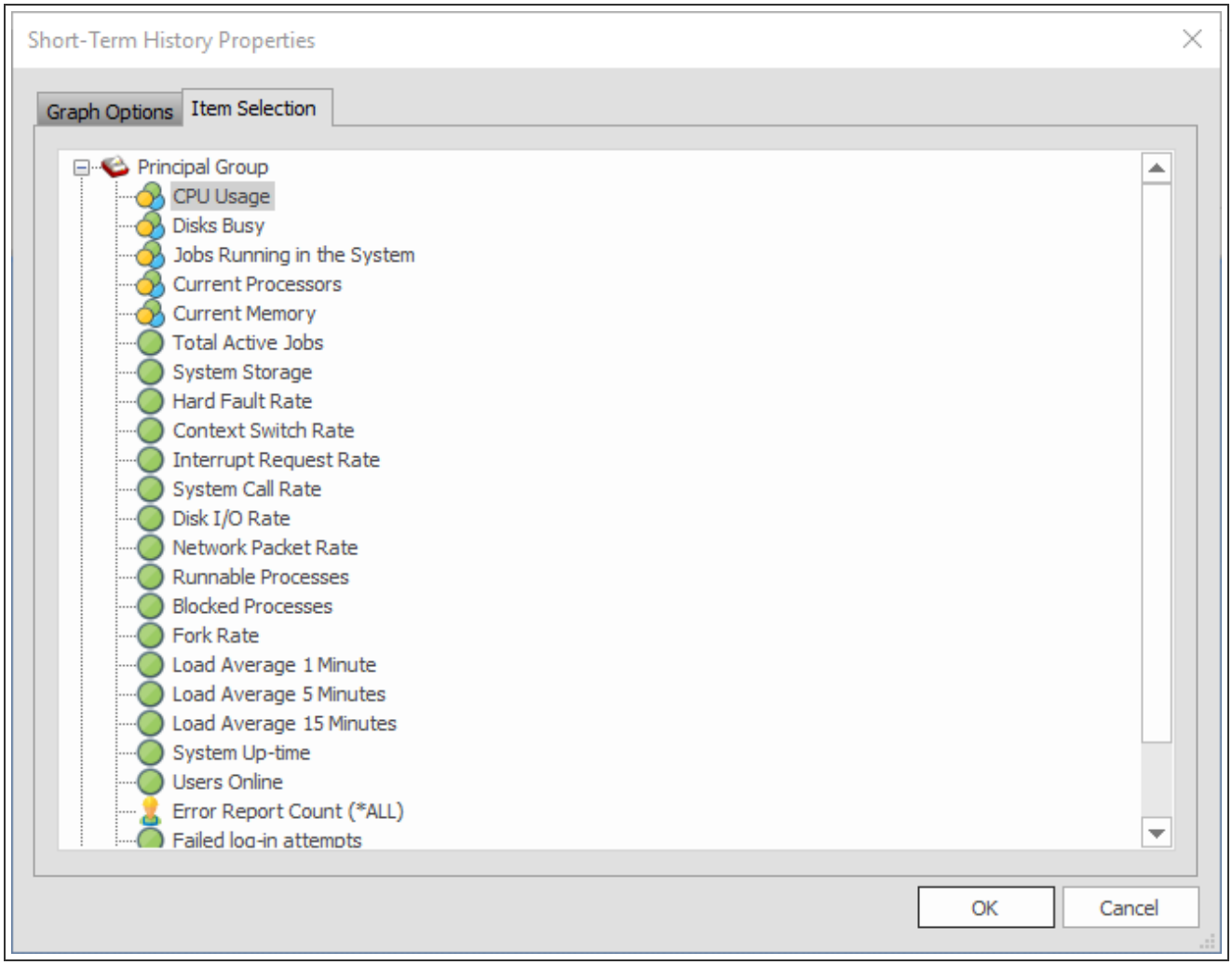
- Enter graph titles for the Main Title (Upper), Y Axis Title, and Main Title (Lower), if other than the default.
- Enter a **Time Period** to display in the graph.
- Select a **Graph Type**. You can choose values or translated values.
- Select a level of **Smoothing** from the drop-down list. The smoothing controls the level of detail in the graph, so the higher the level of smoothing selected, the gentler the curve that is drawn.
- Check the boxes of the look/feel settings to apply to the graph. You can choose to fill the graph, have the graph be transparent so you can see the grid (Glass Mode), toggle the thresholds on and off, and auto adjust the graph scaling.

Item Selection

This tab allows you to select the items you want to graph. You can choose to plot one item or several items.

Items that show in bold contain thresholds that have detail records. These items can be plotted in translated graphs.

If there are any defined elements that are not in a group, they will appear at the bottom of the list as *(Not in a group)*. These items are grouped by collector type and are shown in alphabetical order.



Actions you can take:

- Click an item to select it. If you want multiple items, hold down `Ctrl` and click the items to highlight them. **Note:** You can also use `Ctrl`-click to clear previously selected options.

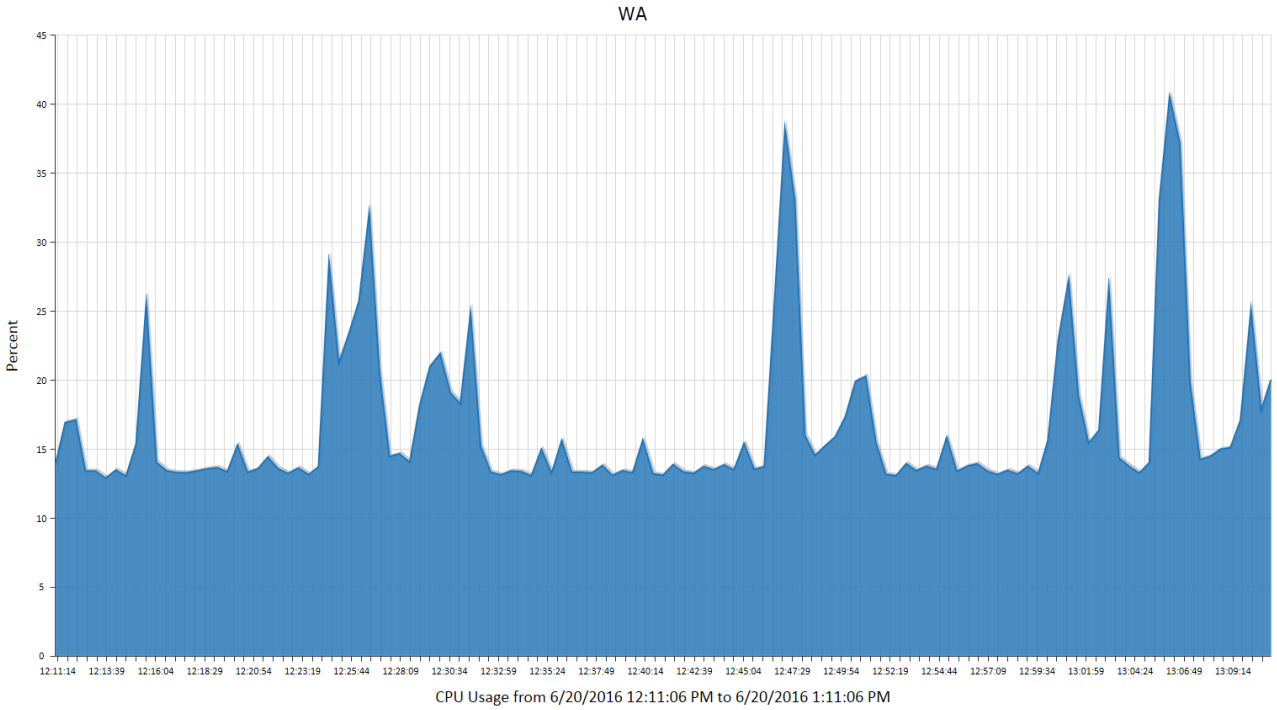
[Short-Term History View Options](#)

[Example: Smoothing](#)

[The Short-Term History View](#)

The Detailed History View

With the Detailed History view, you can create line graphs of historical data and investigate previous high-impact jobs.



To view the jobs using the most CPU during a specific time, double-click a time slot on the graph to open the Highest CPU Jobs view.

Detailed History View Options

The following sections contain general information about the settings you can use to customize your Detailed History view.

The Detailed History Options Ribbon

Actions you can take:

- Click **Previous Period** to roll back to the previously monitored time range for the graph.
- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Select **Limits** to view the Detailed History Properties panel. From here, you can choose the date/time range you want downloaded and plotted on the graph.
- Click **Next Period** to roll forward to the next monitored time range for the graph.
- Click **Translated** to switch between translated and numeric data graphs. Translated graphs show the threshold levels at a particular point in time.
- Click **Smoothing** to apply smoothing to the graph. This allows easier identification of trends. For some examples of the differences between options, see Example: Smoothing.
- Select **Fill Chart** to fill the line graph with your selected color.
- Select **Glass Mode** to make the data fill color transparent.

- Select **Show Thresholds** to display the threshold ranges by adding colored bands to the background of the graph.
- Select **Auto Adjust Scaling** to automatically adjust the scaling on the sides of the graph to fit the current data.
- Choose a **Color Set** from the drop-down to apply to your graph. This changes the color of the line graph data. The default color is blue.
- Select **Color Set by Item** to color differentiate the graph by item or **Color Set by System** to color differentiate the graph by system.

Minimizing and Restoring the Detailed History Options Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **Options** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **Options** tab. When you are done, click anywhere in the Detailed History view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

- Click **Item Selection** to open the Item Selection sidebar.
- Click **New Window** to open the Detailed History view in a separate GUI window.
- Click the **Detailed History** view, then select a new view from the drop-down list to visit that window.

Printing View Details

Use the following steps to print details related to the Detailed History view.

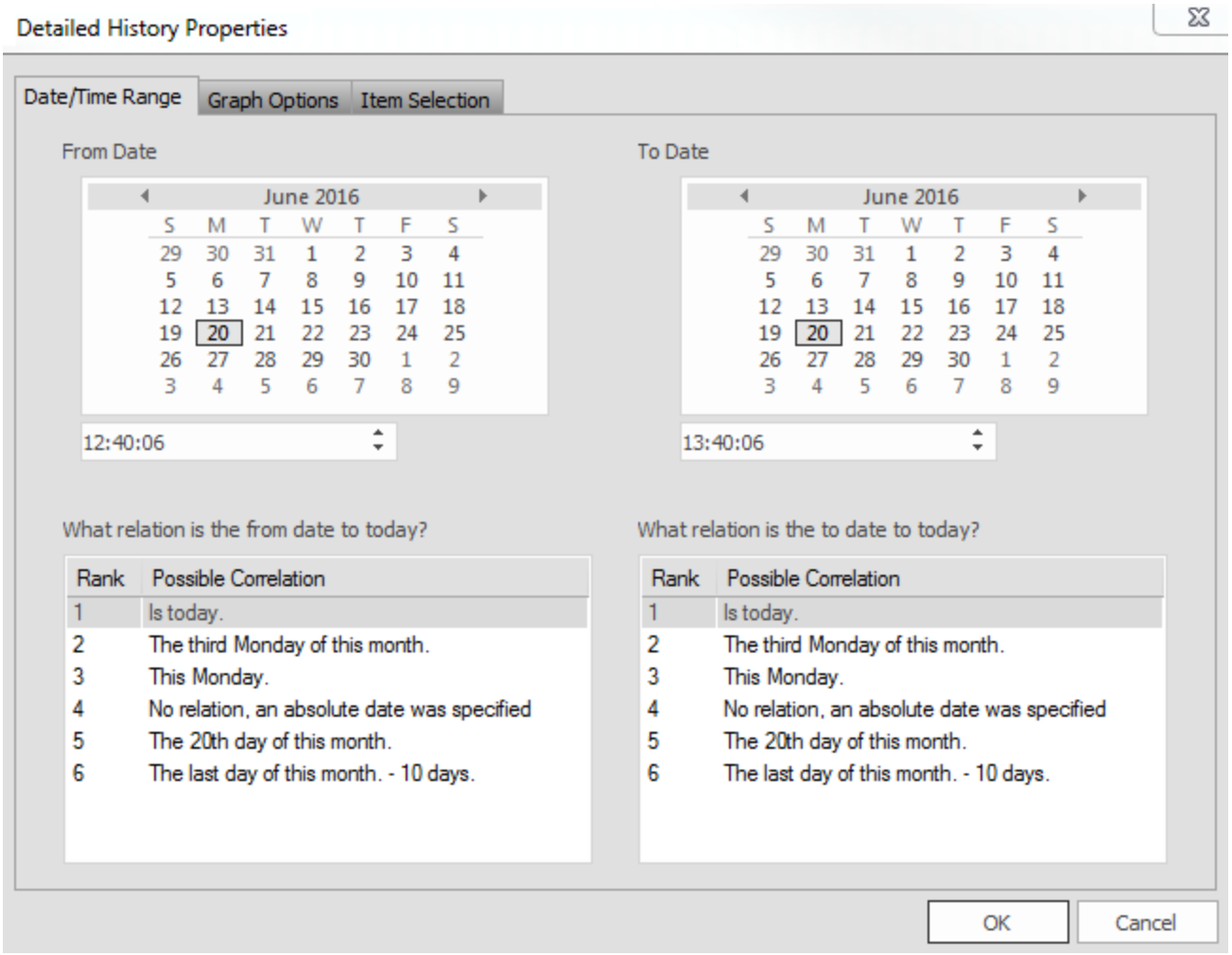
1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

Detailed History Properties Panel

This panel opens when you click the **Limits** button in the Detailed History Options ribbon on the Detailed History view. There are three tabs you can use on this panel.

Date/Time Range

This tab allows you to determine the date/time range you want downloaded and plotted on the graph.

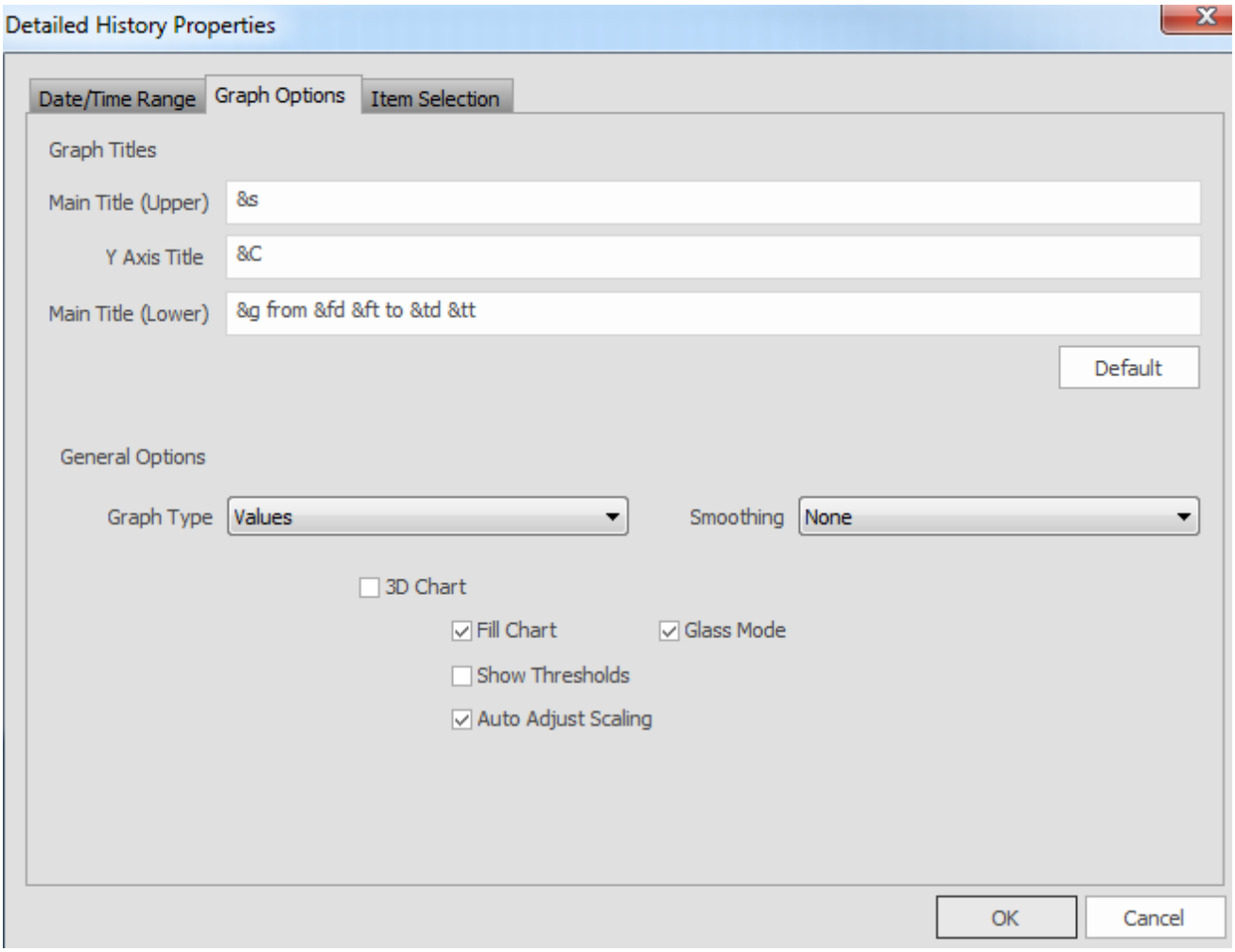


Actions you can take:

- On the calendars, select a **From Date** and **To Date** that you want drawn on the graph. **Note:** Use the arrows to change the calendar month.
- Enter a time in the numeric field below each calendar to plot the view of your graph. As an example: for a detailed look at your data, you could graph a date/time range from June 20th at 10 a.m. to June 20th at 11 a.m. For a wider scope of data, you could graph a date/time range from June 20th at 10 a.m. to June 21st at 10 a.m.
- Select the relationship of the From Date and the To Date to the current date. **Note:** This section is primarily useful for running report output.

Graph Options

This tab allows you to change the graph settings and the look/feel of the data shown.



Actions you can take:

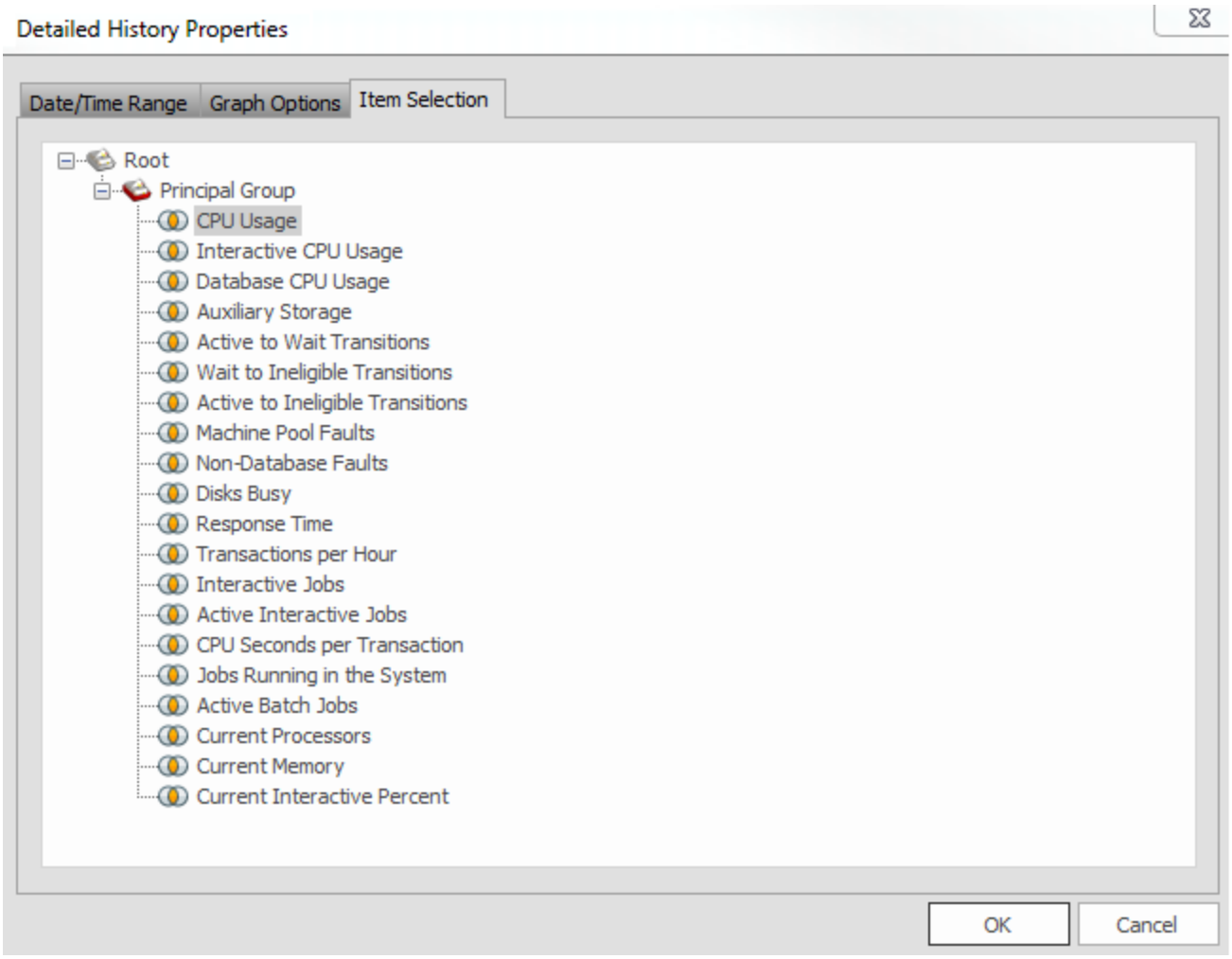
- Enter graph titles for the Main Title (Upper), Y Axis Title, and Main Title (Lower), if other than the default.
- Select a **Graph Type**. You can choose values or translated values.
- Select a level of **Smoothing** from the drop-down list. The smoothing controls the level of detail in the graph, so the higher the level of smoothing selected, the gentler the curve that is drawn.
- Check the boxes of the look/feel settings to apply to the graph. You can choose to fill the graph, have the graph be transparent so you can see the grid (Glass Mode), toggle the thresholds on and off, and auto adjust the graph's scaling.

Item Selection

This tab allows you to select the items you want to graph. You can choose to plot one item or several items.

Items that show in bold contain thresholds that have detail records. These items can be plotted in translated graphs.

If there are any defined elements that are not in a group, they will appear at the bottom of the list as *(Not in a group)*. These items are grouped by collector type and are shown in alphabetical order.



Actions you can take:

- Click an item to select it. If you want multiple items, hold down `Ctrl` and click the items to highlight them. **Note:** You can also use `Ctrl`-click to clear previously selected options.

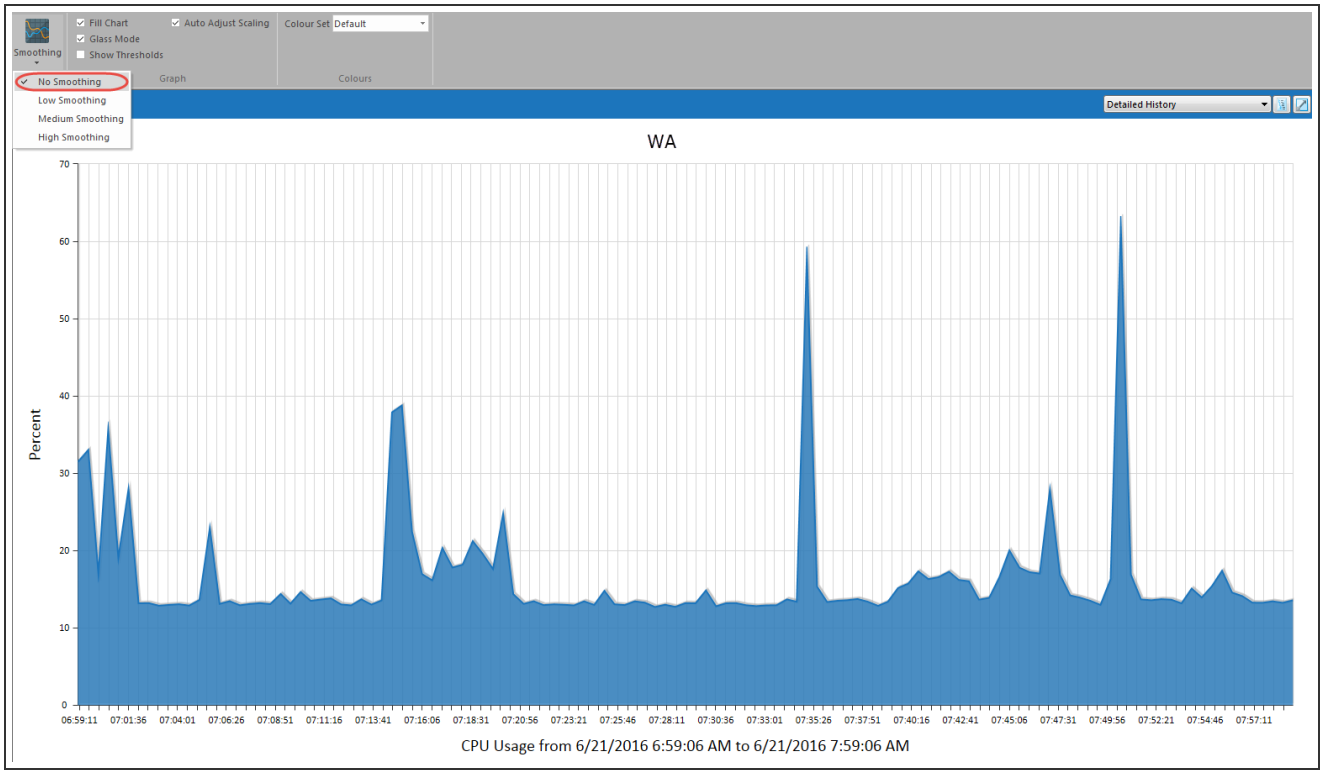
Example: Smoothing

Smoothing controls the level of detail in the graph. The higher level of smoothing you select, the gentler the curve that is drawn.

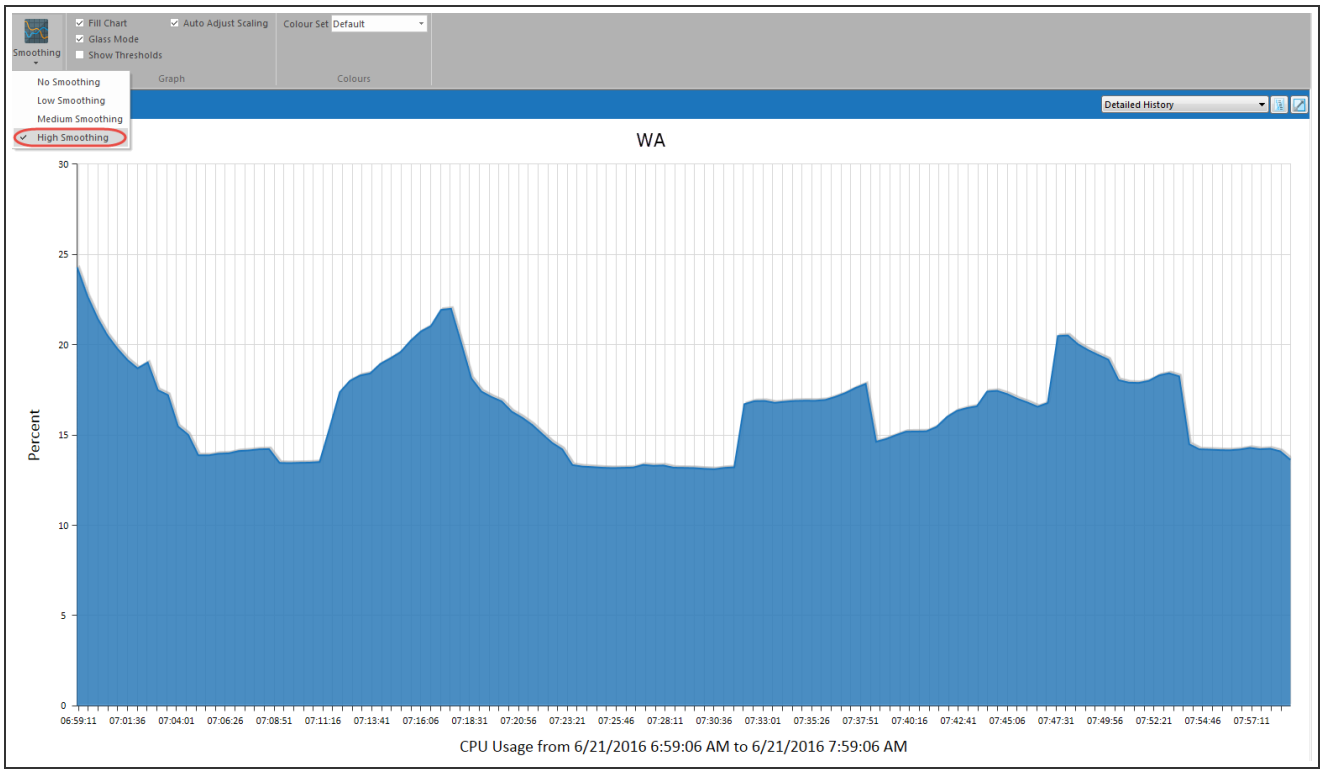
Under the Detailed History options ribbon in the Detailed History view and the Short-Term History options ribbon, you can choose No Smoothing, Low Smoothing, Medium Smoothing, or High Smoothing.

The following examples offer a visual representation of two choices: No Smoothing and High Smoothing. The data used for both choices is exactly the same.

Example 1: No Smoothing



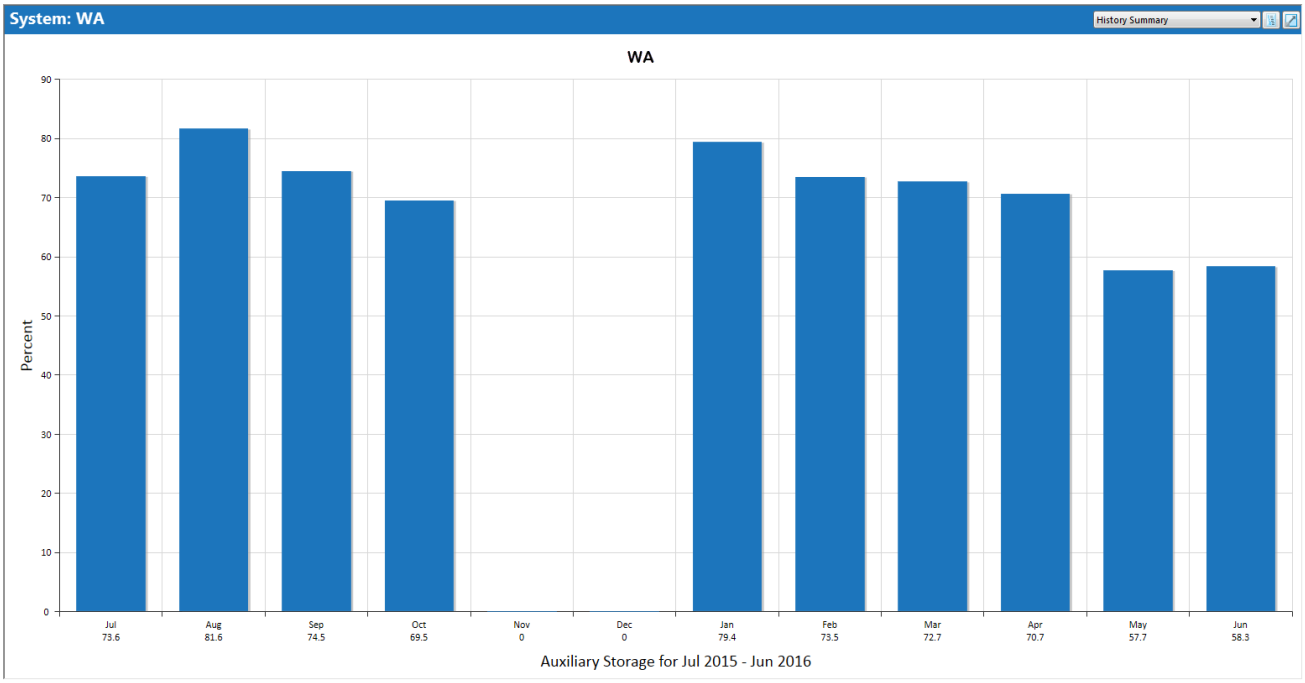
Example 2: High Smoothing



The Detailed History View

The History Summary View

The History Summary view provides a summarized view of your system's performance data. You can summarize numeric data by hour, day, and month, and other detailed options are available, too. Status and alphabetic information is summarized by threshold record, and numeric data may also be summarized using thresholds.



Data is summarized on the host system. Detailed data is summarized each day at a time configured using the MONCFG command in the green screen. Data can also be manually summarized using the MONSUM command, and detail data can be completely summarized using the MONRESUM command.

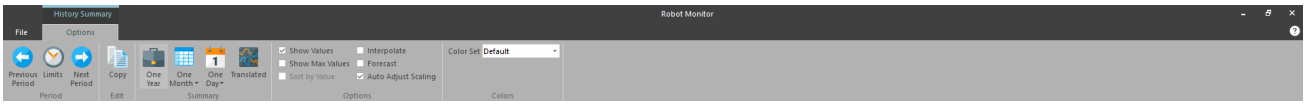
> **NOTE:** The MONRESUM command is intended for use after changing summarization parameters or thresholds.

As with the other summary modules, data can be stored locally (or on a PC server) to improve performance when the same information is requested again. When data is loaded from a local file, the program checks the database on the host system and warns you if additional data is available. Then, you are given the option of downloading the new data. If you use the saved data, the text (Saved Data) will be added to the title of the window. (This only happens on the display; it is not printed.)

History Summary View Options

The following sections contain general information about the settings you can use to customize your History Summary view.

The History Summary Options Ribbon



Actions you can take:

- Click **Previous Period** to roll back to the previously monitored time range for the graph.
- Click **Limits** to view the History Summary Properties panel. From there, you can choose a summary type and forecast period for the data on your graph.
- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Click **Next Period** to roll forward to the next monitored time range for the graph.
- Click **One Year** to view a forecast of your system's performance data for the next 12 months.
- Click **One Month** to view a forecast of your system's performance data for the next month. You can view your month by hour or element, as well, by choosing an option from the drop-down.
- Click **One Day** and to view a forecast of your system's performance data for the next 24 hours. You can view your day by element instead of hour by choosing the option from the drop-down.
- Click **Translated** to switch between translated and numeric data graphs. Translated graphs show the threshold levels at a particular point in time.
- Select **Show Values** to show value numbers below each data bar.
- Select **Show Max Values** to show the maximum value for each data bar above the current value.
- Select **Sort by Value** to sort bars representing translated values by their percentages. **Note:** This option only applies to translated graphs.
- Select **Interpolate** to allow Robot Monitor to make a guess at any missing data points on the graph. **Note:** Some data points must be available on the graph for this to work.
- Select **Forecast** to allow Robot Monitor to project future values for the average numeric data graphs.
- Select **Auto Adjust Scaling** to automatically adjust the scaling on the sides of the graph to fit the current data.
- Choose a **Color Set** from the drop-down to apply to your graph. This changes the color of the line graph data. The default color is blue.

Minimizing and Restoring the History Summary Options Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **Options** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **Options** tab. When you are done, click anywhere in the History Summary view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

- Click the **Item Selection** button to open the Item Selection sidebar.
- Click the New Window button to open the History Summary view in a separate GUI window.
- Click the **History Summary** view, then select a new view from the drop-down list to visit that window.

Printing View Details

Use the following steps to print details related to the History Summary view.

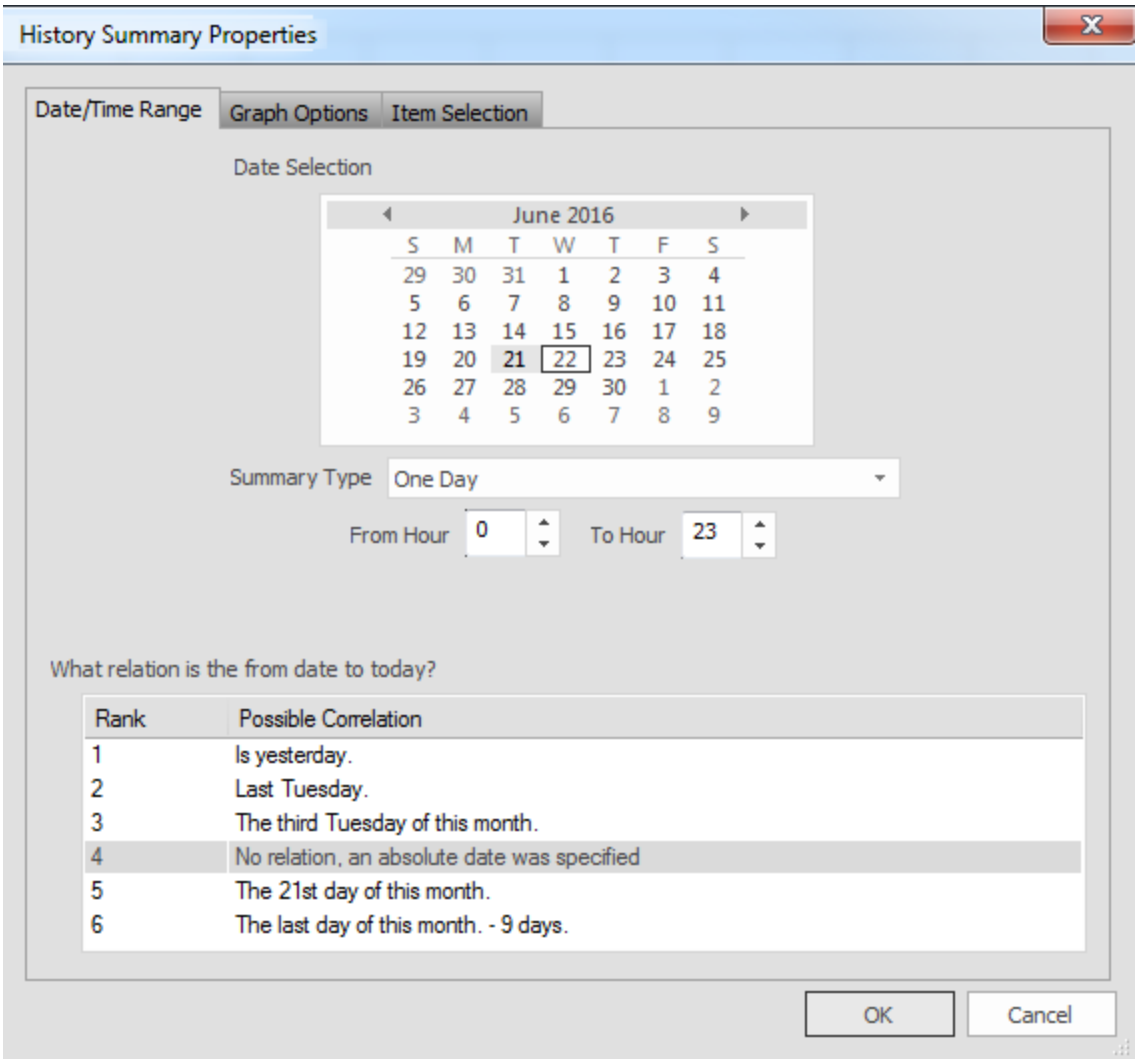
1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

History Summary Properties Panel

This panel opens when you click the **Limits** button in the History Summary Options ribbon on the History Summary view. There are three tabs you can use on this panel.

Date/Time Range

This tab allows you to determine the date/time range you want downloaded and plotted on the graph.



Actions you can take:

- On the calendar, choose the **Date Selection** that you want drawn on the graph. Use the arrows to change the calendar month.
- Select what type of summary you want displayed in the graph. You can choose one of the following options in the **Summary Type** drop-down list:

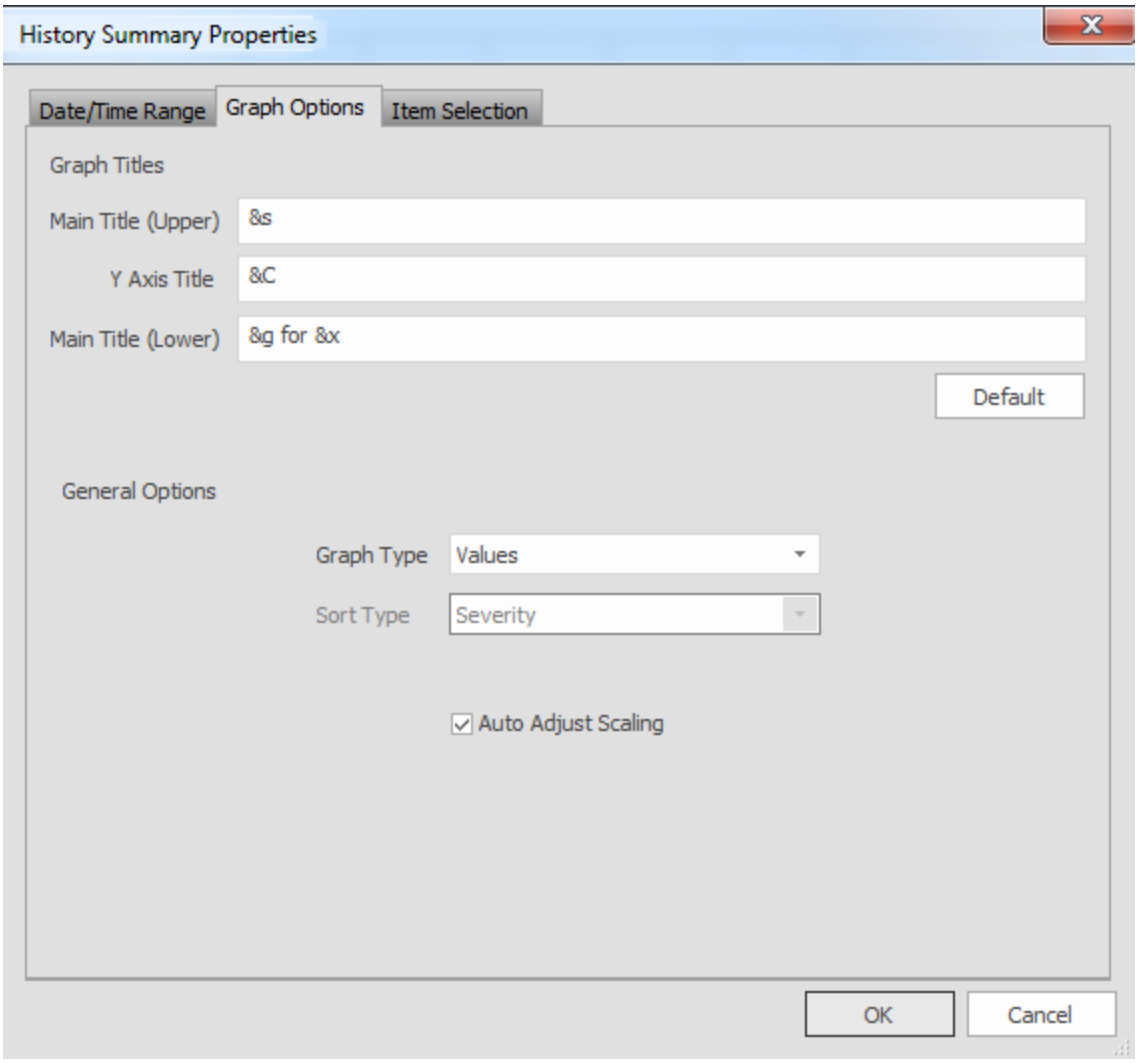
Summary Type	Description
One Year	This summary type shows you a forecast of your system's performance data for the next 12 months. You can choose to display a forecast period between 0 and 24 months.
One Month	This summary type shows you a forecast of your system's performance data for the next month. You can choose to include only certain days of the week in the data summary.

Summary Type	Description
One Month by Hour	This is similar to the One Month summary type, only it shows your system's performance data for the next month by hour instead of day. You can choose to include only certain hours of the day in the data summary, or you can have it include all hours. For example, you could choose for monthly data to be recorded only between the hours of 9 a.m. and 5 p.m.
Month by Element	This summary type shows you a forecast of your system's performance data for the next month by element. If you have more than one element monitored in the widget, all of them will show up on the graph.
One Day	This summary type shows you a forecast of your system's performance data for the next 24 hours. You can choose to include only certain hours of the day in the data summary, or you can have it include all hours. For example, you could choose for the day's data to be recorded only between the hours of 9 a.m. and 5 p.m.
Day by Element	This summary type shows you a forecast of your system's performance data for the next day by element. If you have more than one element monitored in the widget, all of them will show up on the graph.

- Select the relationship of the Selection Date to the current date. This section is primarily useful for running report output.

Graph Options

This tab allows you to change the graph settings and the look/feel of the data shown.



Actions you can take:

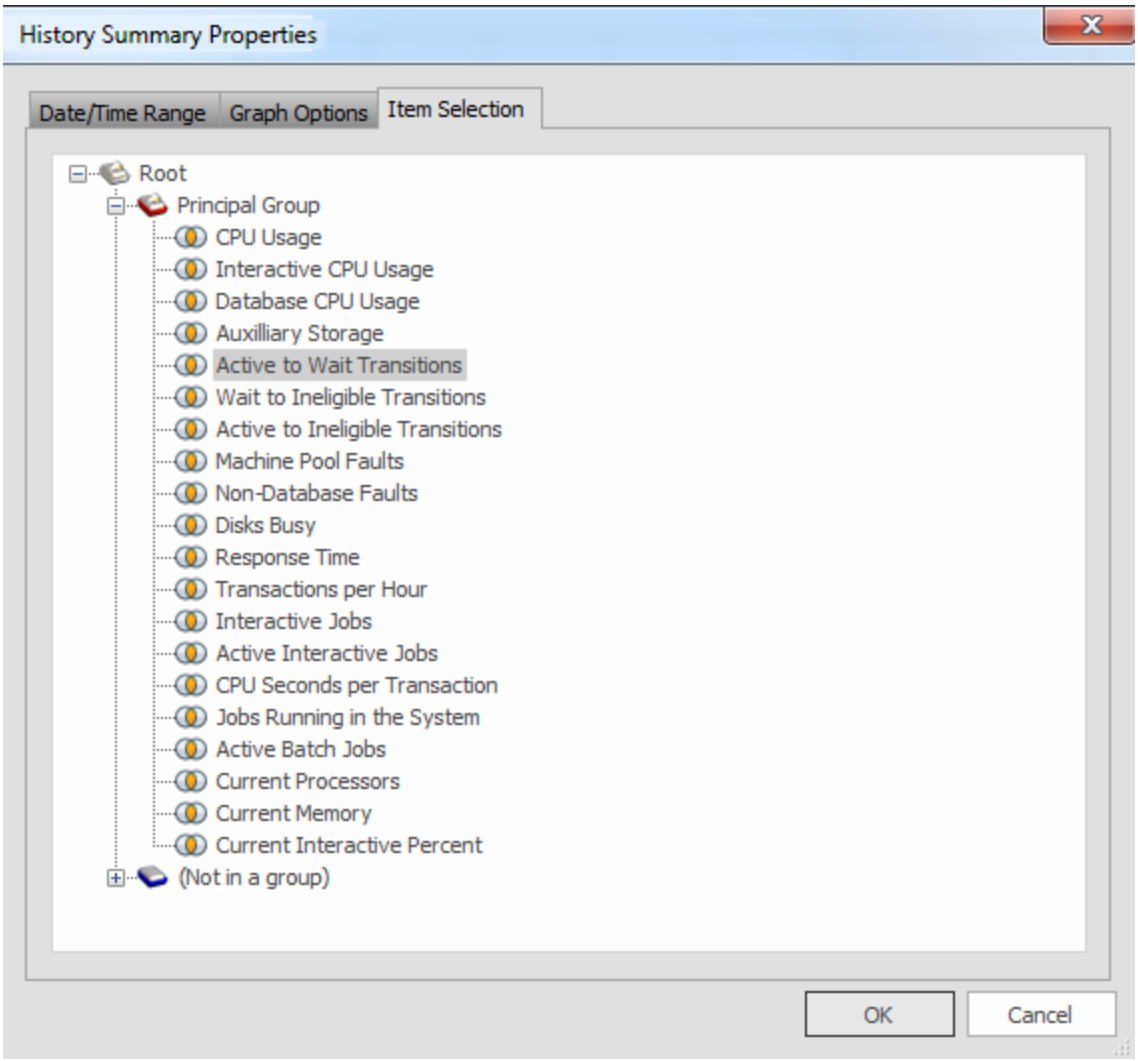
- Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
- Select a **Graph Type**. You can choose Values or Translated Values.
- If you choose Translated Values, you can also choose your sort type. You can sort by severity or values.

  > **NOTE:** Severity is the default for the Values graph type.

- Choose whether or not you want the graph scaling to auto adjust.

Item Selection

This tab allows you to select the items you want to graph. You can choose to plot one item at a time or multiple elements at a time.



Items that show in bold contain thresholds that have detail records. These items can be plotted in translated graphs.

If there are any defined elements that are not in a group, they will appear at the bottom of the list as *(Not in a group)*. These items are grouped by collector type and are shown in alphabetical order.

Presenting Summarized Data

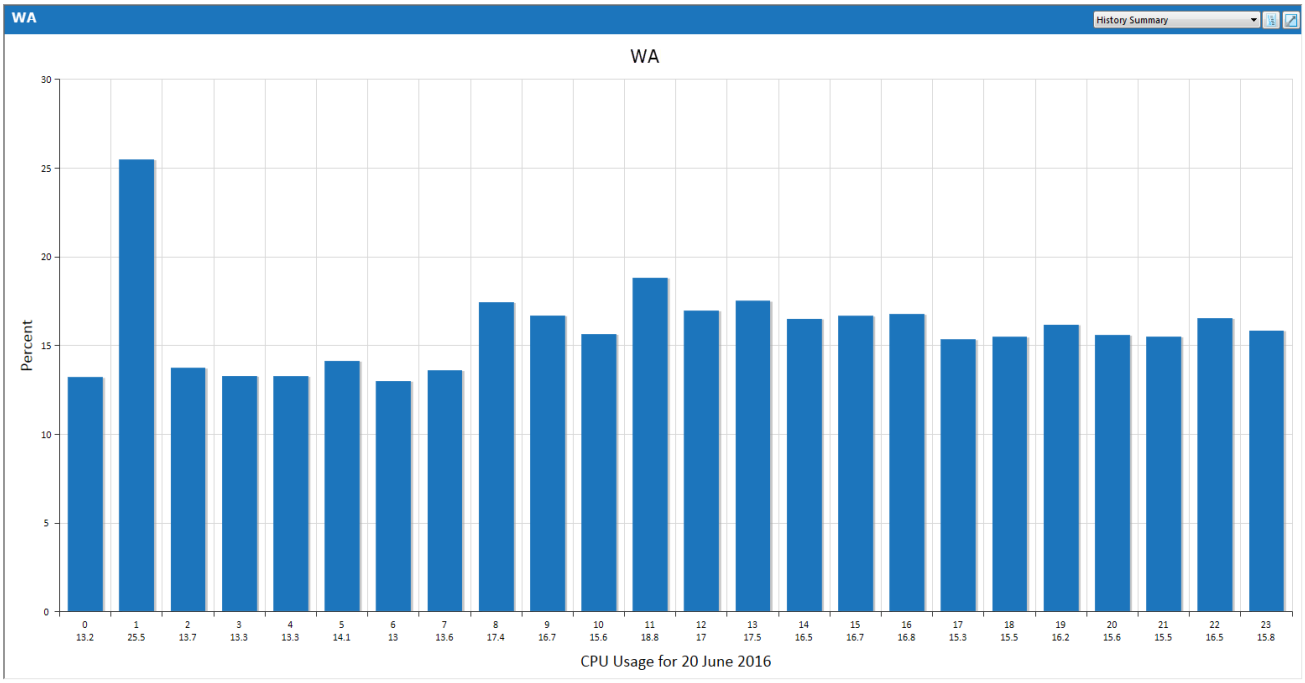
When you set up your summarized graph, you can present the data in two ways: by numeric data and by threshold record.

Numeric data: Numeric data provides the average value for each time period presented as a bar in the graph. Threshold information can be displayed on the axis. Since most status information is not numeric, presenting the data as numeric data is generally only used in specific situations.

Threshold record: Data can be summarized by threshold record. This approach to summarizing is particularly suited to data types that are fixed values, such as subsystem status, job queue status, and line status. You can also use threshold records to summarize ordinary numeric data when you want to show the amount of time certain values within particular ranges will take.

Averaged Numeric Data

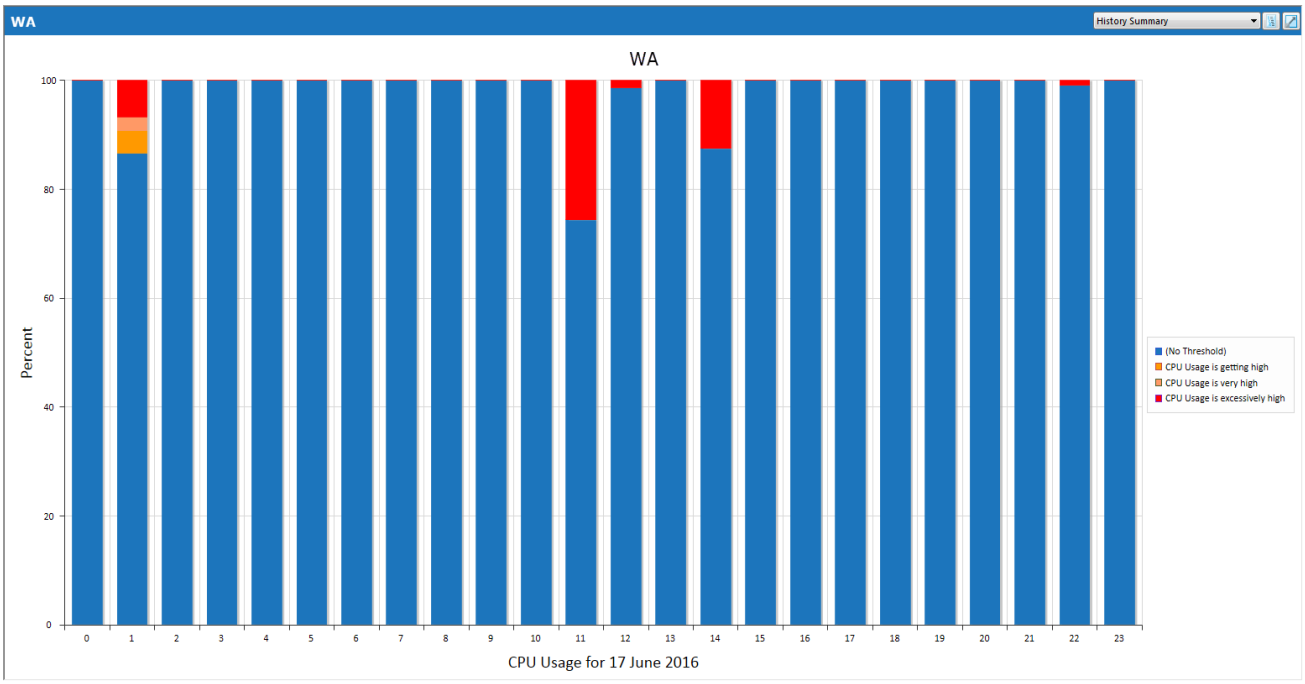
The averaged numeric data graph (the default graph) displays summarized data as simple averages of numeric values over your selected time period. In the image below, this summarized data is displayed by day.



Numeric data graphs are useful for showing and demonstrating trends. Robot Monitor can also interpolate missing data and make forecasts whenever simple trends in the data are apparent.

Data Summarized by Threshold

Many types of data can be displayed in a translated graph, so long as there is a global threshold for the data to be translated against. Translation occurs as part of summarization. Only global thresholds are used; local thresholds are not stored on the host system.

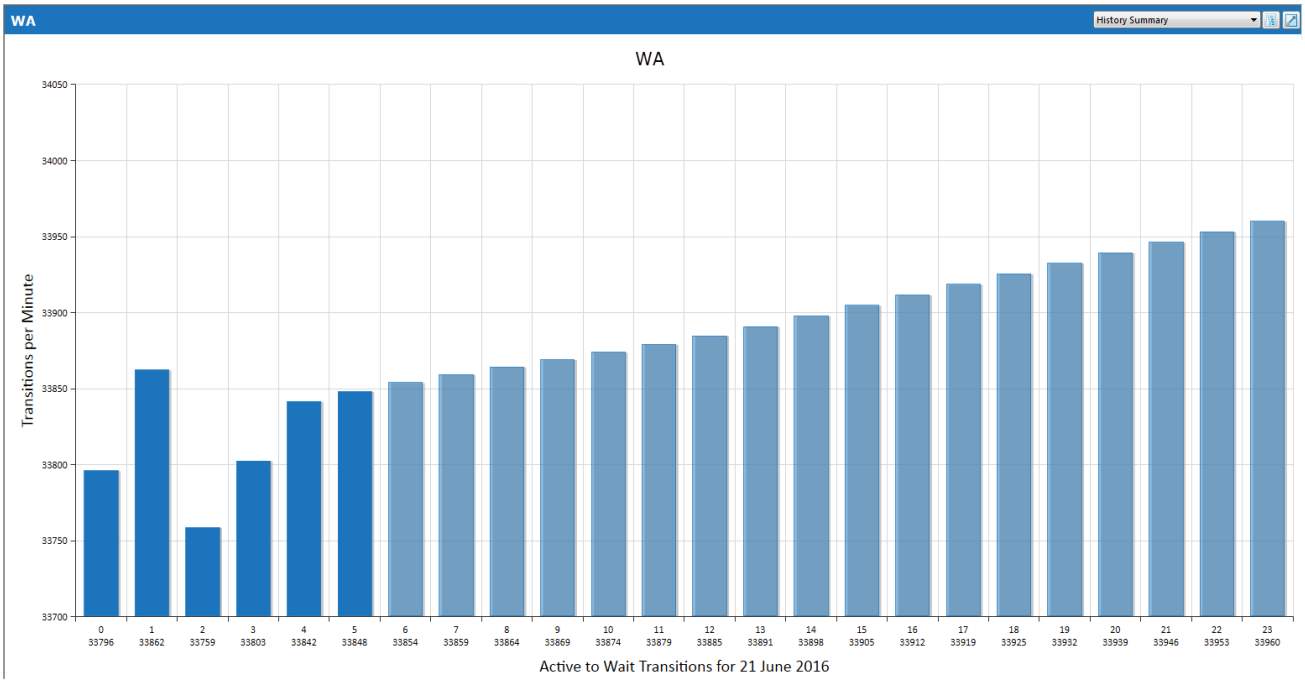


Robot Monitor counts the number of samples matching each threshold record and produces a graph that shows the percentage of samples over the select period (day, month, or year depending on the summary type you chose for your graph).

Translated graphs are also particularly useful for status monitors and other element types that return fixed values.

Interpolating Data

Robot Monitor can interpolate missing data and forecast future values. Interpolated values appear on the graph as semi-transparent bars.



If you are summarizing by One Year, you can choose to forecast a period of up to 24 months. This is done in the History Summary Properties panel.

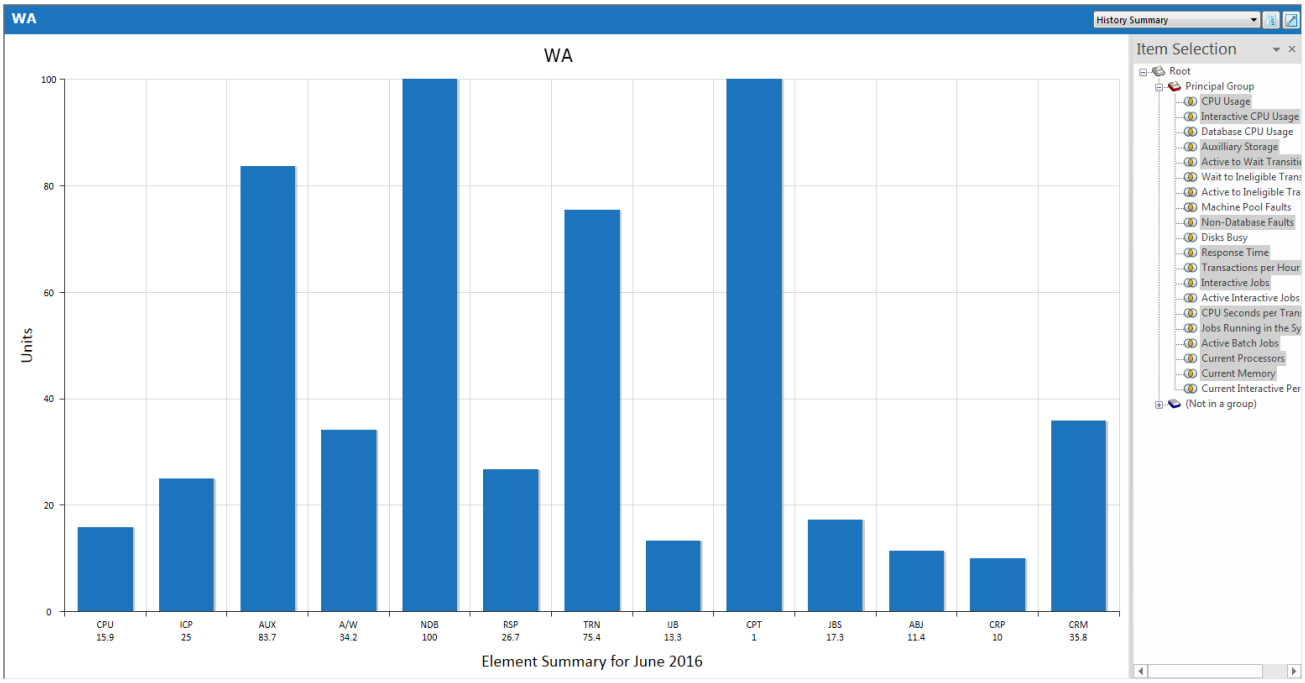
Interpolated values are not absolute. An accurate portrayal of the trends on your system depends on how stable the system data is.

> **NOTE:** Meaningful interpolation and forecasting is only possible for a graph that already has two or more data points.

Multiple Element Graphs

In the History Summary view, you can select multiple elements to display on a single graph using the Month by Element summary or Day by Element summary found within the History Summary Options Ribbon, or you can simply click the **Item Selection** button to open the Item Selection sidebar and select multiple elements to add to the History Summary view.

In order to bring together data with very different scaling requirements on a single graph, Robot Monitor will adjust the scale where necessary.



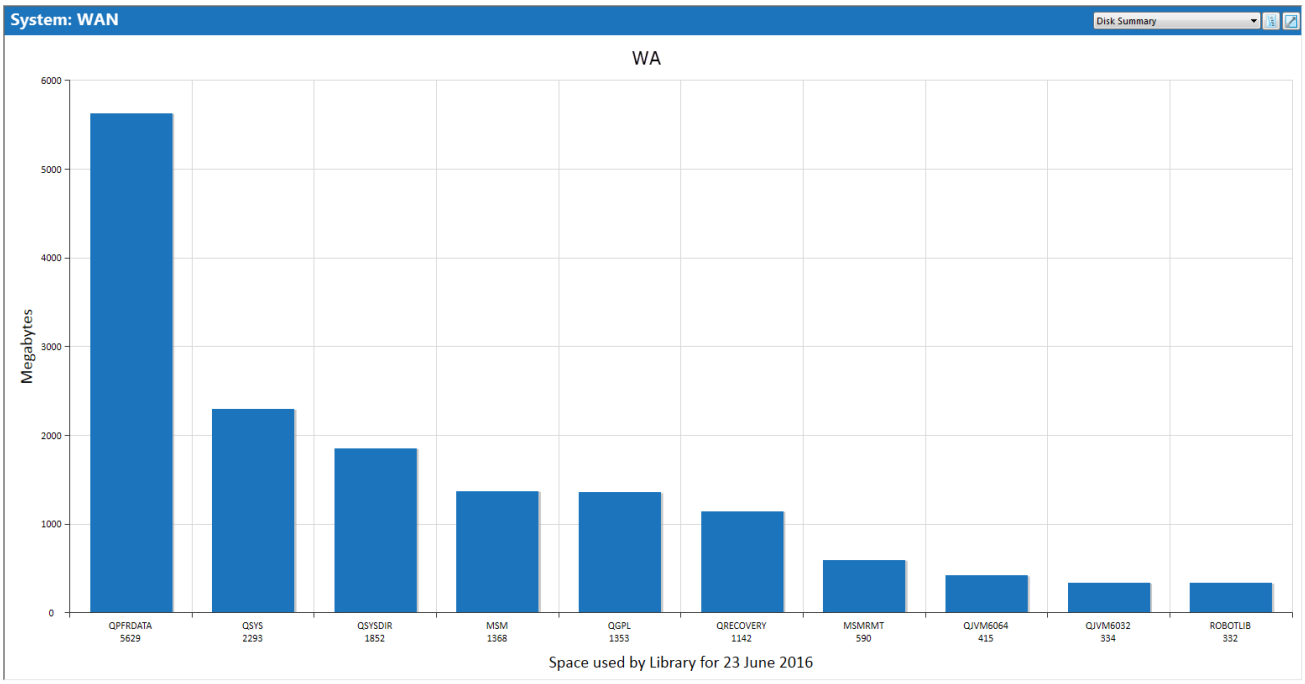
The above image shows a Month by Element summary for June 2016. There are 13 elements selected for the view. You can have as many or as few elements on your graph as you want.

The Disk Summary View

The Disk Summary view presents summarized disk data collected daily (or less frequently, depending on the collection schedule you set) from the host system. Detailed historical reports regarding changes to individual objects over time can be printed on the host system using the MONDSKADT command. You can also use the MONDSKINQ command on the host system to conduct detailed searches of the information gathered during the last collection.

You can collect data for the native file system and the hierarchial file systems (IFS). For native file systems, data is summarized by library. For the IFS, the user sets the depth for the summarization.

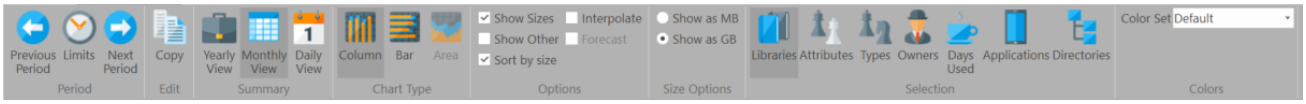
Disk summaries and inquiry programs only work on ordinary objects. Robot Monitor does not report on LIC data, processes and tasks, or other similar items.



Disk Summary View Options

The following sections contain general information about the settings you can use to customize your Disk Summary view.

The Disk Summary Options Ribbon



Actions you can take:

- Click **Previous Period** to roll back to the previously monitored time range for the graph.
- Click **Limits** to view the Disk Summary Properties panel. From there, you can choose a summary type and configure your graph settings.
- Click **Next Period** to roll forward to the next monitored time range for the graph.
- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Select **Yearly View** to view your system's performance data for the last 12 months. You can view the year by any of the selection types (libraries, attributes, types, and so on).
- Select **Monthly View** to view your system's performance data for the current month. You can view the month by any of the selection types (libraries, attributes, types, and so on).

- Select **Daily View** to view your system's performance data for the current day. You can view the day by any of the selection types (libraries, attributes, types, and so on).
- Check **Show Sizes** to display the values of each data element below their corresponding bar.
- Check **Show Other** to add an (Other) bar that show the total size of all objects not otherwise selected for the graph.
- Check **Sort by Size** to arrange the bars by size in descending order. If this option is not checked, the bars are presented in alphabetical order.
- Check **Interpolate** to allow Robot Monitor to make a guess at any missing data points on the graph. **Note:** Some data points must be available on the graph for this to work.
- Check **Forecast** to allow Robot Monitor to project future values for the average numeric data graphs.
- Select either **Show as GB** (default) or **Show as MB** to change the displayed size value of the Disk Summary View.
- Select **Libraries** to summarize data in the graph by library size.
- Select **Attributes** to summarize data in the graph by object attribute.
- Select **Types** to summarize data in the graph by object type.
- Select **Owners** to summarize data in the graph by the iSeries object owner.
- Select **Days Used** to summarize data by the number of days since each object was last used. Objects are grouped into units of 1-7, 8-14, 15-28, and so on.
- Select **Applications** to summarize data by groups of libraries or IFS directories in the native file system.
- Select **Directories** to summarize data by IFS directories.
- Choose a **Color Set** from the drop-down to apply to your graph. This changes the color of the graph data. The default color is blue.

Minimizing and Restoring the Disk Summary Options Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click  in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **Options** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **Options** tab. When you are done, click anywhere in the Disk Summary view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

- Click **Item Selection** to open the Item Selection sidebar.
- Click **New Window** to open the Disk Summary view in a separate GUI window.
- Click the **Disk Summary** view, then select a new view from the drop-down list to visit that window.

Printing View Details

Use the following steps to print detailed related to the Disk Summary view.

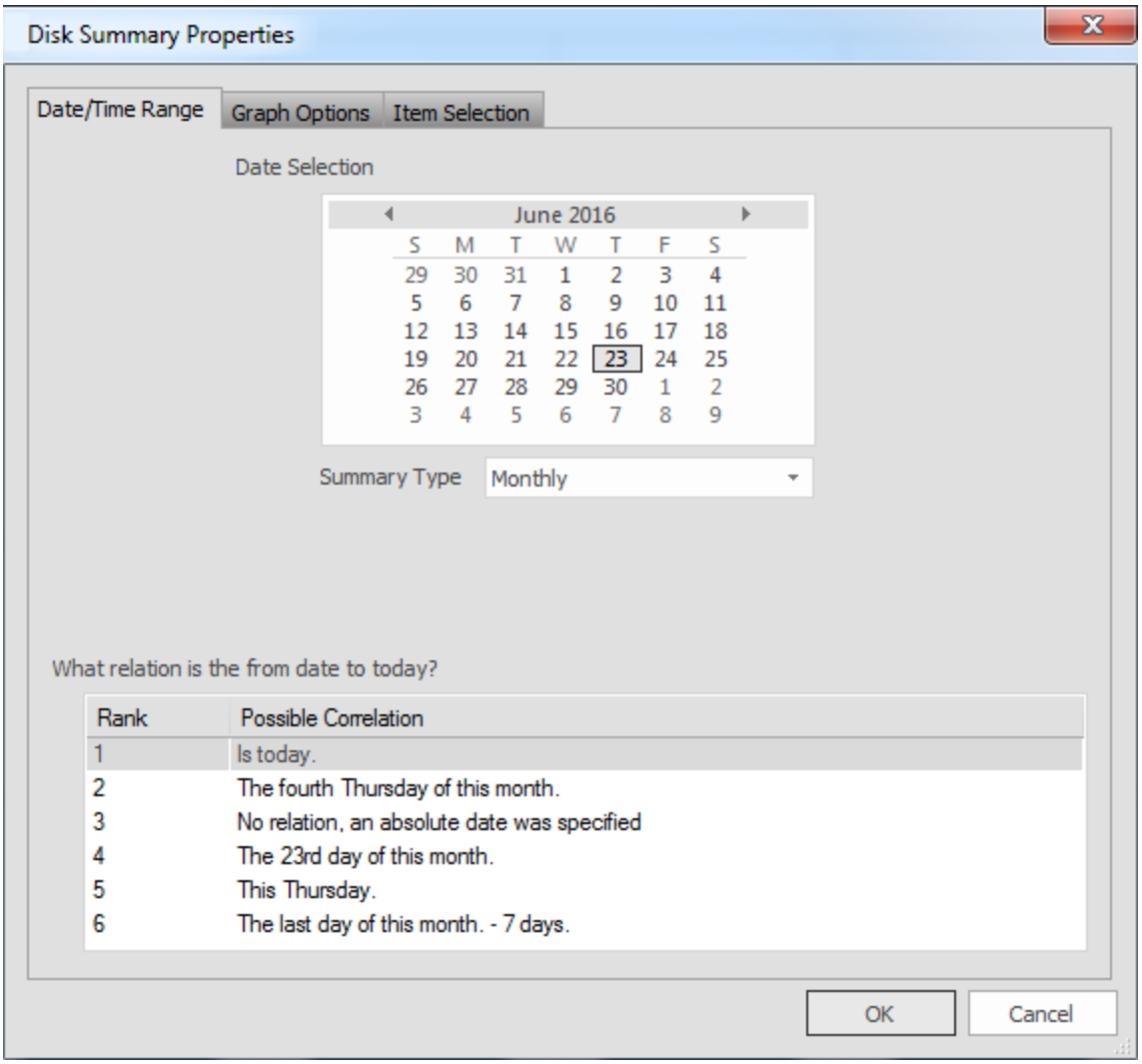
1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

Disk Summary Properties Panel

This panel opens when you click the **Limits** button in the Disk Summary Options ribbon on the Disk Summary view. There are three tabs you can use on this panel.

Date/Time Range

This tab allows you to determine the date/time range you want downloaded and plotted on the graph.



Actions you can take:

- On the calendar, choose the **Date Selection** that you want drawn on the graph. **Note:** Use the arrows to change the calendar month.
- Select what type of summary you want displayed in the graph. You can choose one of the following options in the **Summary Type** drop-down list:

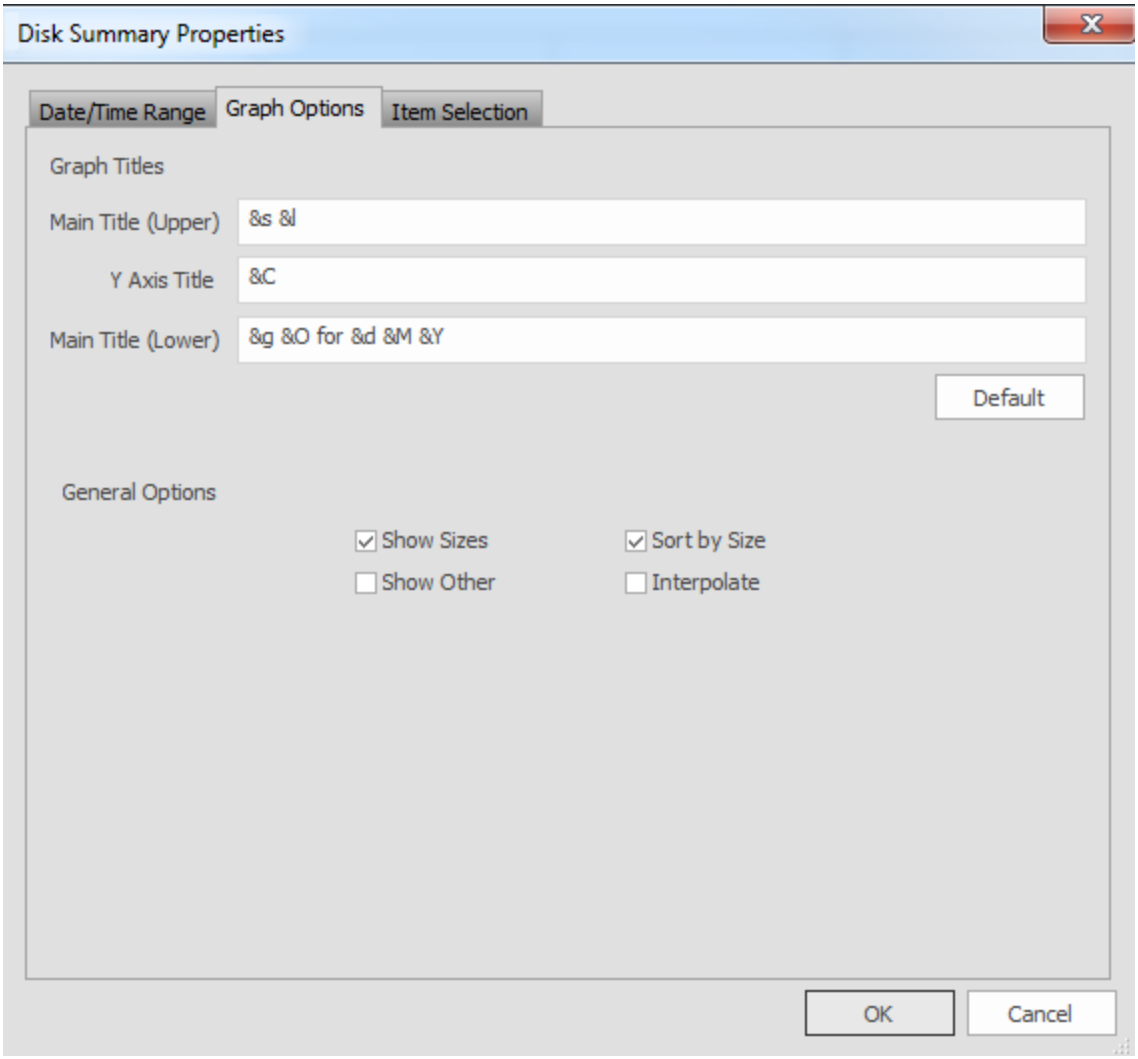
Summary Type	Description
Daily	This summary type displays your system's performance data for the current day. You can choose to include only certain days of the week in your data collection.
Monthly	This summary type displays your system's performance data for the current month.

Summary Type	Description
Yearly	This summary type displays your system's performance data for the past year. You can choose to display a forecast period between 0 and 24 months. In order to see the forecast in the graph, check the **Forecast** box next to the Forecast Period field. **Note:** The forecast period appears on the graph in a different color than your regular data.

- Select the relationship of the Selection Date to the current date. **Note:** This section is primarily useful for running report output.

Graph Options

This tab allows you to change the graph settings and the look/feel of the data shown.

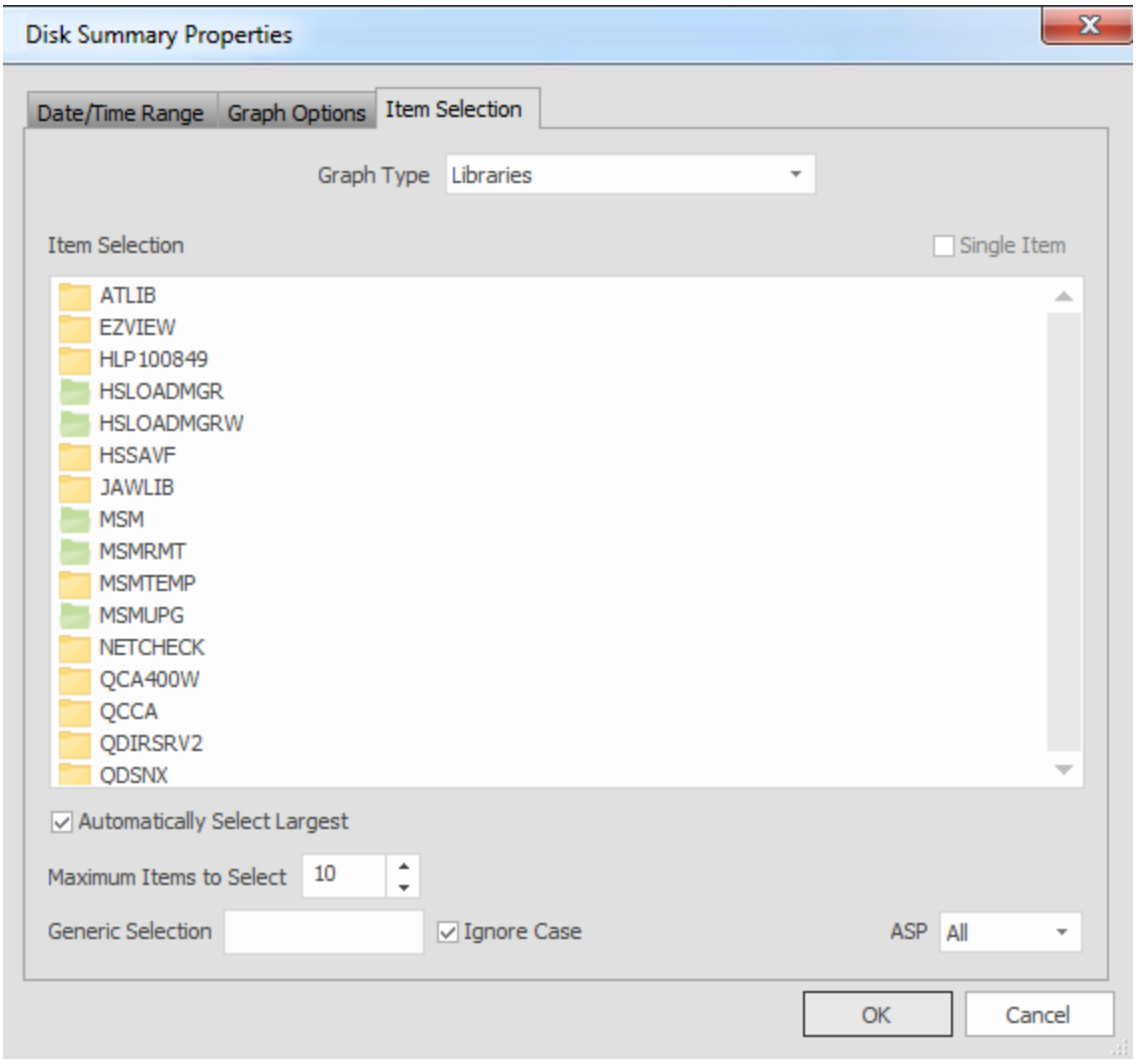


Actions you can take:

- Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
- Check the boxes of the look/feel settings to apply to the graph. **Note:** You can also apply these directly from the Disk Summary Options ribbon.

Item Selection

This tab allows you to select the items you want to graph.



Actions you can take:

- Select a **Graph Type** from the drop-down list.
- Choose an item to graph from the **Item Selection** list. The items you see will depend on the graph type you selected.
- Check **Automatically Select Largest** if you want Robot Monitor to display the largest data classes.
- In the **Maximum Items to Select** drop-down, choose how many items Robot Monitor should auto-select.

- Type a **Generic Selection** in the field to select objects. This is a complex version of generics (or wildcards). You can use generics like ABC* (to select all items beginning with ABC) or *CDE* (to select all items that include CDE).
- Select **Ignore Case** if you want the case of an element name to be ignored when searching. For example, if selected, *abC* will be considered the same as *Abc*.
- Choose an **ASP** from the drop-down list if you want to limit the data displayed to a particular ASP. **Note:** This is only available for the Daily View summary type when **Single Item** is not selected.

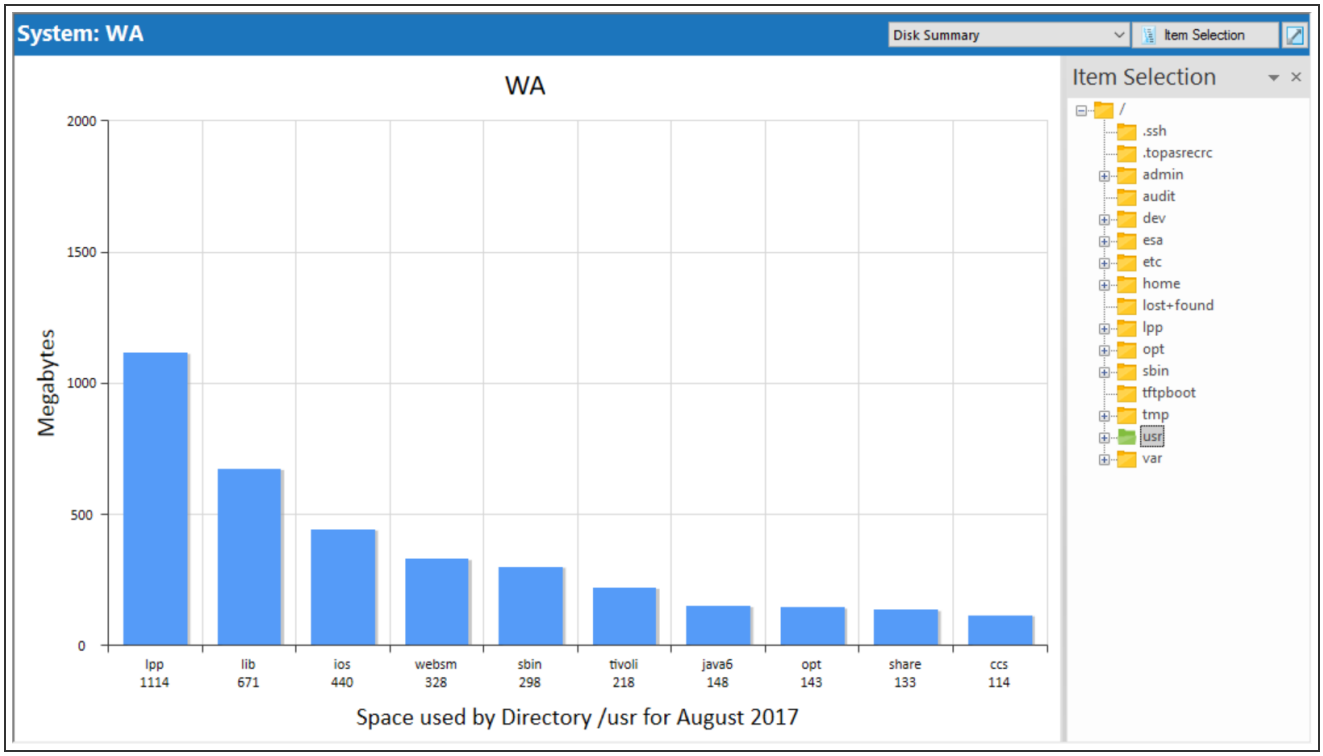
Disk Summary Drill Down

You can drill down into your disk summary data in a couple of different ways in order to see disk usage by directories, libraries, or other graph types.

Drill Down in the Disk Summary View

To drill down into disk usage from the Disk Summary view:

1. Click **Item Selection** to open the Item Selection sidebar.
2. Select a library or directory within the Item Selection sidebar. The Disk Summary graph will update to show the disk usage for the selected library or directory.

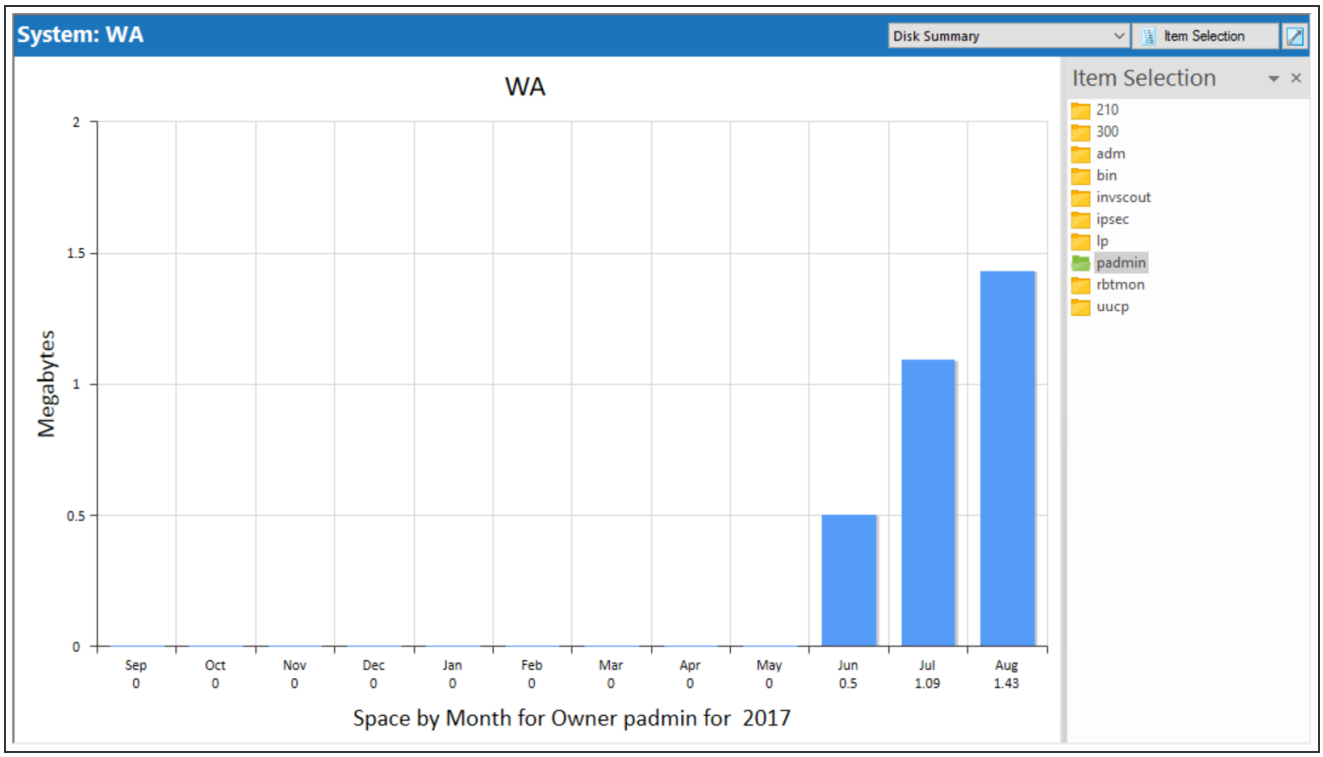


3. Expand the directory or select a different library to drill down to different levels of disk usage data.
4. To go back to the main Disk Summary view, reselect Disk Summary from the View drop-down in the System Views bar.

Drill Down using the Properties Panel

To drill down into disk usage from the properties panel:

1. Click the **Limits** button in the Disk Summary Options ribbon.
2. Select the **Item Selection** tab.
3. Select a way to view the disk usage data using the Graph Type drop-down. Your choices are:
    - Directories
    - Libraries
    - Attributes
    - Types
    - Owners
    - Days Used
    - Applications
4. Click **OK**. The Disk Summary view will update to display the updated data.
5. Select a item within the Item Selection sidebar. The Disk Summary graph will update to show the disk usage for the selected item.



6. To go back to the main Disk Summary view, reselect Disk Summary from the View drop-down in the System Views bar.

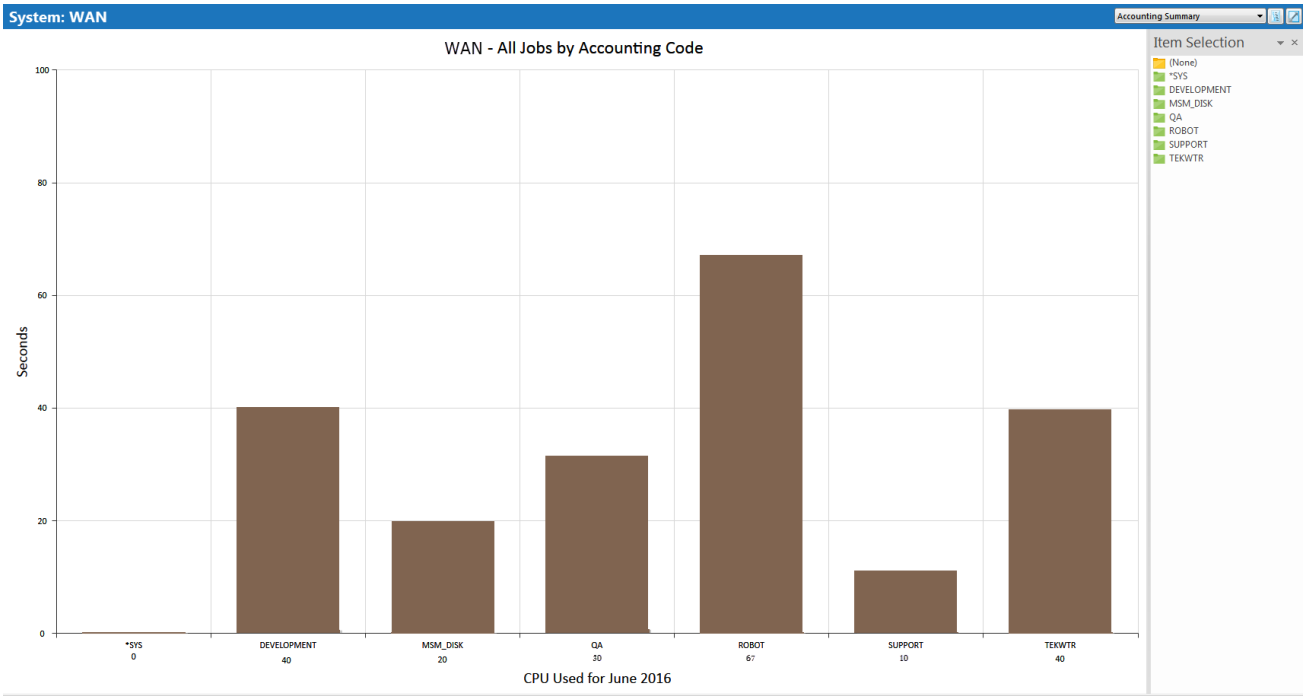
The Accounting Summary View

The Accounting Summary view displays data collected from the host system's job accounting system.

Data is collected from the remote systems whenever disk data is collected as long as job accounting is enabled and the collection function is selected on the host system using MONCFG.

The Job Accounting view differs from other views shown in Robot Monitor. It displays numbers instead of rates. CPU, for instance, is displayed as a total number of CPU seconds used rather than a percentage. TRN is displayed as a total number of transactions processed rather than an average rate per hour.

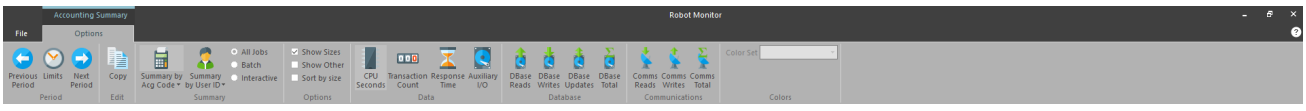
Job accounting information can be displayed by job accounting codes or user IDs. Job accounting codes are used to summarize data and are typically set in the user profile, where they are inherited by jobs that are started by the user. Accounting codes can be changed during the course of a job by using the CHGACGCDE command in the green screen. This command allows you to (for instance) report on response time and CPU used by application.



Accounting Summary View Options

The following sections contain general information about the settings you can use to customize your Accounting Summary view.

Accounting Summary Options Ribbon



Actions you can take:

- Select **Copy** to copy the view to the clipboard to be pasted to a dashboard.
- Click **Previous Period** to roll back to the previously monitored time range for the graph.

- Click **Limits** to view the Accounting Summary Properties panel. From there, you can choose a summary type and configure your graph settings.
- Click **Next Period** to roll forward to the next monitored time range for the graph.
- Select whether you want to summarize by Accounting Code or User ID. You can choose one of the following options in the drop-down lists for these two summary types:

Summary Type	Description
Month by Accounting Code	This summary type shows you a single month of information with a bar for each accounting code.
Day by Accounting Code	This summary type shows you a single day of information with a bar for each accounting code.
Accounting Code by Month	This summary type shows you information on a single accounting code, with a bar for each month of the year.
Accounting Code by Day	This summary type shows you information on a single accounting code, with a bar for each day of the month.
Month by User ID	This summary type shows you a single month of information with a bar for each user ID.
Day by User ID	This summary type shows you a single day of information with a bar for each user ID.
User ID by Month	This summary type shows you information on a single user ID, with a bar for each month of the year.
User ID by Day	This summary type shows you information on a single user ID, with a bar for each day of the month.

- Choose whether you want the summary type to display **All Jobs**, **Batch** jobs, or **Interactive** jobs.
- Check **Show Sizes** to display the values of each data element below their corresponding bar.
- Check **Show Other** to add an (Other) bar that show the total size of all objects not otherwise selected for the graph.
- Check **Sort by Size** to arrange the bars by size in descending order. If this option is not checked, the bars are presented in alphabetical order.
- Select **CPU Seconds** to summarize data in the graph by total number of CPU seconds used.
- Select **Transaction Count** to summarize data in the graph by total number of transactions processed.
- Select **Response Time** to summarize data in the graph by the average response time for each job in the selected class.
- Select **Auxiliary I/O** to summarize data in the graph by the total number of disk operations running.
- Select **DBase Reads** to summarize data in the graph by the number of reads from files (other than stream files).

- Select **DBase Writes** to summarize data in the graph by the number of writes to files (other than stream files).
- Select **DBase Updates** to summarize data in the graph by the number of updates to records in files (other than stream files).
- Select **DBase Total** to summarize data in the graph by the total number of database puts, gets, and updates.
- Select **Comms Reads** to summarize data in the graph by the number of reads from communications files (not TCP).
- Select **Comms Writes** to summarize data in the graph by the number of writes to communication files (not TCP).
- Select **Comms Totals** to summarize data in the graph by the total number of communications puts and gets.
- Choose a **Color Set** from the drop-down to apply to your graph. This changes the color of the graph data. The default color is blue.

Minimizing and Restoring the Accounting Summary Options Ribbon

Use the following steps to minimize and restore the ribbon.

1. Click in the upper-left corner to open the Customize Quick Access Toolbar.
2. From the drop-down, select **Minimize the Ribbon** to hide the ribbon. Select it again to show the ribbon.

> **NOTE:** You can also double-click the **Options** tab to minimize and restore the ribbon quickly.

If you want to use the ribbon when it is minimized, you can open it by clicking the **Options** tab. When you are done, click anywhere in the Accounting Summary view to hide the ribbon again.

System Views Bar

The System Views bar allows you to jump from view to view for the selected system (in this case, WAN) using the drop-down views list.

Actions you can take:

- Click **Item Selection** to open the Item Selection sidebar.
- Click **New Window** to open the Accounting Summary view in a separate GUI window.
- Click the **Accounting Summary** view, then select a new view from the drop-down list to visit that window.

Printing View Details

Use the following steps to print detailed related to the Accounting Summary view.

1. Click **File** in the upper left corner, then select **Print** from the File menu.
2. Select a printer from the list of printers configured on your PC.

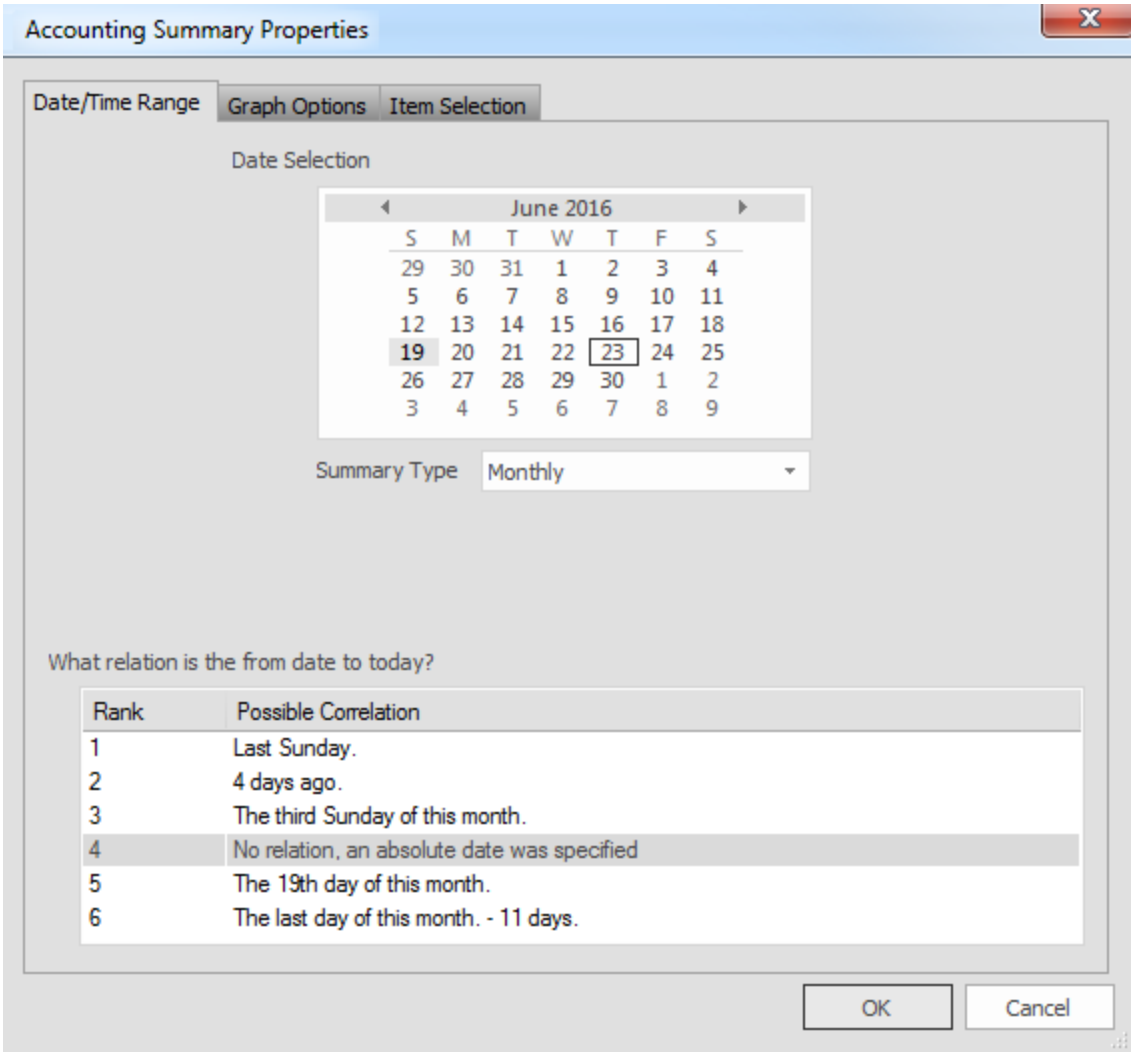
3. Select any **Settings** you want to apply to the printed pages.
4. Enter how many copies you want made in the **Copies** field, then click **Print**.

Accounting Summary Properties Panel

This panel opens when you click the **Limits** button in the Accounting Summary Options ribbon on the Accounting Summary view. There are three tabs you can use on this panel.

Date/Time Range

This tab allows you to determine the date/time range you want downloaded and plotted on the graph.



Actions you can take:

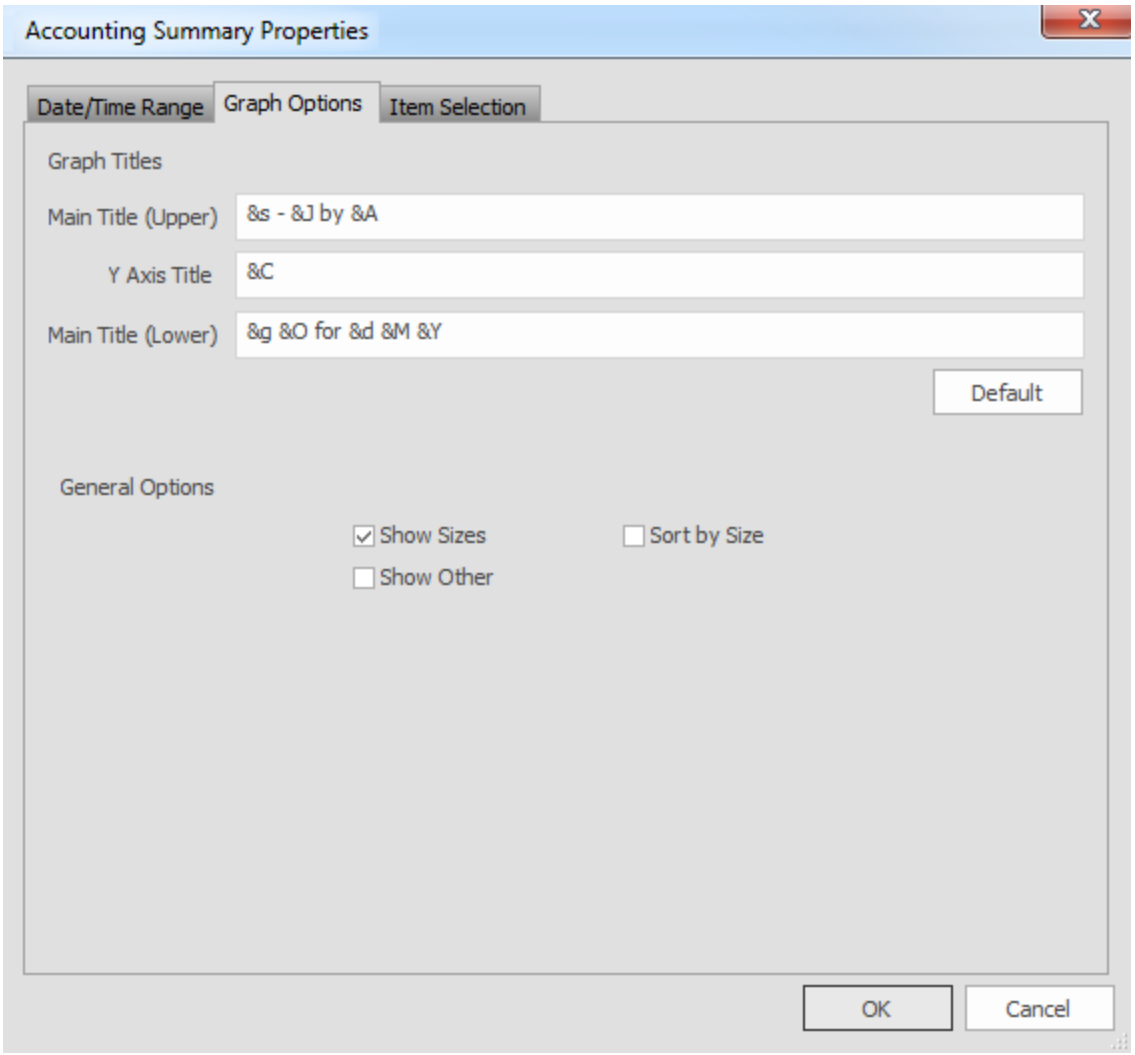
- On the calendar, choose the **Date Selection** that you want drawn on the graph. Use the arrows to change the calendar month.
- Select what type of summary you want displayed in the graph. You can choose one of the following options in the **Summary Type** drop-down list:

Summary Type	Description
Daily	This summary type displays your system's performance data for the current day. You can choose to include only certain days of the week in your data collection.
Monthly	This summary type displays your system's performance data for the current month.

- Select the relationship of the Selection Date to the current date. This section is primarily useful for running report output.

Graph Options

This tab allows you to change the graph settings and the look/feel of the data shown.

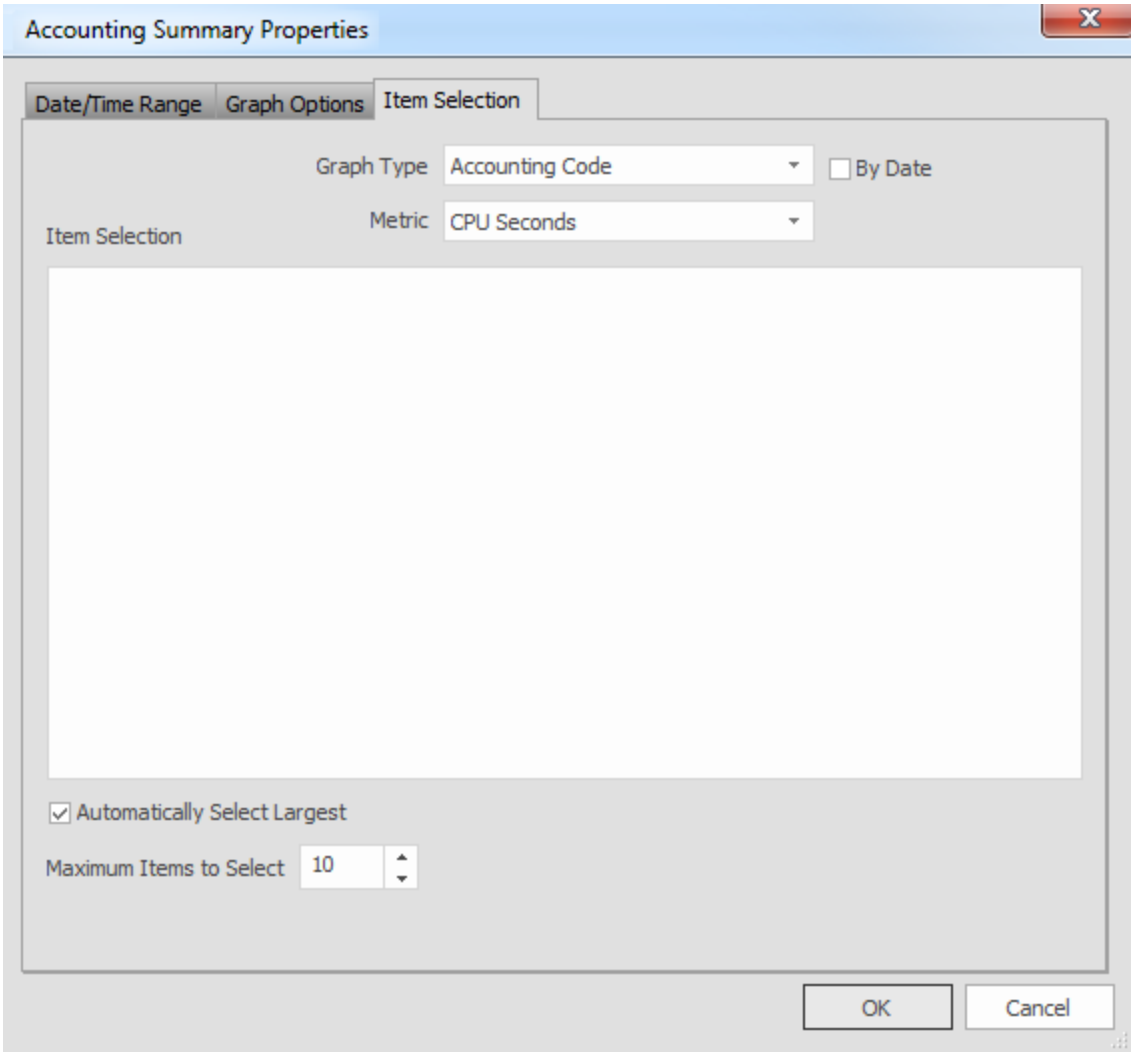


Actions you can take:

- Enter graph titles for the **Main Title (Upper)**, **Y Axis Title**, and **Main Title (Lower)**, if other than the default.
- Check the boxes of the look/feel settings to apply to the graph. **Note:** You can also apply these directly from the Accounting Summary Options ribbon.

Item Selection

This tab allows you to select the items you want to graph.



Actions you can take:

- Select a **Graph Type** from the drop-down list, then check **By Date** if you want to filter it by date rather than by code or user.
- Select a **Metric** from the drop-down list.
- Choose an item to graph from the **Item Selection** list. The items you see will depend on the graph type you selected.
- Check **Automatically Select Largest** if you have a graph that contains numerous user IDs or accounting codes and want Robot Monitor to display the largest entries automatically.

- In the **Maximum Items to Select** drop-down, choose how many user IDs or accounting codes Robot Monitor should select. **Note:** This option is only available when Automatically Select Largest is checked.

The System Data View

The System Data view is comprised of a series of groups that show a range of technical information about the system.

Click any of the following links to view general information about these groups.

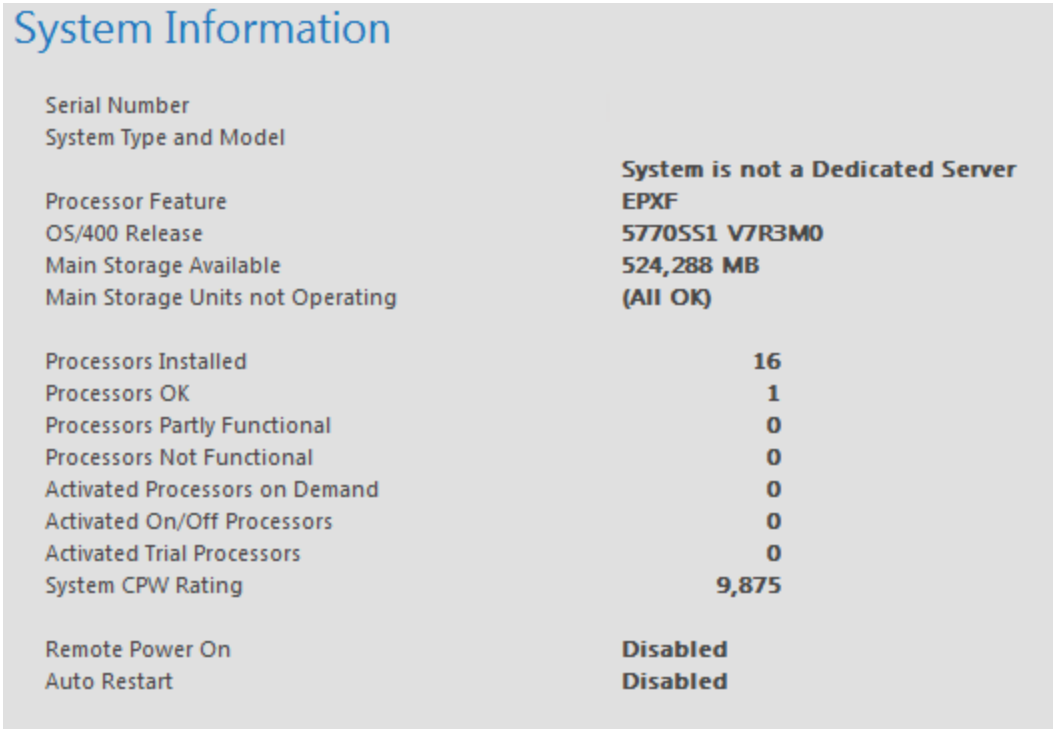
- System Information
- PTF Information*
- IPL Information*
- Power Status*
- Communication Settings**
- Partition Information
- Disk Status
- Installed Fixes**

NOTE:
* These groups are only available on IBM i systems.
** These groups are only available on AIX/Linux/VIOS systems.

System Information

The System Information group displays information for your host system. It is available for IBM i, AIX, Linux, and VIOS systems.

IBM i Systems

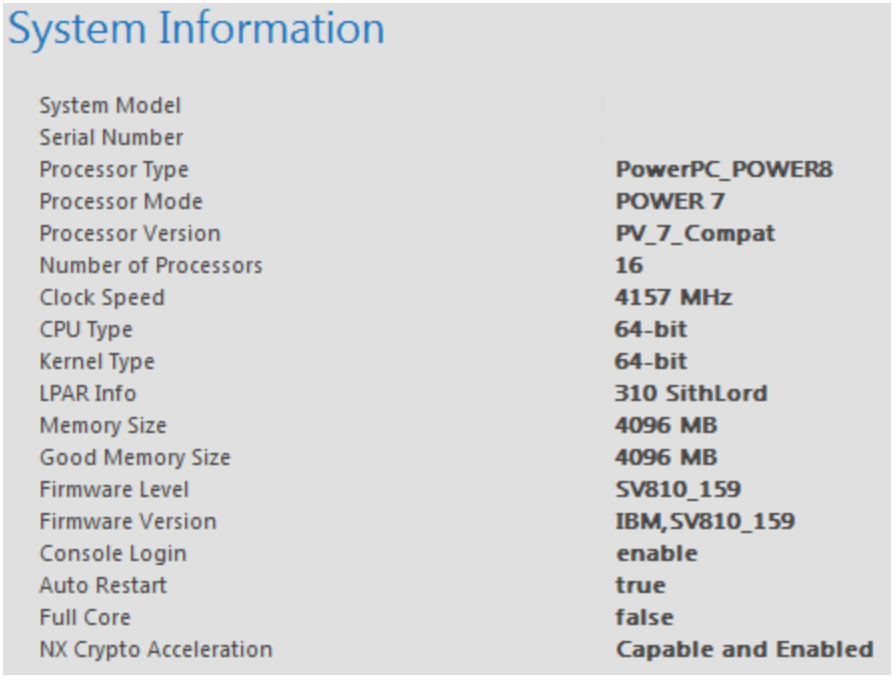


The following table lists the system information group's fields and descriptions:

Field	Description
Serial Number	This is the system serial number. it is the same across all partitions.
System Type and Model	This is the hardware type and system model. The code in brackets, if present, is the processor group used for software pricing. Dedicated Servers are designed for particular workloads, such as Domino.
Processor Feature	This is the feature number of the processor. The second number, if present, is the interactive feature. This sets any limits on interactive processing power that can be used.
OS/400 Release	This is the feature code and release of the operating system for this partition.
Main Storage Available	This is the amount of memory that is operational for the whole machine.
Main Storage Units not Operating	This is the number of failed memory cards detected during the last IPL of the primary partition. These cards are marked as unusable, and the system operates with only the functional cards.

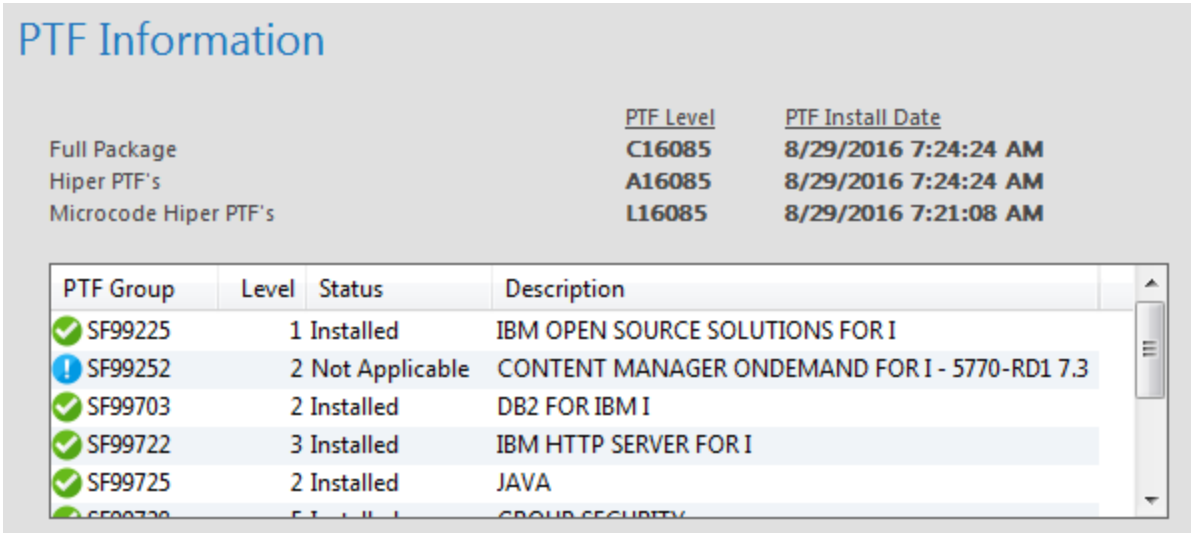
Field	Description
Processors Installed	This is the number of physical processors in the whole machine.
Processors OK	This is the number of physical processors in the whole machine that are functioning normally. The maximum number that can be detected is 16. This is scheduled to be fixed in a future release.
Processors Partly Functional	This is the number of processors that had failures detected, but are still able to operate with reduced performance. This problem can currently only be detected on the first 16 processors.
Processors Not Functioning	This is the number of processors that were not operating at all during the last IPL of the primary partition. This problem can currently only be detected on the first 16 processors.
Activated Processors on Demand	This is the number of processors on demand that have been activated.
Activated On/Off Processors	This is the number of metered processors that have been activated.
Activated Trial Processors	This is the number of trial processors that have been activated.
System CPW Rating	This is the total CPW rating for the system.

AIX/Linux/VIOS Systems



PTF Information

The PTF Information group displays PTF package and group information. Robot Monitor collects this information when it is started. It is available for IBM i systems.



IPL Information

The IPL Information group displays IPL information for your host system. It is available for IBM i systems.

The following sections list the IPL information group fields and descriptions.

OS/400 Started At

This is the date and time that the partition was IPLed.

IPL Cause

This is the reason why the partition started. You may see one of the following:

Cause	Description
PRWDWNSYS RESTART(*YES)	This means the system was restarted using this command.
Powered on from Front Panel	This means the user started the system by pressing the Power On button or by starting the partition from the console.
Timed Power On	This means the system started because the time set in the QIPLDATTIM system value was reached.
Remote Power On by Phone	This means a phone call was made to the ECS line, and remote restart was enabled. **Note:** This function requires a special cable on the ECS modem.
Auto Restart after Power Failure	This means the utility power failed and was then restored, and the system value QPWRRSTIPL was set to enable an automatic IPL when this happens.

IPL'ed from Side

This indicates the microcode version being used for this IPL.

Side A only has permanently applied microcode fixes.

Side B has temporarily and permanently applied fixes.

Side D is from removable media.

This field can also show the legend **Service Proc. I/F error (IPL may clear)**. This indicates a possible hardware failure in the service processor, which is the processor that controls the IPL process. If this persists after the next IPL, a support call should be logged.

Next IPL from Side

This shows the current front-panel setting for which microcode version will be used on the next IPL.

Last Termination Type

This shows how the partition last ended. You may see one of the following:

Cause	Description
Normal (PWRDWNSYS)	This means the user issued the PWRDWNSYS command.
Abnormal, but Objects Ensured	This means the system failed, but all pending operations were written to disk.
Abnormal	This means the system failed completely.

Front Panel Battery Status

This shows the status of the front panel battery for the primary position. The front panel battery keeps the system clock going if there is a power failure. This can shows OK, low, or failed.

Last Termination Cause

This shows why the partition last ended. You may see one of the following:

Cause	Description
Normal (PWRDWNSYS)	This means the user issued the PWRDWNSYS command.
Power Failed	This means the power failed, and there was no UPS available.
Battery Failed while Running on UPS	This means the power failed and had not been restored by the time the UPS also ran out of power.
System Powered Down from Front Panel	This means the user forced an immediate termination of the system.

Key Position

This shows the mode the partition is operating in. This is set differently on different models and types of partition, but for historical reasons, it is known as the key position. It may be set by a key, by buttons, by buttons and a key stick, from the console, or by using the CHGIPLA command.

Possible values for the key position are Auto, Manual, Normal and Secure.

Front Panel Status

This shows whether the front panel passed all its self checks during the last IPL.

Hardware Checks

This shows whether hardware tests are performed during IPLs. To speed up IPLs, you can skip the tests using the front panel or the CHGIPLA command.

Power Status

The Power Status group shows information for a UPS that is connected to the iSeries and is connected to by the host system. It is available for IBM i systems.

The following table lists the power status group's fields and descriptions:

Field	Description
UPS Present	This shows whether there is a UPS connected to the interface.
UPS Type	This shows the type of UPS. A full UPS is able to power the entire system, whereas a partial UPS is able to keep memory alive for a time, in hope that power will be restored in time to use the contents of the memory to perform a controlled shutdown of the system.
UPS Battery Status	This can be OK or Low. In theory, it could also show dead (but not for long).
UPS Bypass Active	If the UPS bypass is active, this means that the UPS will not be used if power fails. This function is usually enabled when maintenance is being done on the UPS.
System Running on UPS	This can be Yes or No.

Communication Settings

The Communication Settings group displays the current system's host name, IP address, domain name, and more. It is available for AIX, Linux, and VIOS systems.

Example of a Possible Communication Settings Group:

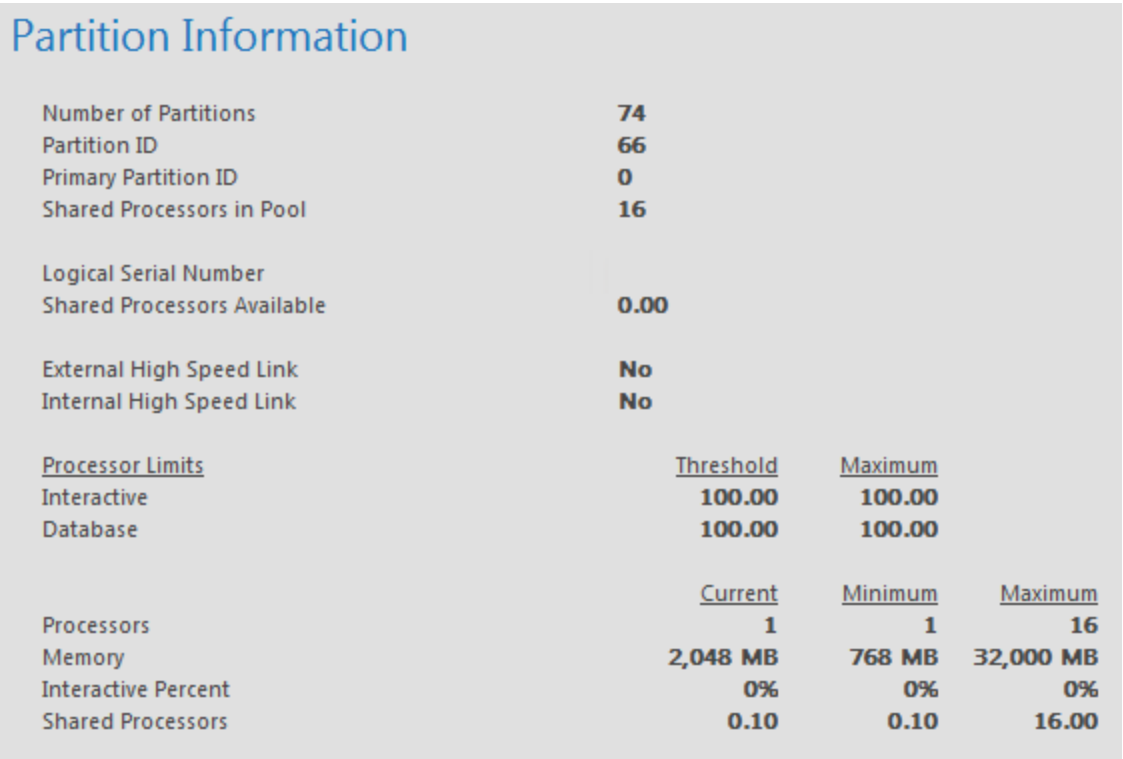
Host Name	system.yourcompany.com
IP Address	192.169.10.3
Subnet Mask	255.255.255.0

Gateway	192.168.10.1
Name Server	192.168.50.10
Domain Name	yourcompany.com

Partition Information

The Partition Information group displays partition information for the current system. It is available for IBM i, AIX, Linux, and VIOS systems.

IBM i Systems



The following table lists the partition information panel's fields and descriptions:

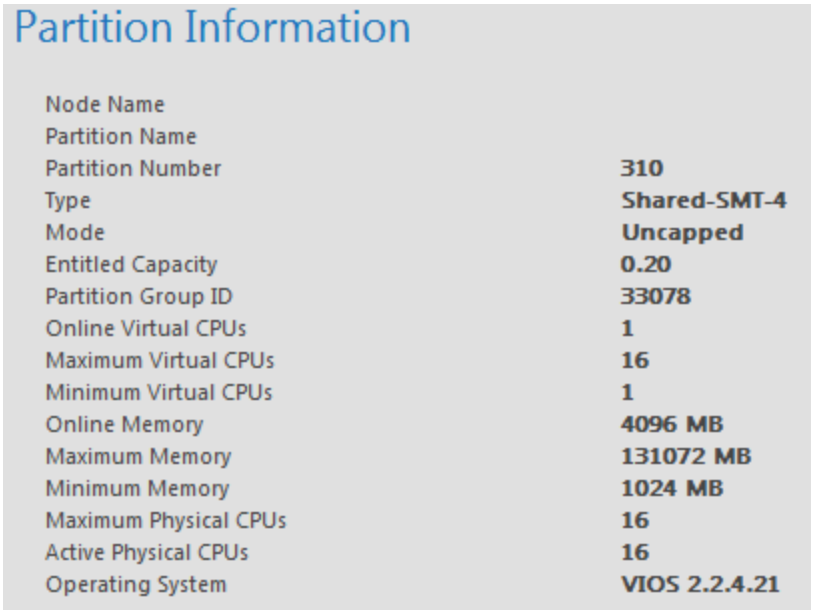
Field	Description
Number of Partitions	The number of partitions on the box on which this partition resides.
Partition ID	The number of this partition.
Primary Partition ID	The number of the primary partition. The primary partition is the host, or controlling partition, for all the other partitions.

Field	Description
Shared Processors in Pool	Shared processors are processors that can be allocated to partitions in fractional amounts. They are first allocated to a system wide pool, called the Shared Processor Pool, and then allocated to the partitions.
Logical Serial Number	The unique serial number for the partition.
Shared Processors Available	The amount of shared processing power (in the shared processing pool) which has not been allocated to any partition.
Processor Limits	Many processors have hardware features that limit the amount of interactive or database CPU that is available to the machine. On some models, this limitation is enforced using a microcode process called CFINT, which starts to use processing power that would otherwise be available to user jobs when limited CPU types are being used. At a certain point, the impact of the CFINT tasks starts to affect the system as a whole. This point is known as the knee of the curve, or the threshold, and is shown here along with the maximum amount of processing power that can be used for interactive and database work. These limits only apply when more than one job of the specified type is running. For instance, if a machine is limited to 8% interactive CPU, and there is only one interactive job active, then it will be able to use 100% of the processor. As soon as a second job starts to use CPU, however, the total usage of the two jobs will be throttled back to 8%.
External High Speed Link	Indicates whether OptiConnect is installed for this partition. OptiConnect is the iSeries system area network that provides high-speed inter-connectivity between multiple iSeries systems in a local environment. Along with WAN and LAN technologies, OptiConnect provides the high-speed connectivity between cluster nodes in iSeries cluster environments.
Internal High Speed Link	Indicates whether simulated OptiConnect is configured for this partition. This uses memory-to-memory communication to simulate an optical fibre LAN connecting the partitions on the box.

Field	Description
Processors	The current number of processors allocated to the partition, along with the configured minimum and maximum values that can be allocated without having to IPL the partition. This figure still has meaning when a partition uses shared processors. For example, on a system with four processors, all four are allocated to the shared processor pool. The administrator allocates 2.0 processors to a partition. This can be done by allocating 2.0 processors or 0.5 of four processors. The decision is based on the type of workload and can make a big difference to throughput on the partition.
Memory	The current amount of memory allocated to the partition, along with the configured minimum and maximum values that can be allocated without having to IPL the partition. The minimum and maximum values are part of the configuration because large ranges in the possible values incur a processing overhead. If the amount allocated to the partition remains constant, then it is recommended that these values should be equal. This value is also presented as the CRM element in the performance data.
Interactive Percent	The current proportion of the maximum interactive processing allocation, along with the configured maximum and minimum values that the be allocated without having to IPL the partition. This affects systems with limits on processing capabilities and is expressed as a percentage of the total available. For instance, if the machine is limited to 8% interactive, then a figure of 40% would mean that the partition could use 3.2% of the total processing power of the machine for interactive work. The minimum and maximum values are part of the configuration because large ranges in the possible values incur a processing overhead. If the amount allocated to the partition remains constant, then it is recommended that these values should be equal. This value is also presented as the CRI element in the performance data.

Field	Description
Shared Processors	The current number of shared processors allocated to the partition, along with the minimum and maximum values that can be allocated without having to IPL the partition. The minimum and maximum values are part of the configuration because large ranges in the possible values incur a processing overhead. If the amount allocated to the partition remains constant, then it is recommended that these values should be equal. This value is also presented as the CRP element in the performance data.

AIX/Linux/VIOS Systems



Field	Description
Node Name	The name of the node. It can be the same as the system name.
Partition Name	The name of the partition.
Partition Number	The number of the partition.
Type	The type of partition.
Mode	The mode of the partition.
Entitled Capacity	The entitled capacity.
Partition Group ID	The partition group ID.
Online Virtual CPUs	How many virtual CPUs are online.

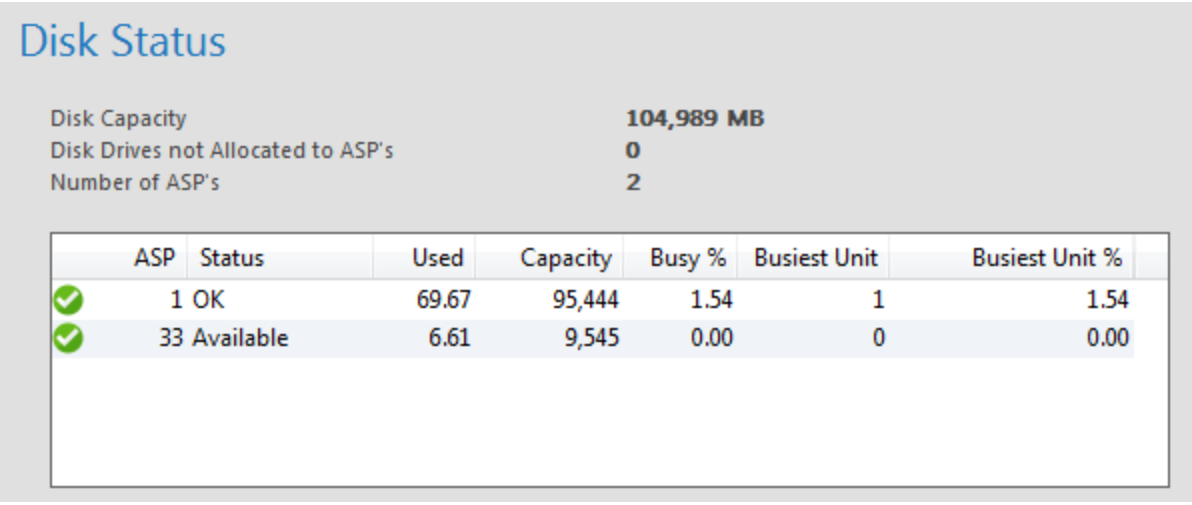
Field	Description
Maximum Virtual CPUs	The maximum number of virtual CPUs possible.
Minimum Virtual CPUs	The minimum number of virtual CPUs possible.
Online Memory	How much memory is currently in use.
Maximum Memory	The maximum amount of memory allowed for the partition.
Minimum Memory	The minimum amount of memory allowed for the partition.
Maximum Physical CPUs	The maximum number of physical CPUs possible.
Active Physical CPUs	How many physical CPUs are active.
Operating System	The current operating system for AIX, Linux, or VIOS.

Disk Status

The Disk Status group displays summary information for the partition and for each ASP. It is available for IBM i, AIX, Linux, and VIOS systems.

NOTE:
You can launch the ASP Information View for an ASP by double-clicking it in the table.

IBM i Systems

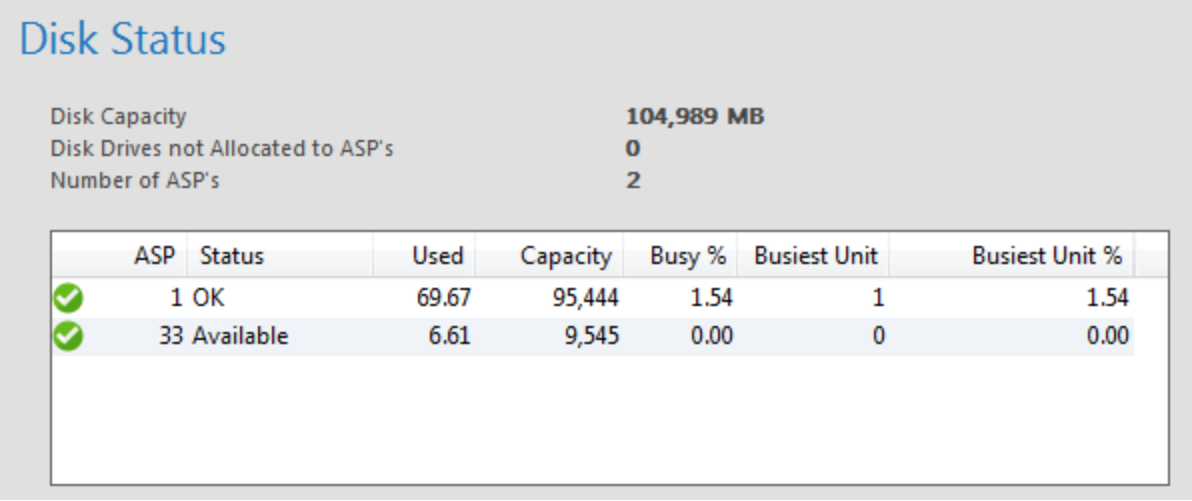


The following table lists the disk status group fields and descriptions:

Field	Description
Disk Capacity	This is the total disk capacity of the partition in Megabytes. One Megabyte is 1024 Kilobytes, and one Kilobyte is 1024 bytes.

Field	Description
Disk Drives Not Allocates to ASPs	This is the number of drives configured for this partition that are not being used.
Number of ASPs	This shows the total number of configured ASPs.
ASP Status	This shows a line for each configured ASP.
ASP	This shows an icon and the ASP number. **Note:** ASP numbers are 1-32 for user ASPs and 33-255 for independent ASPs.
Status	This is the current status of the ASP. You may see one of the following: OK, Suspended, Re-sync, Overflow, Varied Off, and Available.
Used	This is the percentage of space in the ASP which has been used to store data.
Capacity	This is the amount of disk storage configured for the ASP.
Busy %	This is the average disk busy figure for the ASP. The busy figure for an ASP can also be displayed as an element using the user defined data bars.
Busiest Units	This is the unit number of the busiest disk in the ASP.
Busiest Unit %	This is the disk busy figure for the busiest disk in the ASP.

AIX/Linux/VIOS Systems

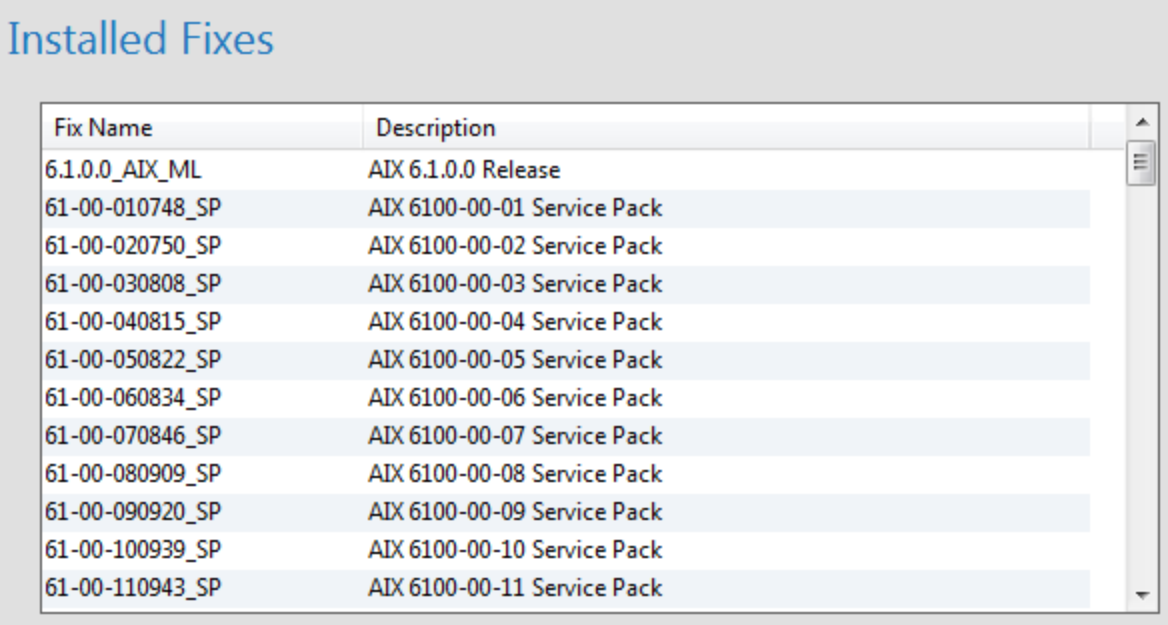


The following table lists the disk status group fields and descriptions:

Field	Description
Disk Capacity	This is the total disk capacity of the partition in Megabytes. One Megabyte is 1024 Kilobytes, and one Kilobyte is 1024 bytes.
Disk Drives Not Allocates to VGs	This is the number of drives configured for this partition that are not being used.
Number of Volume Groups	This shows the total number of configured volume groups.
Status	This is the current status of the volume group. You may see one of the following: OK, Suspended, Re-sync, Overflow, Varied Off, and Available.
Used %	This is the percentage of space in the volume group which has been used to store data.
Capacity (MB)	This is the amount of disk storage configured for the volume group.
Busy %	This is the average disk busy figure for the volume group. The busy figure for an volume group can also be displayed as an element using the user defined data bars.
Busiest PV	This is the unit number of the busiest physical volumes in the volume group.
Busiest PV %	This is the disk busy figure for the busiest physical volume in the volume group.

Installed Fixes

The Installed Fixes group displays a list of all applied fixes and their descriptions. This is available for AIX, Linux, and VIOS systems.



The ASP Information View

The ASP Information view is comprised of a series of groups that show a range of ASP information for the system.

Click any of the following links to view general information about these groups.

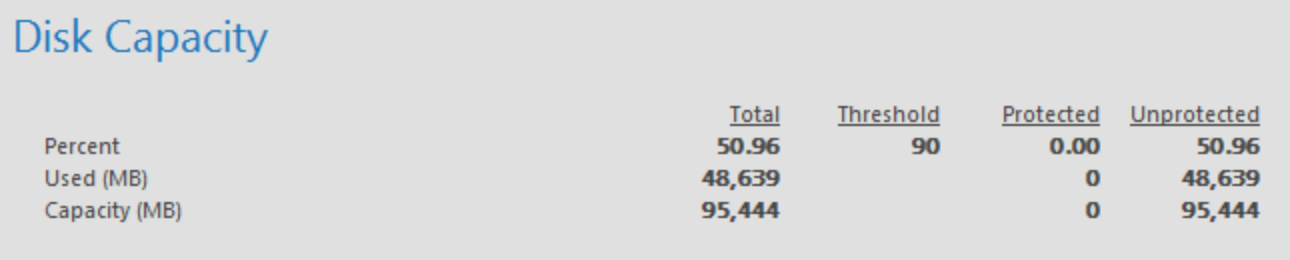
- Auxiliary Storage Pool
- Disk Capacity
- Overflow Recovery Options
- System Overheads
- Independent ASP Information
- ASP Balancing
- Physical Disks

Disk Capacity

Disk Capacity displays the total capacity and space used for the selected ASP.

Protected storage is disk space that is mirrored, RAID protected, or checksummed. The threshold is set for the ASP using service tools.

When the amount of storage exceeds the **Threshold** number, the system will send panic messages to the system operator queue.



Overflow Recovery Options

Overflow Recovery Options displays the actions taken by the system when an ASP fills up.

Last Recover was Successful shows whether the last recovery of the ASP was successful (whether the system was able to fit all the excess data back into the ASP).

Continue running with ASP full only applies to the system ASP. When the system ASP fills up, the system can be terminated if this option is set. The system can also be configured to continue running, rejecting further requests for new storage.

The **compression recovery policy** displays if the ASP has compressed drives as part of its configuration (in the above image, it does not). If the ASP has compressed drives, the value shown controls how overflow situations are handled for this ASP:

- **Post SRC and wait before overflowing:** The system displays code **A6xx 0277** on the front panel and waits to see whether storage becomes available. If it does not, it overflows into the system ASP.
- **Overflow Immediately:** The ASP overflows into the System ASP immediately.
- **Wait Indefinitely:** The system displays code **A6xx 0277** on the front panel and waits until storage becomes available. Otherwise, the user can change the compression recovery policy to a value that allows it to overflow.

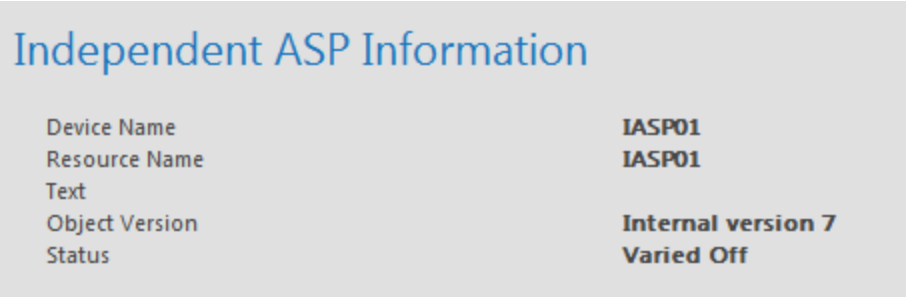
System Overheads

System Overheads displays the amount of storage permanently reserved in this ASP for various system function.

Data Overflowed into System is the total amount of storage that the System ASP holds, which has overflowed from user ASPs.

Independent ASP Information

Independent ASP Information displays information on independent ASPs. The selected ASP, listed under Auxiliary Storage Pool, **must be** independent before any data will appear.



The following table defines the fields found under Independent ASP Information:

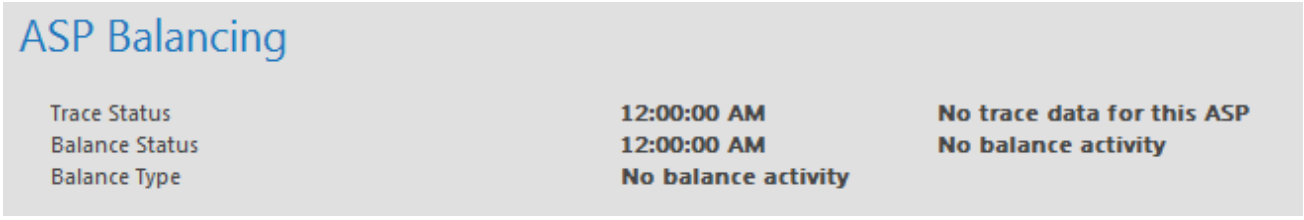
Field	Description
Device Name	This is the name of the device description that is used to vary the ASP on and off in this partition.
Resource Name	This is the name of the ASP as it is known to the system service tools.
Text	This is a description of the ASP. it is taken by the monitor from the device description.
Object Version	This is the format in which objects are stored in this ASP. An ASP configured to store objects in V7R2M0 format, for instance, cannot be varied on in a partition running V7R1M0.
ASP Status	This is the current status of the ASP. The current status can include varied off, available, failed, and so on.

ASP Balancing

ASP Balancing displays the current status of trace and balance for the ASP.

Trace and balance are performance tools used to optimize the layout of data in an ASP. You can start the trace function, which collects information about which objects are used the most and how those objects are used. This information can then be used to drive a balancing of the ASP, which moves data around to make access to that data more efficient.

The operations are performed concurrently with normal work.

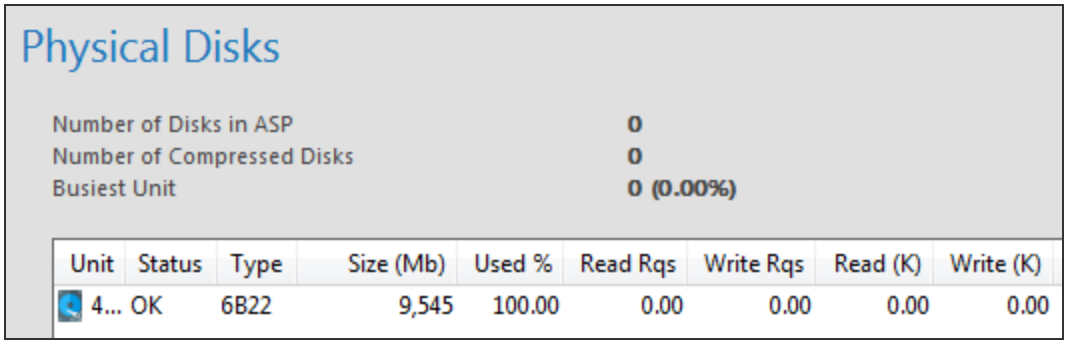


Physical Disks

The Physical Disks group displays information about the physical composition of the ASP.

You can right-click a disk unit to override error information. When non-IBM disks are used, errors are sometimes reported by the microcode when a disk is functioning normally. This function can be used to suppress these pseudo-errors. You can override errors for a single disk, for all disks on the selected system, or for all disks on all systems.

NOTE:
You can sort the data in the Physical Disks table by clicking on the column header.



The following table defines the fields found under Physical Disks:

Field	Description
Number of Disks in ASP	This is the number of logical disks in the ASP.
Number of Compressed Disks	This is the number of disks which store information in a compressed format.

Field	Description
Busiest Unit	This is the unit number of the busiest disk during the last sample that was taken, as well as the disk busy percentage for that unit.

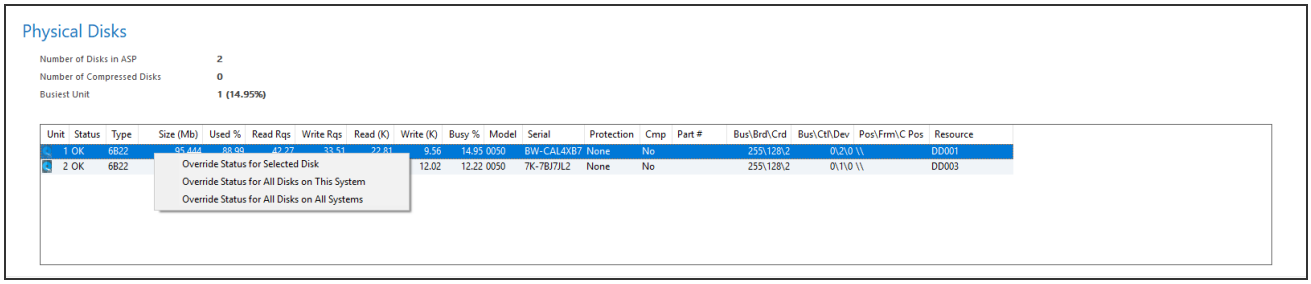
The fields displayed for Physical Disks group reflect what is in the WRKDSKSTS on your IBM i. They are displayed within Robot Monitor for ease of use.

Override Status

This override feature should be used with caution. If you are unsure whether to use this, check with your hardware supplier.

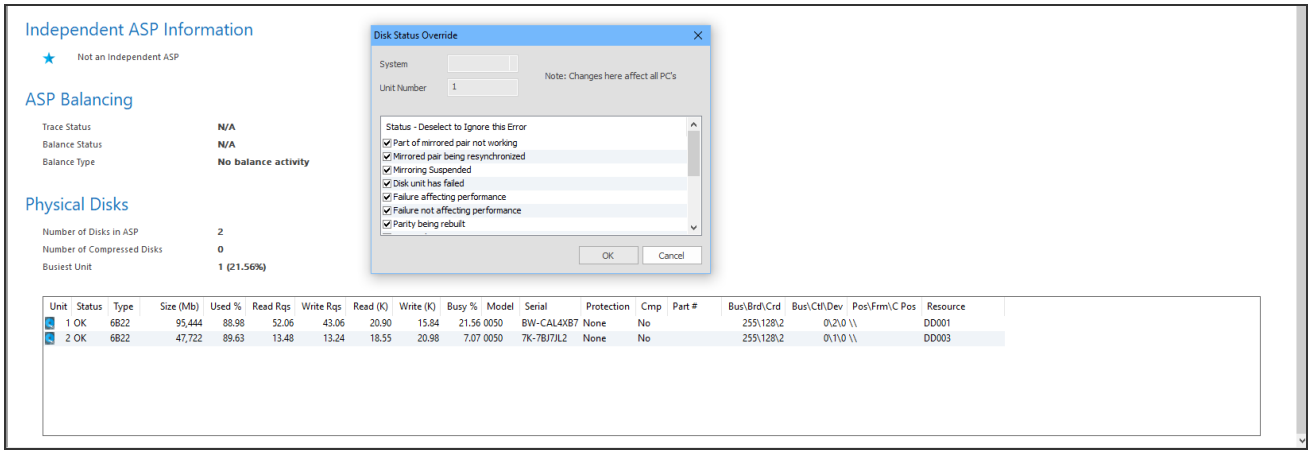
Select the Unit

Select the required disk unit and then right click to be presented with a context menu which will allow you to override the status for a Selected Disk, All Disks on This System or All Disks on All Systems:



Select the Alerts

After selecting what to override, select the alerts you would like to receive. By default, all alerts are selected. Deselect the alerts that are no longer required.



MON3019 Status Descriptions

This section provides descriptions for the fourteen current statuses.

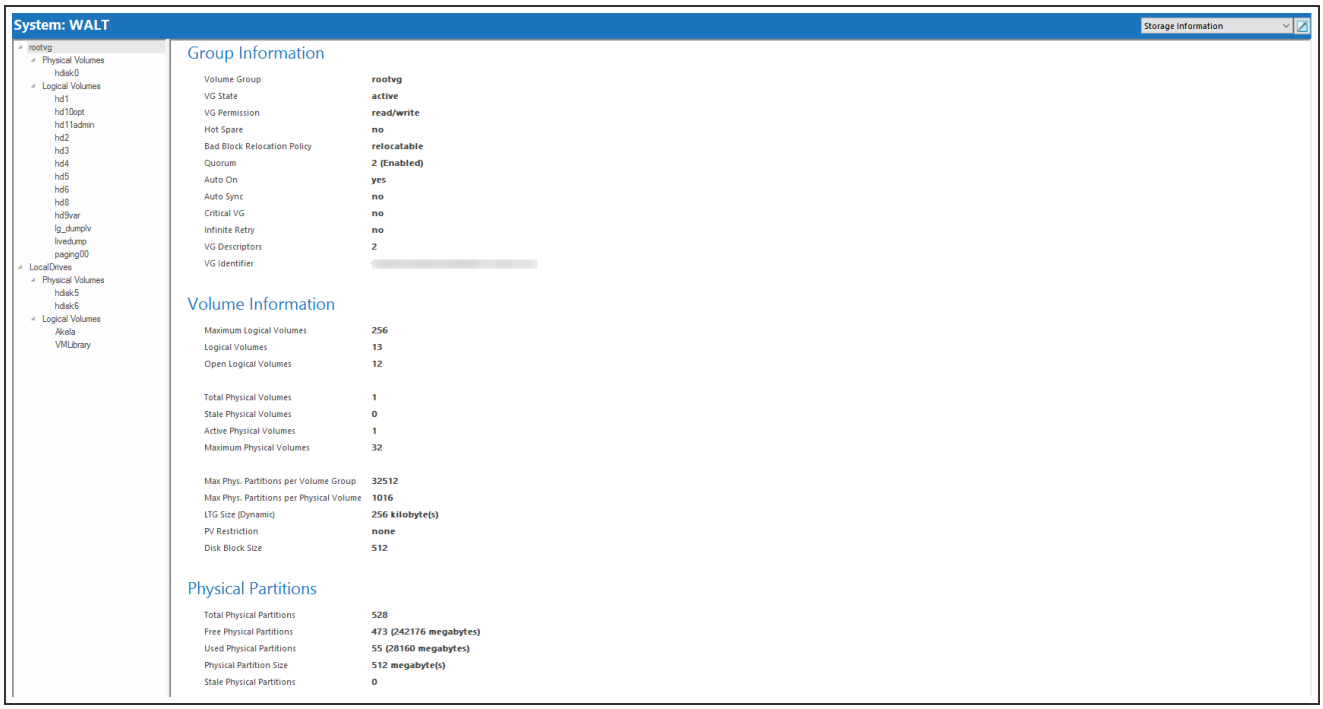
The MON3019 message highlights possible problems with a disk unit in an ASP and provides the Internal Status Code returned by the API

The current Internal Status Codes for a disk unit are:

- 0 There is no unit control value.
- 1 The disk unit is active.
- 2 The disk unit has failed.
- 3 Some other disk unit in the disk subsystem has failed.
- 4 There is a hardware failure within the disk subsystem that affects performance, but does not affect the function of the disk unit.
- 5 There is a hardware failure within the disk subsystem that does not affect the function or performance of the disk unit.
- 6 The disk unit's parity protection is being rebuilt.
- 7 The disk unit is not ready.
- 8 The disk unit is write protected.
- 9 The disk unit is busy.
- 10 The disk unit is not operational.
- 11 The disk unit has returned a status that is not recognizable by the system.
- 12 The disk unit cannot be accessed.
- 13 The disk unit is read/write protected.

The Storage Information View

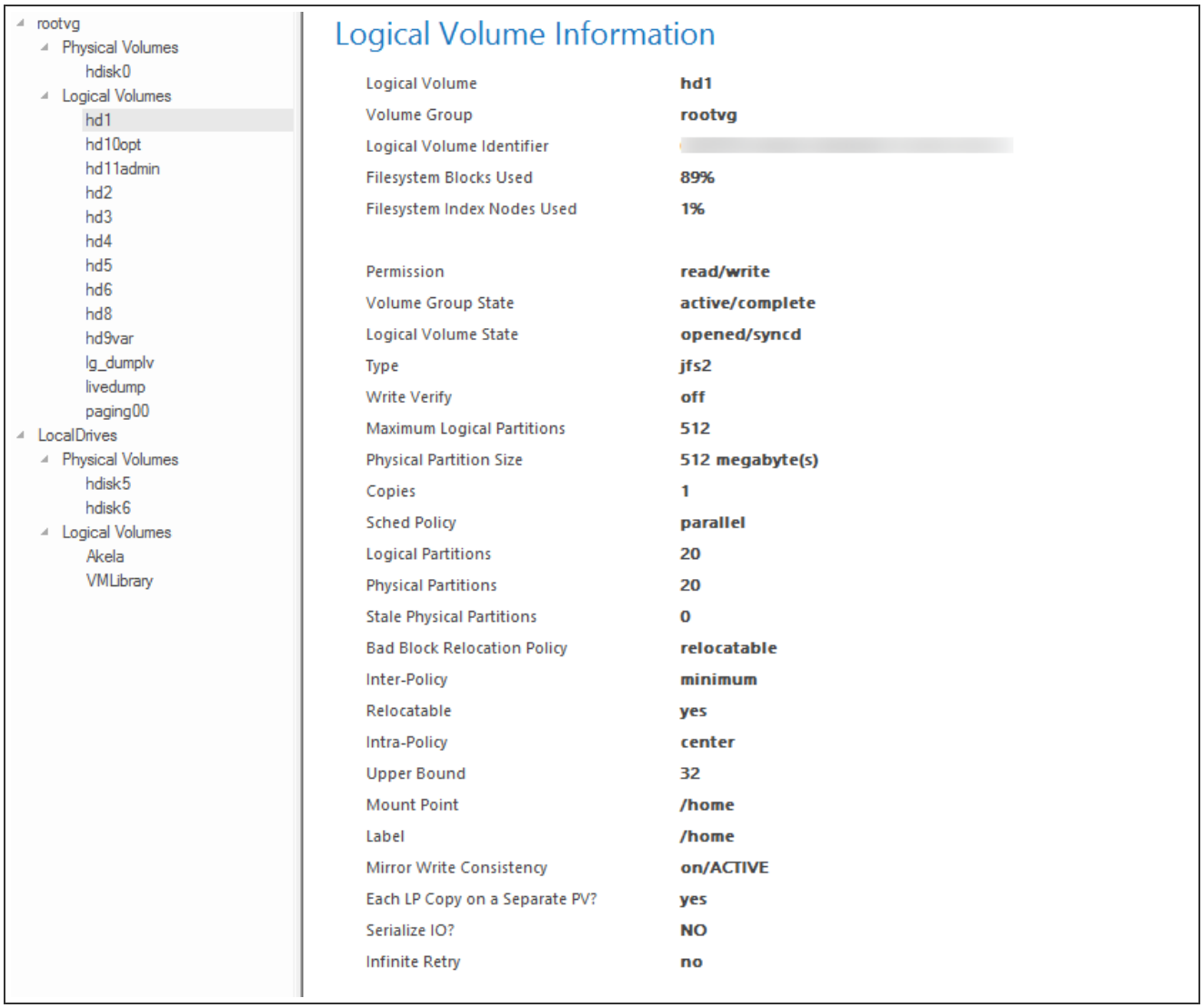
The Storage Information view is comprised of technical information for AIX, Linux and VIOS volume groups on a system.



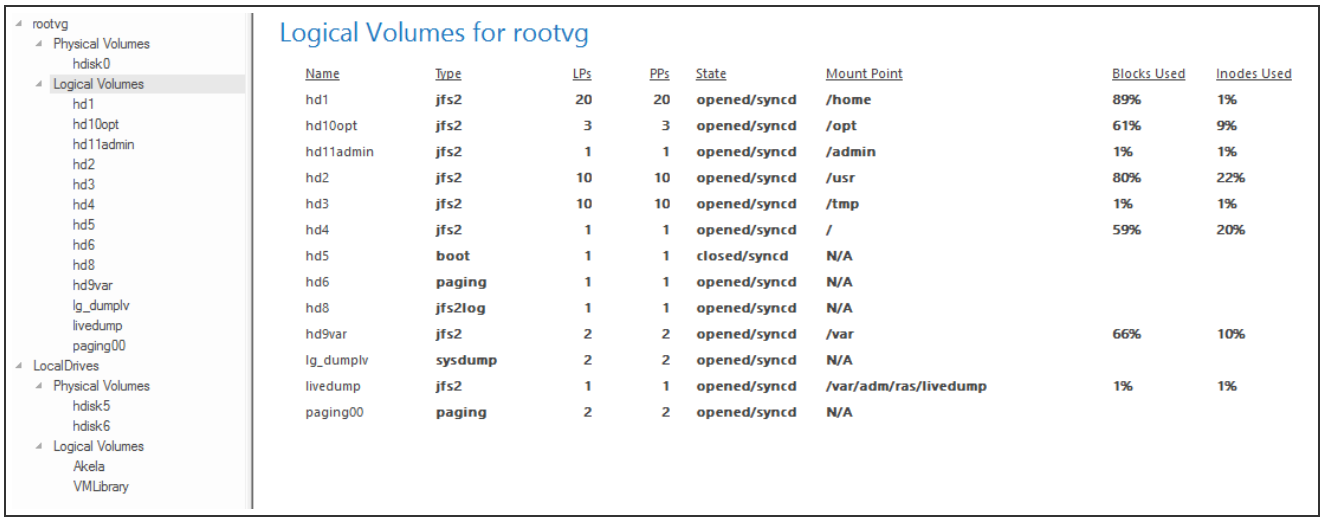
The navigation panel on the left organizes your volume groups by physical and logical volumes.

Use this panel to do the following:

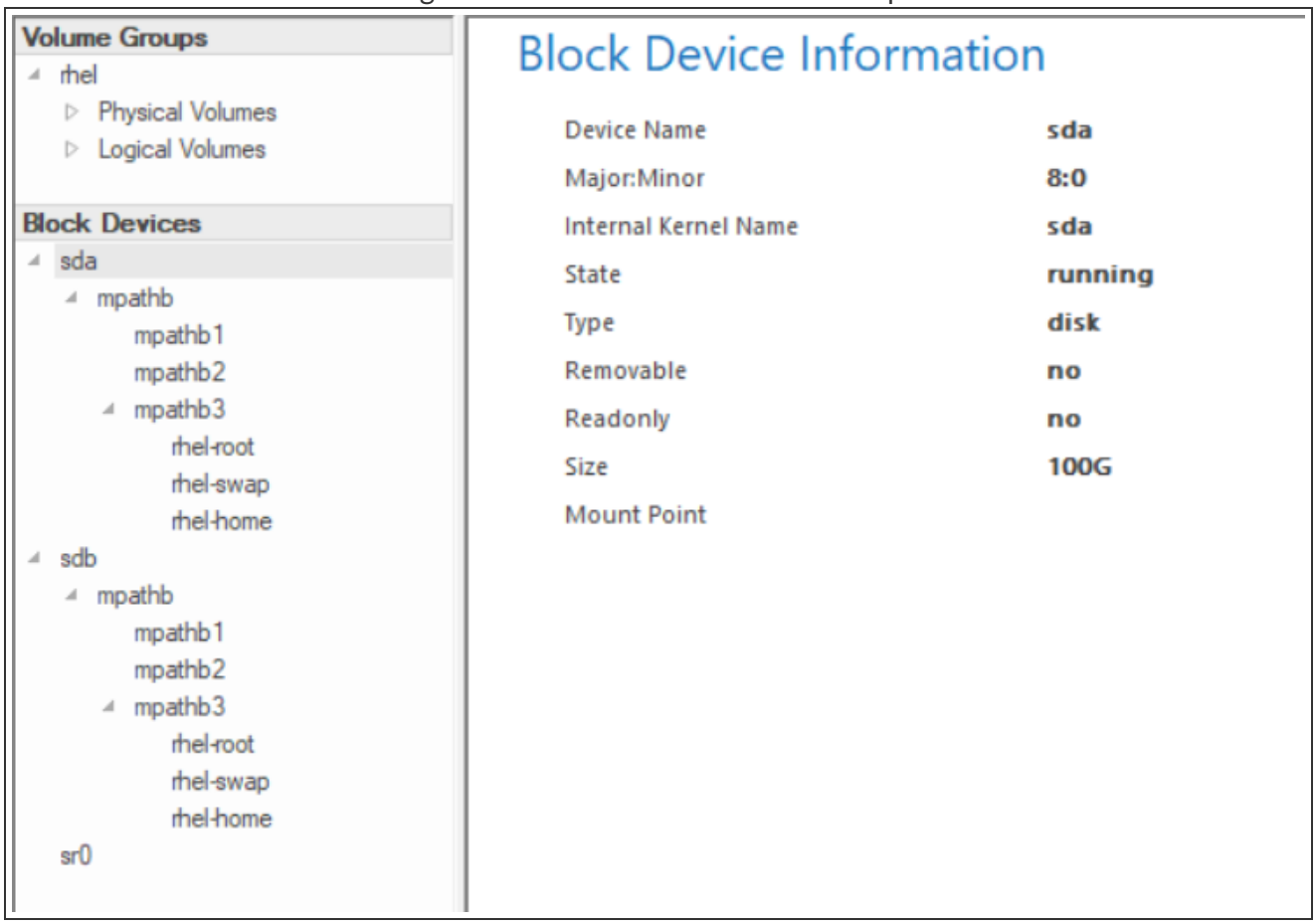
- Click a physical or logical volume to see a range of technical information for that specific volume.



- Click **Physical Volumes** or **Logical Volumes** to see an overview of all the physical and logical volumes in the volume group.



- Click a root volume group to see an overview of group, volume, and physical partition information for the system.
- Click a block device to see a range of technical information for that specific block device.



Notes:

- This is available on Linux systems only.
- For Size parameter, units are measured in G for Gigabytes or M for Megabytes.

The Box View

The Box View displays a summary of the partitions on a single box. It shows the shared processor, dedicated processor, memory, and interactive capacity allocations for each partition in the list. The **Not Monitored or Not Assigned** entry shows values that are not accounted for. This could be because of unallocated resources or unmonitored partitions.

The amounts shown in the Box View are configured allocations. For a partitioned system, the system takes some memory from this allocation for internal work.

Example of a Possible Box View:

Partition	Shared	Dedicated	Memory	Interactive
WA - WA - Host System	**0.10**		**2,048**	**0**
MO - MO - Remote System	**0.10**		**2,048**	**0**
Not Monitored or Not Assigned	**15.80**	**0**	**520,192**	**100**
Total	**16.00**	**0**	**524,288**	**100**

The Highest CPU Users View

The High CPU Users view displays a list of the jobs/processes using the most CPU. This view can be used for IBM i, AIX, Linux, and VIOS systems.

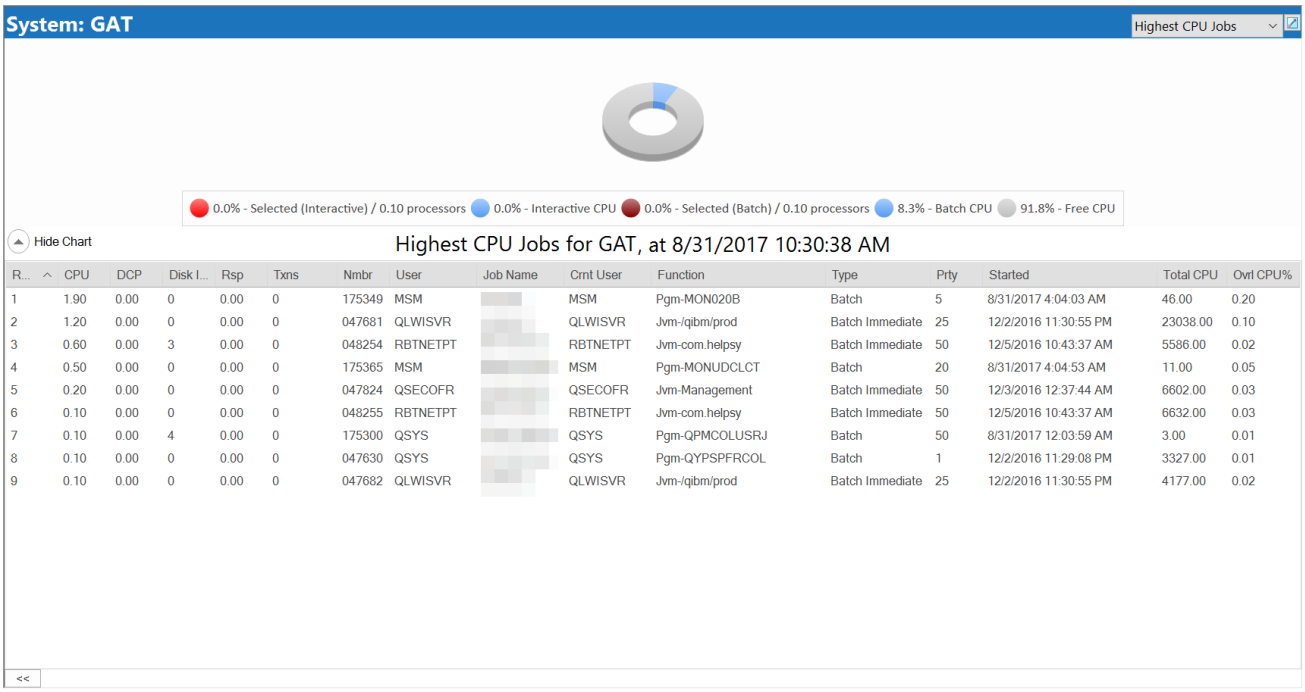
For IBM i systems, you can double-click a job to see the Job Details. Each time Robot Monitor fetches a detailed sample, it updates this view to display four different types of job:

- Jobs using the most CPU
- Job with the highest response times
- Jobs using the most Database CPU
- Jobs using the most CPU that are using SQL

You can configure the number of jobs collected for each category by using the MONCFG command on the host system.

Navigating the Highest CPU Jobs/Processes Window

The Highest CPU Jobs/Processes window contains many different elements. The elements are different depending on the operating system that is being monitored.



The heading displays the system you are on (not included in the image above) and the date and time of the last detailed sample. As samples are taken, the date and time automatically update.

> **NOTE:** The date and time is set according to the clock of the system being monitored, which may be in a different time zone.

The chart shows the division of CPU being used in various categories. Click a specific job in the list to see the percentage of processors allocated to the partition at the time of the sample. The chart displays this percentage in red. You can check multiple jobs at once by selecting them while holding down `Ctrl`.

The arrows at the bottom of the window allow you to see previous high CPU users.

The right-click menu allows you to control what you see and do in the window. See The Right-Click Menu for more information.

Fields for High CPU Jobs on IBM i systems:

Field	Description
Rank	This is the order of the job listed.
CPU	This is the percentage of CPU used by the job during the interval.
DCP	This is the percentage of database CPU used by the job during the interval.
Disk I/O	This is the average number of disk operations per second during the interval.

Field	Description
Rsp	This is the response time in seconds.
Txns	This is the number of transactions processed by the job during the interval.
Nmbr, User, Job Name	These are the system job identifiers.
Crnt User	This is the current user of the job. When a job has switched user profiles, the profile taken at sample time is displayed in this column.
Function	This is the function that the job performed at the time the sample was taken.
Type	This is the job type.
Prty	This is the run priority of the job at the time the sample was taken.
Started	This provides the job's starting date and time data.
Total CPU	This is the total number of CPU seconds used by the job over its lifetime.
Overall CPU %	This is the CPU% used by the job over its lifetime.

Fields for High CPU Processes on AIX/Linux/VIOS systems

Field	Description
Rank	This is the order of the process listed.
CPU	This is the percentage of CPU used by the process during the interval.
Mem	This is the percentage of memory being utilized.
I/O	This is the number of I/O characters written, in kb/second, for the selected process.
RSS	This is the amount of non-swapped physical memory used by the processes during the interval.
VSS	This is the amount of virtual memory used by the process during the interval.
Threads	This is the thread count for the selected process.
User	This is the user running the process.
Group	This is the user group that the user is a part of.

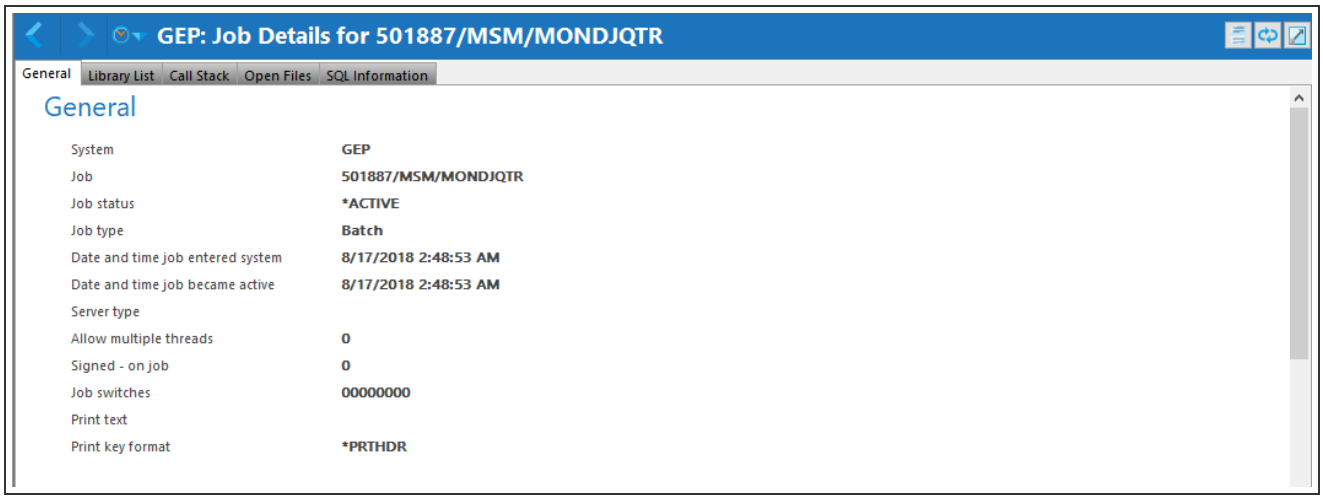
Field	Description
Crnt User	This is the current user of the process.
Process ID	This is the PID number.
Command	This is the command that the process is executing.
State	This is the process status. • R is running, • S is sleeping in an interruptible wait, • D is waiting in uninterruptible disk sleep, • Z is zombie, • T is traced or stopped (on a signal), • W is paging, • X is dead, • *NF is not found.
Pty	This is the run priority of the job at the time the sample was taken.
Started	This provides the process's starting date and time data.
Total CPU	This is the total number of CPU seconds used by the process over its lifetime.
Overall CPU %	This is the CPU% used by the process over its lifetime.

Job Details

Here, you can view job details, including General information, Library List, Call Stack, Open Files, SQL Information and Spooled Files, or you can download the job log. You can also perform actions on jobs. See Job Actions below for more information.

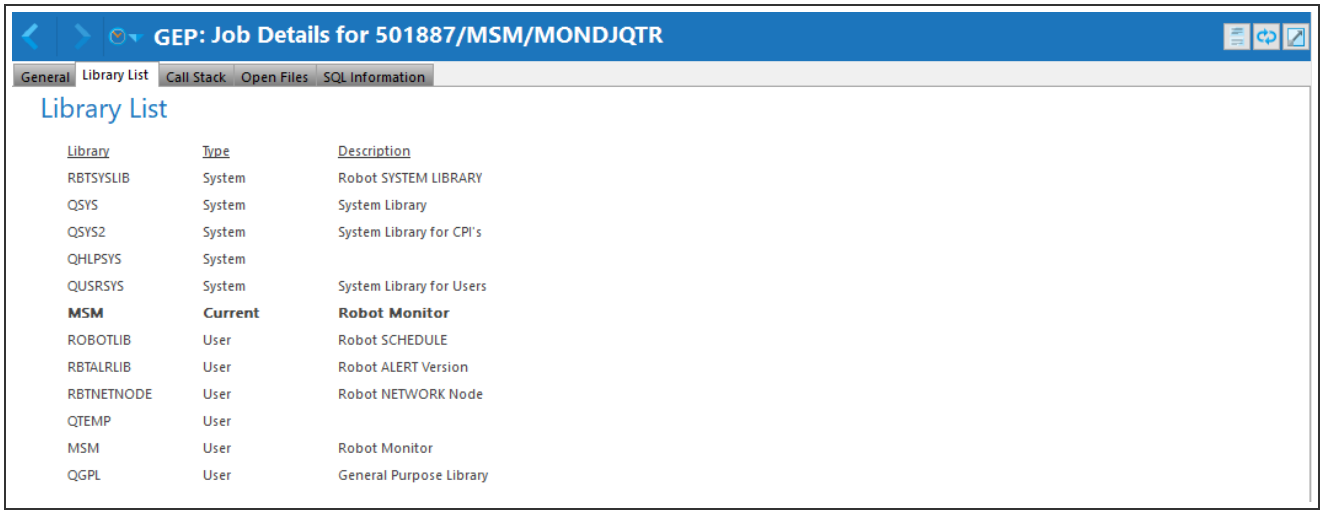
General Tab

The General tab displays general job details for the selected job.



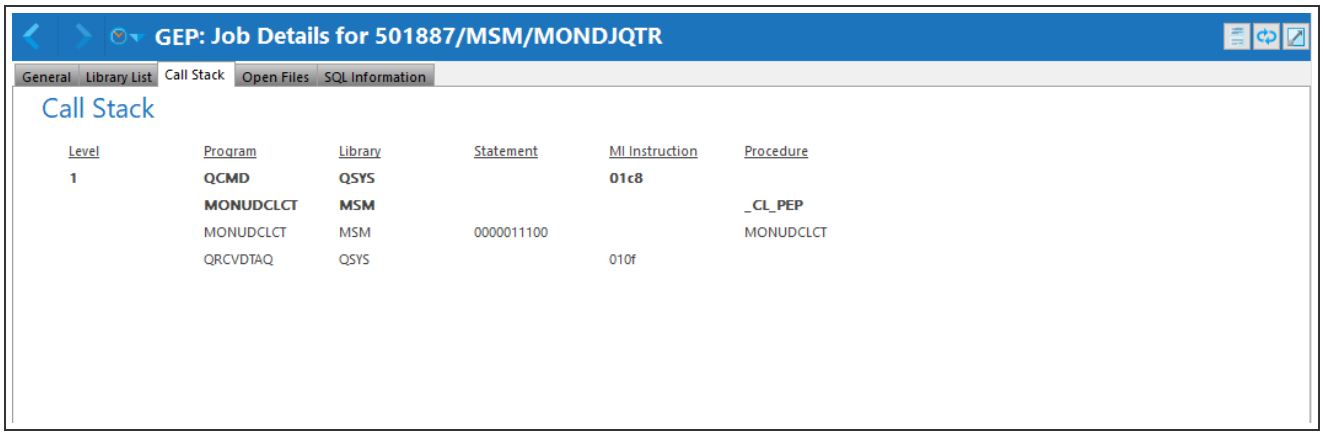
Library List Tab

The Library List tab displays the library list of a job when that job is active. If the selected job is not active, the library list tab will not be shown.



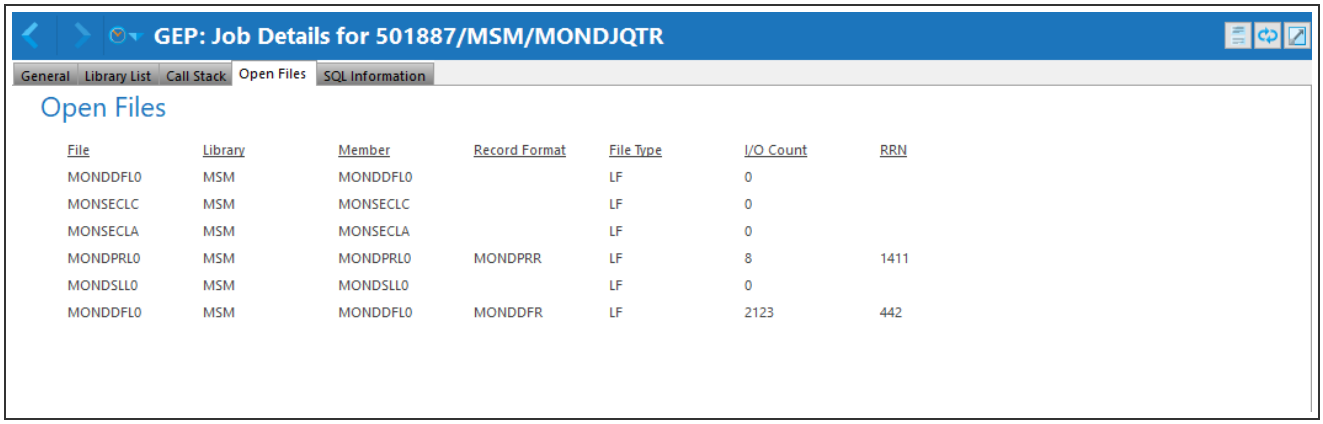
Call Stack Tab

The Call Stack tab displays the call stack of a job when that job is active. If the job is not active, the call stack tab will not be shown.



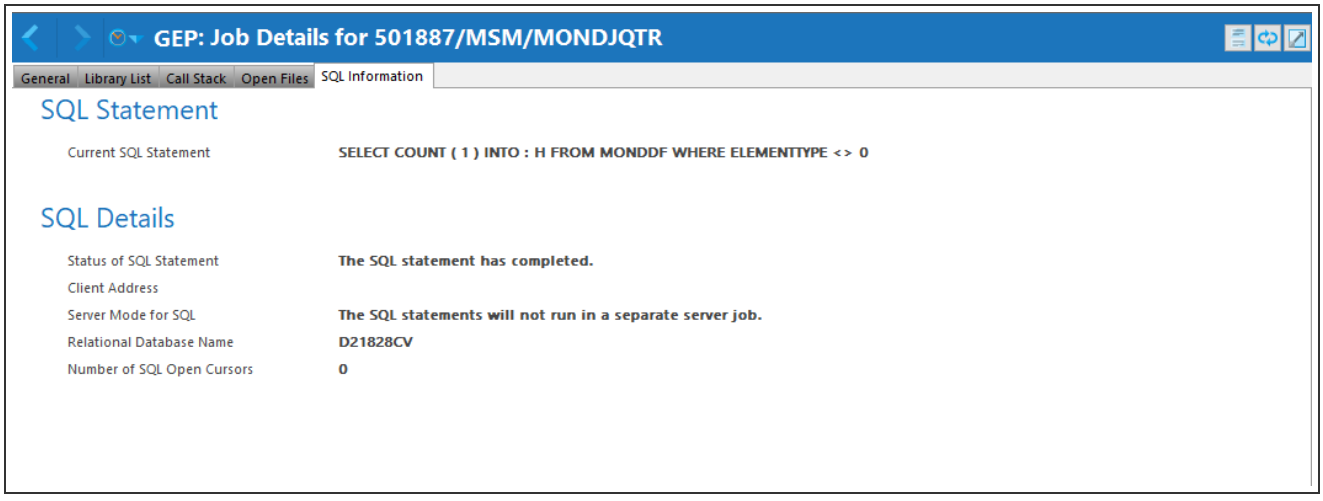
Open Files Tab

The Open Files tab displays the list of open files for the job.



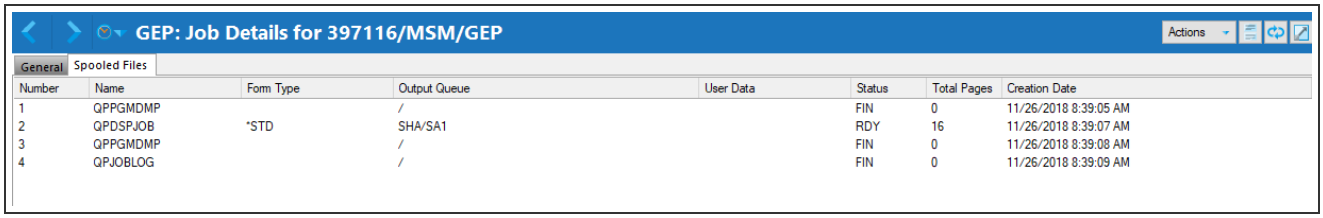
SQL Information Tab

The SQL Information tab displays the last run sql statement of a job. If the last run sql statement is not available (e.g. if a job hasn't run an SQL statement), the sql tab will not be shown. This can help troubleshoot possible SQL performance issues.



Spooled Files Tab

The Spooled Files tab displays the list of spooled files available for the selected job.



Number	Name	Form Type	Output Queue	User Data	Status	Total Pages	Creation Date
1	QPPGMDMP		/		FIN	0	11/26/2018 8:39:05 AM
2	QPDSPJOB	*STD	SHA/SA1		RDY	16	11/26/2018 8:39:07 AM
3	QPPGMDMP		/		FIN	0	11/26/2018 8:39:08 AM
4	QPJOBLOG		/		FIN	0	11/26/2018 8:39:09 AM

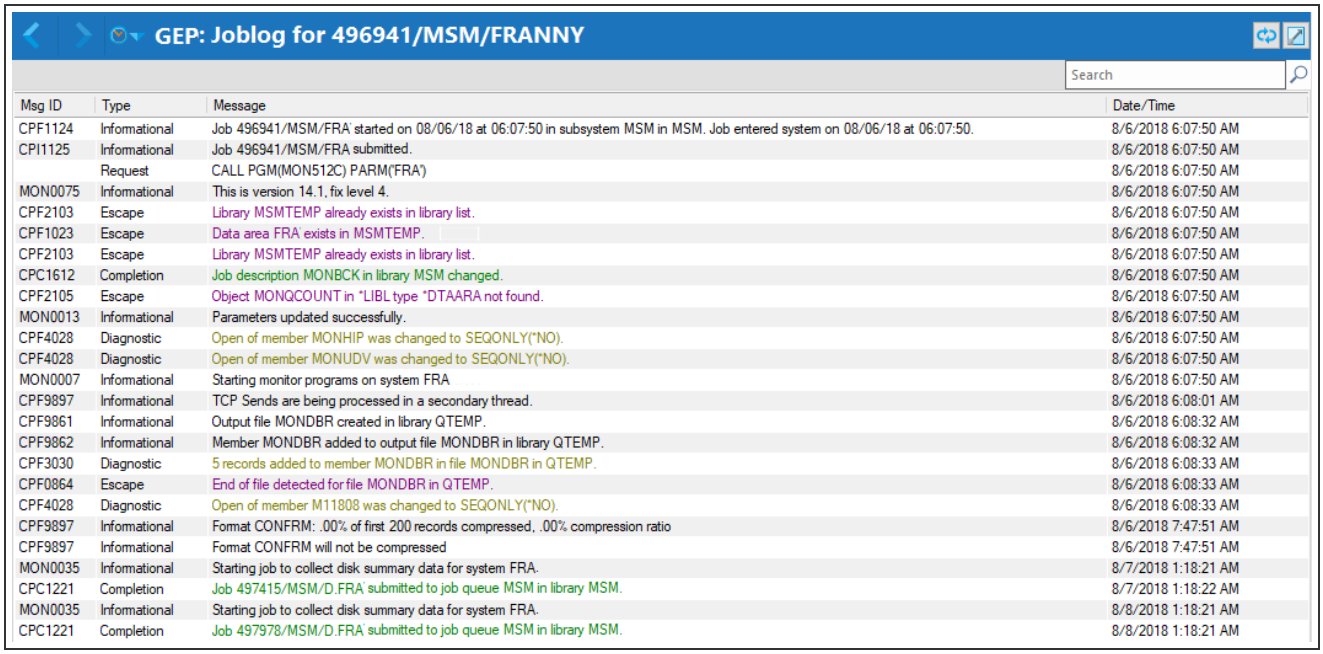
To view and print or export the spooled files:

1. Double-click the spool file you would like to open. The spool file will display on the screen.
2. To print the file, select File -> Print from the Robot Monitor main menu.
3. To export to a .csv or .txt file, select File -> Export from the Robot Monitor main menu. You can then choose between exporting to CSV or exporting to Text.

Downloading the Job Log

To download the job log:

1. Click the job log icon in the upper-right corner of the screen.



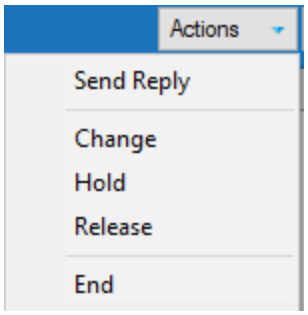
Msg ID	Type	Message	Date/Time
CPF1124	Informational	Job 496941/MSM/FRA started on 08/06/18 at 06:07:50 in subsystem MSM in MSM. Job entered system on 08/06/18 at 06:07:50.	8/6/2018 6:07:50 AM
CPI1125	Informational	Job 496941/MSM/FRA submitted.	8/6/2018 6:07:50 AM
	Request	CALL PGM(MON512C) PARM('FRA')	8/6/2018 6:07:50 AM
MON0075	Informational	This is version 14.1, fix level 4.	8/6/2018 6:07:50 AM
CPF2103	Escape	Library MSMTEMP already exists in library list.	8/6/2018 6:07:50 AM
CPF1023	Escape	Data area FRA exists in MSMTEMP.	8/6/2018 6:07:50 AM
CPF2103	Escape	Library MSMTEMP already exists in library list.	8/6/2018 6:07:50 AM
CPC1612	Completion	Job description MONBCK in library MSM changed.	8/6/2018 6:07:50 AM
CPF2105	Escape	Object MONQCOUNT in *LIBL type *DTAARA not found.	8/6/2018 6:07:50 AM
MON0013	Informational	Parameters updated successfully.	8/6/2018 6:07:50 AM
CPF4028	Diagnostic	Open of member MONHIP was changed to SEQONLY(*NO).	8/6/2018 6:07:50 AM
CPF4028	Diagnostic	Open of member MONUDV was changed to SEQONLY(*NO).	8/6/2018 6:07:50 AM
MON0007	Informational	Starting monitor programs on system FRA	8/6/2018 6:07:50 AM
CPF9897	Informational	TCP Sends are being processed in a secondary thread.	8/6/2018 6:08:01 AM
CPF9861	Informational	Output file MONDBR created in library QTEMP.	8/6/2018 6:08:32 AM
CPF9862	Informational	Member MONDBR added to output file MONDBR in library QTEMP.	8/6/2018 6:08:32 AM
CPF3030	Diagnostic	5 records added to member MONDBR in file MONDBR in QTEMP.	8/6/2018 6:08:33 AM
CPF0864	Escape	End of file detected for file MONDBR in QTEMP.	8/6/2018 6:08:33 AM
CPF4028	Diagnostic	Open of member M11808 was changed to SEQONLY(*NO).	8/6/2018 6:08:33 AM
CPF9897	Informational	Format CONFRM: .00% of first 200 records compressed, .00% compression ratio	8/6/2018 7:47:51 AM
CPF9897	Informational	Format CONFRM will not be compressed	8/6/2018 7:47:51 AM
MON0035	Informational	Starting job to collect disk summary data for system FRA.	8/7/2018 1:18:21 AM
CPC1221	Completion	Job 497415/MSM/D.FRA submitted to job queue MSM in library MSM.	8/7/2018 1:18:22 AM
MON0035	Informational	Starting job to collect disk summary data for system FRA.	8/8/2018 1:18:21 AM
CPC1221	Completion	Job 497978/MSM/D.FRA submitted to job queue MSM in library MSM.	8/8/2018 1:18:21 AM

2. Use the **Search** text box to search for a specific log item, or refresh to see newer job log items.

Job Actions

The following actions are available for the selected job.

> **NOTE:** You must be logged in and have the necessary authorities on your login to run these actions.

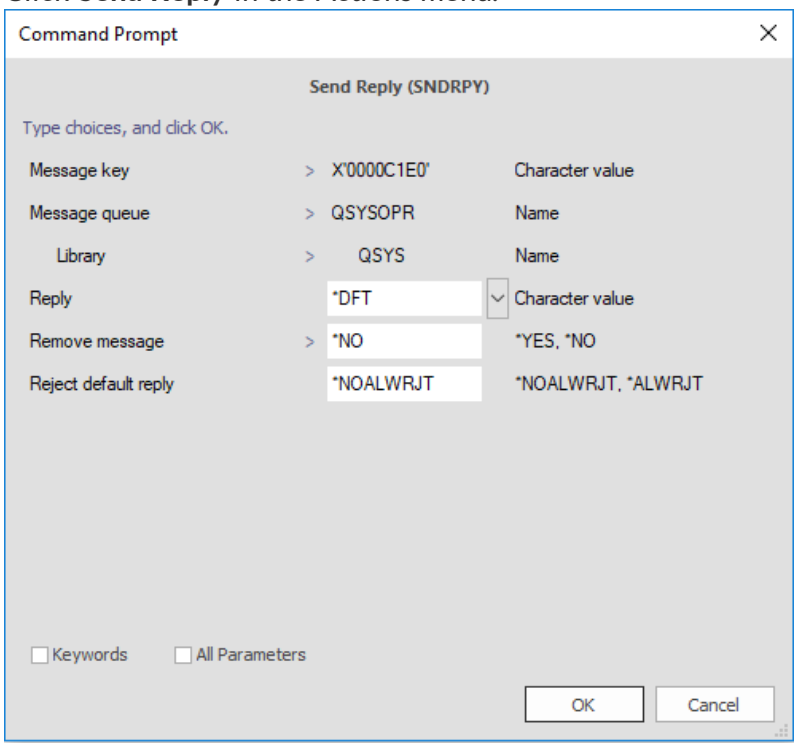


- Selecting an action will bring up the standard command prompt, allowing the you to modify and confirm the command.
- The **Send Reply** option will only appear if the selected job is waiting for a message reply.

Send Reply

You can reply to a message using the send reply (sndrpy) command.

1. Click **Send Reply** in the Actions menu.



2. Change the values in the displayed editable command parameters as desired.

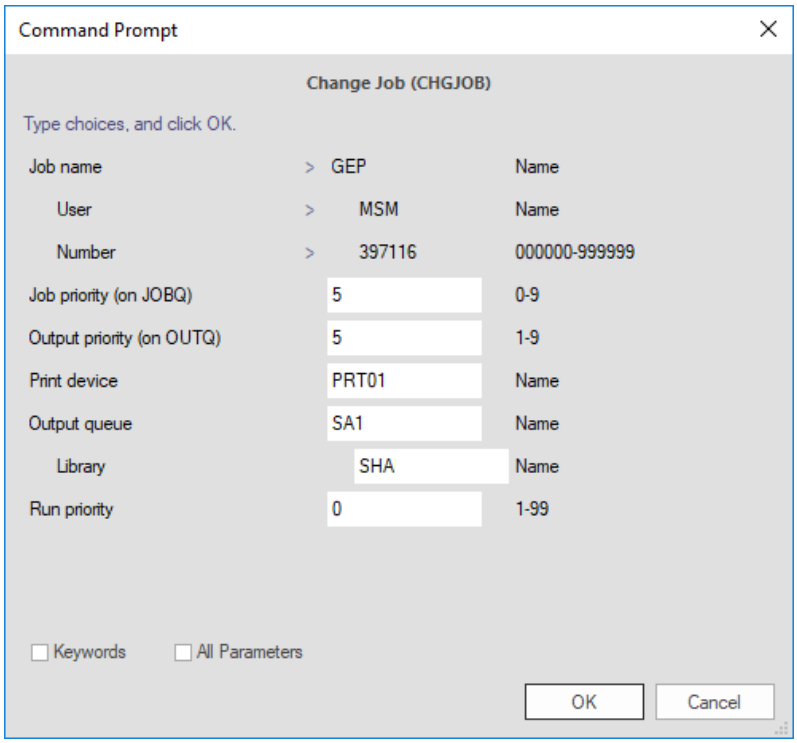
   > **NOTE:** Select **Keywords** to see all the command keywords and select **All Parameters** to view all available command parameters.

3. Click **OK**.

Change

You can update the job attributes using the change job (chgjob) command.

1. Click **Change** in the Actions menu.



2. Change the values in the displayed editable command parameters as desired.

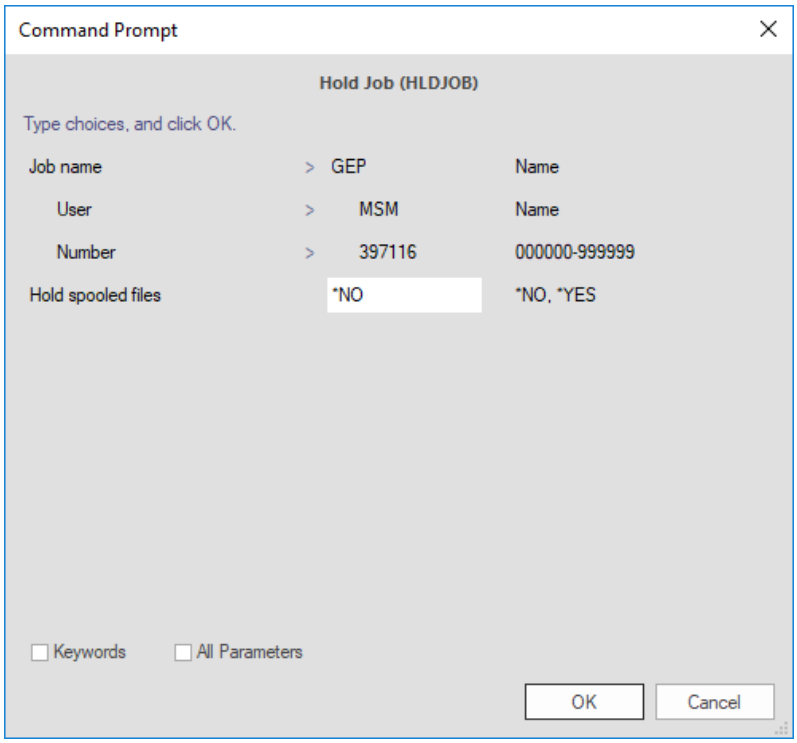
> **NOTE:** Select **Keywords** to see all the command keywords and select **All Parameters** to view all available command parameters.

3. Click **OK**.

Hold

You can hold a job using the hold job (hldjob) command.

1. Click **Hold** in the Actions menu.



2. Change the values in the displayed editable command parameters as desired.

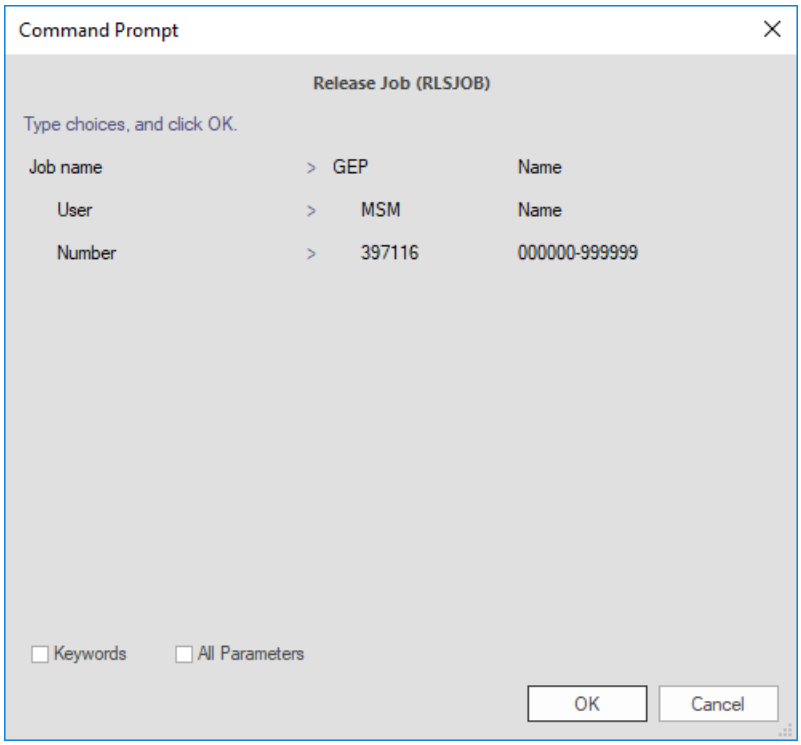
> **NOTE:** Select **Keywords** to see all the command keywords and select **All Parameters** to view all available command parameters.

3. Click **OK**.

Release

You can release a job using the release job (rlsjob) command.

1. Click **Release** in the Actions menu.



2. Change the values in the displayed editable command parameters as desired.

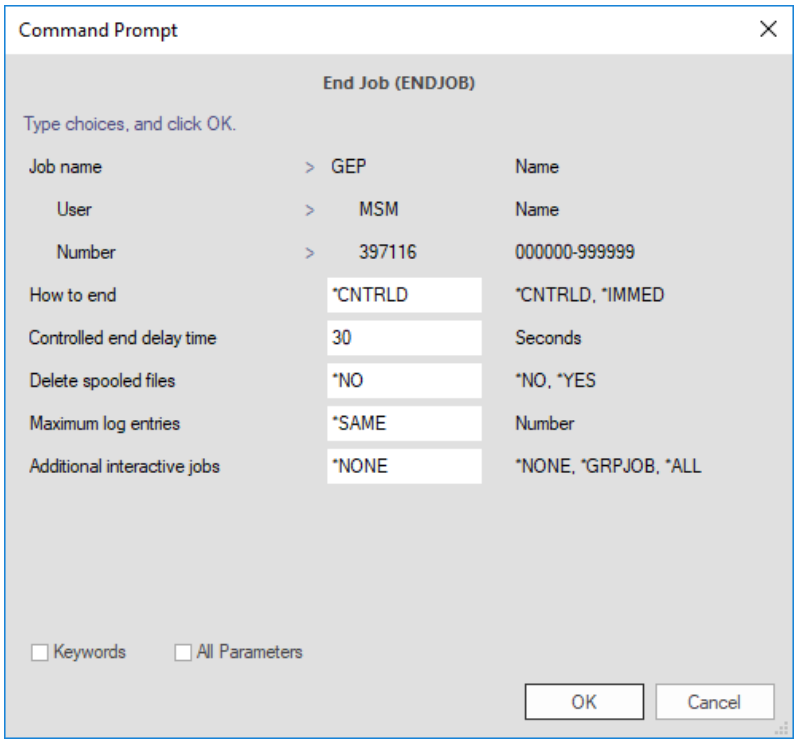
   > **NOTE:** Select **Keywords** to see all the command keywords and select **All Parameters** to view all available command parameters.

3. Click **OK**.

End

You can end a job using the end job (endjob) command.

1. Click **End** in the Actions menu.



2. Change the values in the displayed editable command parameters as desired.

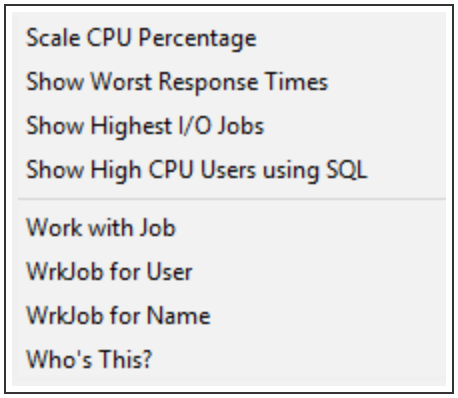
> **NOTE:** Select **Keywords** to see all the command keywords and select **All Parameters** to view all available command parameters.

3. Click **OK**.

The Right-Click Menu

When you right-click the Highest CPU Jobs/Processes view, a context menu displays. This menu provides a list of options you can select or configure for the current view. The menu differs depending on the operating system that is being monitored.

For IBM i Systems



Scale CPU Percentage

Scales CPU to the number of configured processors. The range when scaled is normally 0-100%, but it may be exceeded if capacity on demand is used for the partition.

Show Worst Response Times

Changes the Highest CPU Jobs view to show the jobs with the highest response times for the current system.

Show Highest I/O Jobs

Changes the Highest CPU Jobs view to show the highest Disk I/O jobs for the current system.

Show High CPU Users using SQL

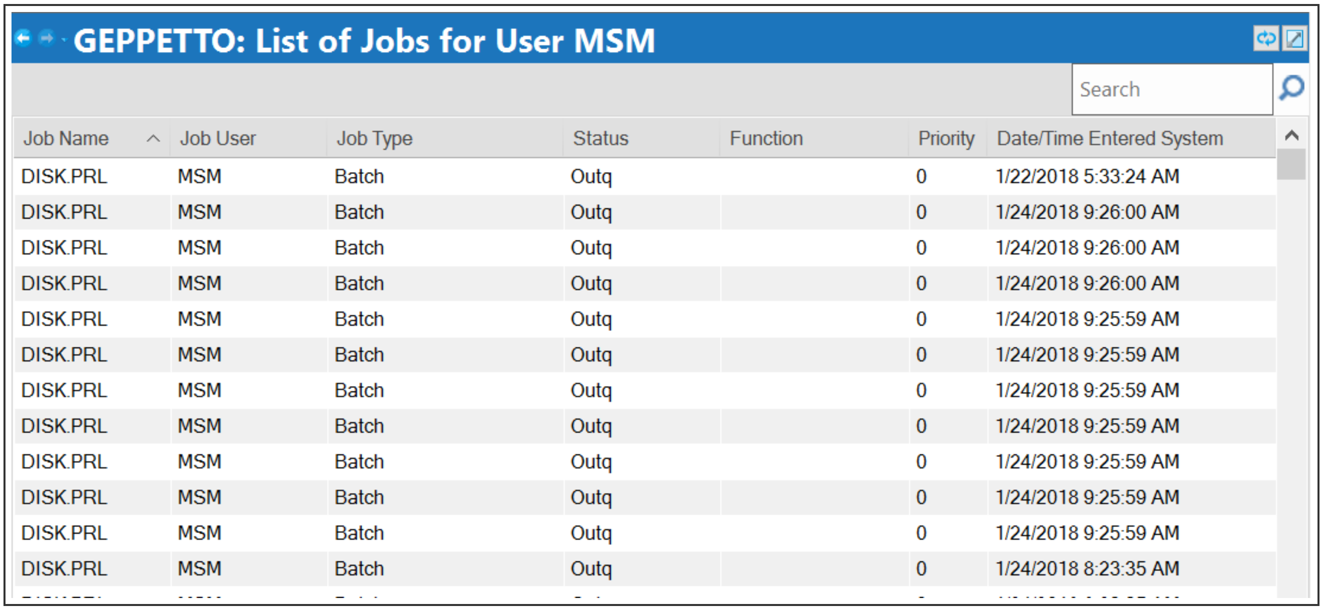
Changes the Highest CPU Jobs view to show the jobs running SQL that are using the most CPU for the current system.

Work with Job

Opens the Job Details screen for the selected job.

WrkJob for User

Opens the **List of Jobs for User** screen for the selected job. Here, you can view the list of jobs with the same user as that of the selected job.

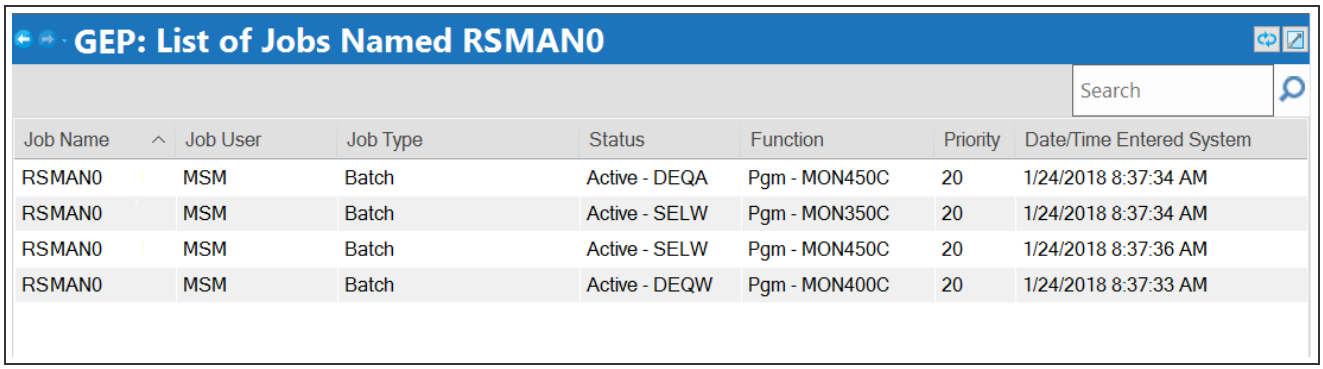

GEPPETTO: List of Jobs for User MSM

Search

Job Name	Job User	Job Type	Status	Function	Priority	Date/Time Entered System
DISK.PRL	MSM	Batch	Outq		0	1/22/2018 5:33:24 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:26:00 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:26:00 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:26:00 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 9:25:59 AM
DISK.PRL	MSM	Batch	Outq		0	1/24/2018 8:23:35 AM

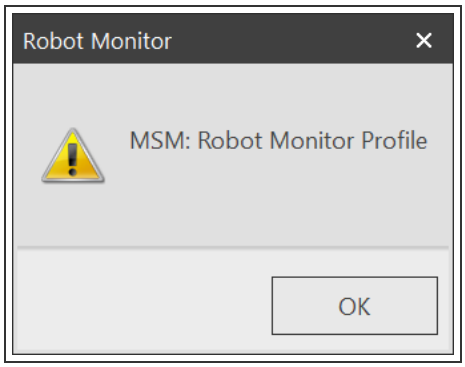
WrkJob for Name

Opens the **List of Jobs Named** screen for the selected job. Here, you can view the list of jobs with the same name as that of the selected job.

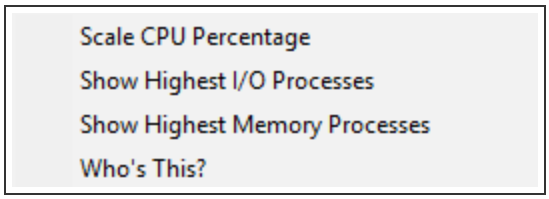


Who's This?

Displays the profile of the user of the selected job.



For AIX/Linux/VIOS Processes



Scale CPU Percentage

Scales CPU to the number of configured processors. The range when scaled is normally 0-100%, but it may be exceeded if capacity on demand is used for the partition.

Show Highest I/O Processes

Changes the Highest CPU Jobs view to show the highest disk I/O processes for the current system.

Show Highest Memory Processes

Changes the Highest CPU Processes view to show the highest memory processes for the current system.

Who's This?

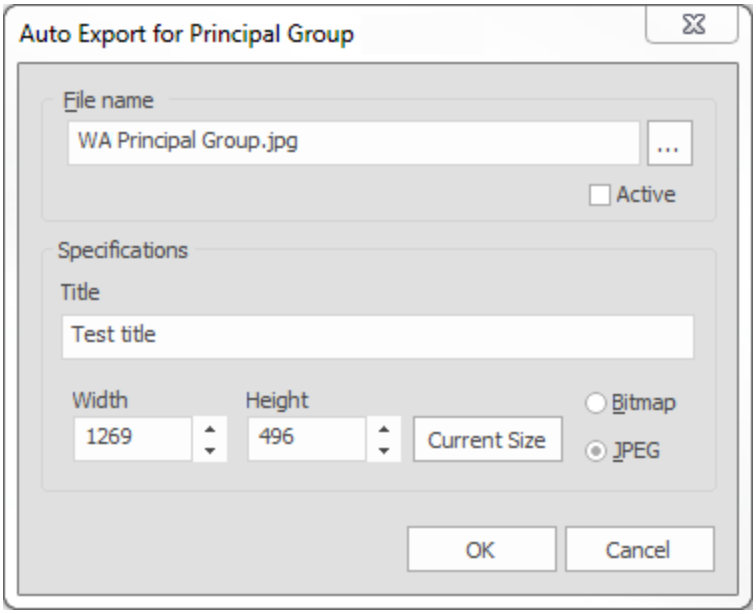
Displays the profile of the user of the selected job.

The Highest CPU Users View

Using the Auto-Export Panel

The Auto-Export function creates an image of a specified group each time it receives an update from the host system.

In order to use this feature, Robot Monitor must be running, and the selected group must be open to capture the image. Auto-Export settings are retained from one run of Robot Monitor to the next, so the Auto-Export function will resume whenever you restart.



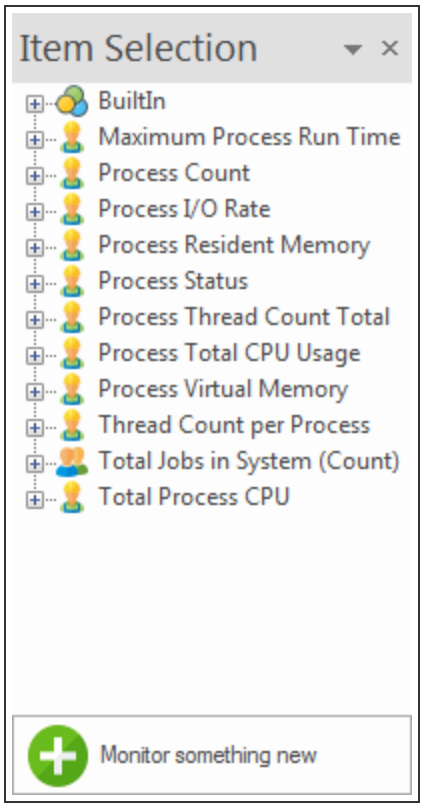
Setting up Auto-Export

Follow these steps to set up Auto-Export for a group.

1. Right-click the group you want to set up and select **Auto-Export**.
2. On the Auto-Export panel, enter a File Name.
3. Click **Browse** ... to choose a save location for the Auto-Export. If no path is specified, the file will be created in the MSM data directory.
4. Select **Active** if you want to activate Auto-Export for the selected group. This will ensure the group image updates automatically.
5. Enter a title to include in the exported image. **Note:** This is not required.
6. Choose how you want to size your image:
   - Enter a width and height for the image. **Note:** The measurements are specified in pixels.
   - Alternatively, click **Current Size** to set the width and height fields to the current size of the selected group.
7. Select whether the image should be saved as a bitmap or JPEG.
8. Click **OK** to export the group to your PC.

The Item Selection Sidebar

The item selection sidebar allows you to add an item to your current view. You can access the sidebar by clicking **Item Selection** in the upper right corner.



The sidebar is only available for the following views: The Monitor View, The Detailed History View, The Short-Term History View, The History Summary View, The Disk Summary View, and The Accounting Summary View.

To add a new item to your current view, click and drag it from the sidebar onto the open window. You can choose to add an entire group or a single item from the group to your view.

You can also create new items to monitor on your system. Click **Monitor something new** to define a new select to monitor on the IBM i. **Note:** To do this, you must be logged in and have the authority to add new data definitions.

Threshold Activity

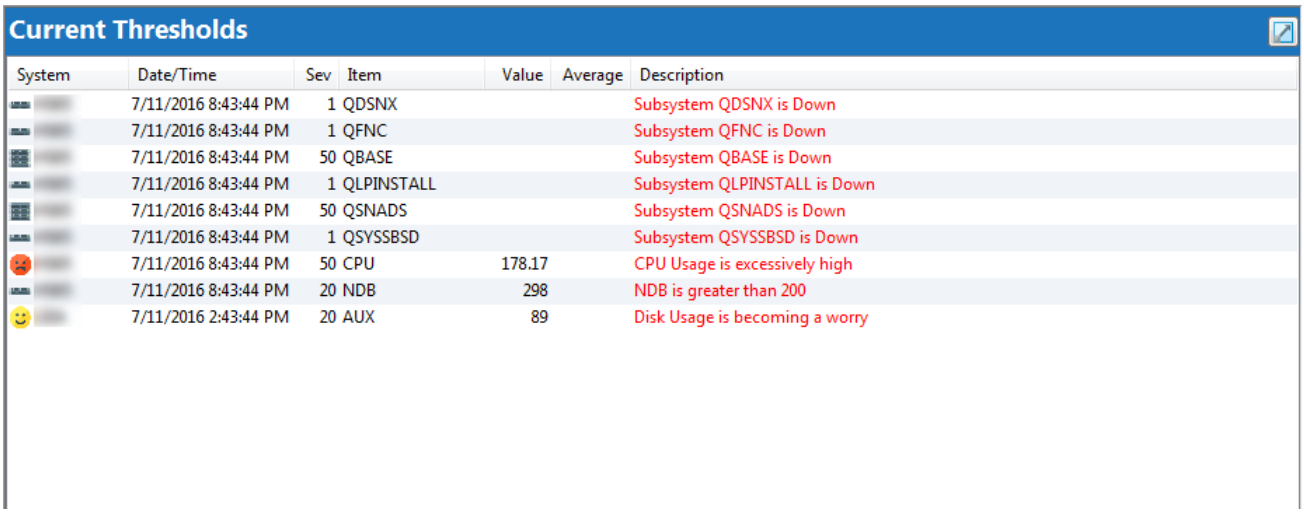
These topics describe general information about threshold activity in Robot Monitor.

Click one of the following links to learn more about the topic.

- Current Thresholds
- The Threshold Log

Current Thresholds

The Current Thresholds view displays all currently active thresholds, their systems, and their descriptions.



Click a column header to sort the list in ascending/descending order. You can also double-click a threshold entry to open the group that the element with the threshold is in.

New thresholds descriptions are shown in red. Once they are acknowledged, the descriptions will turn black.

- To acknowledge your current thresholds, right-click one and select **Acknowledge All**.
- If you want to reset an acknowledgment for a threshold, right-click it and select **Reset Acknowledgment**. This will turn the description back to red.

If you want to print a threshold, right-click one and select **Print**.

The Threshold Log

The threshold log displays a list of all threshold events that triggered since Robot Monitor was started.

Each time a thresholds detailed record is selected for an element, an entry is written to the log. Whenever the selection returns to the default entry on the threshold list, a threshold reset event is also logged.

Right-click anywhere in the view to change the font of the log or save it as a text file to your PC.

Configuration

These topics describe general information about the configuration settings and options in Robot Monitor.

Click one of the following links to learn more about the topic.

- The Data Definitions View
- The Thresholds View
- The Calendar Configuration View
- The SST Configuration View

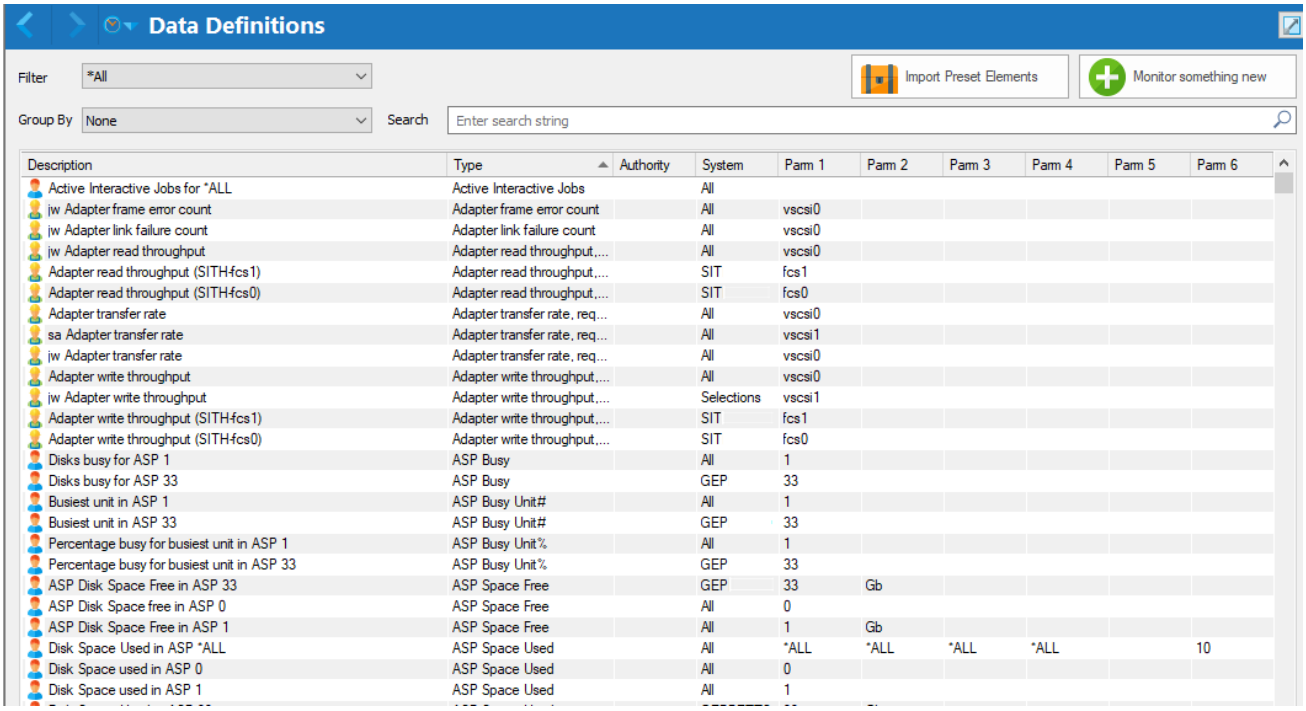
The Data Definitions View

NOTE: The Data Definitions View is accessible from the Configuration section of the Views menu. If it is not visible, you can reach it by logging in to Security via the Authority Logon.

The Data Definitions view displays all defined elements for Robot Monitor, including the element's description, element type, the systems on which the data is collected, and the parameters specified.

Use the Filter drop-down to limit the display to elements of a particular type, or use the Search field to display elements by description.

Use the Group By drop-down to limit the display by System or Type.



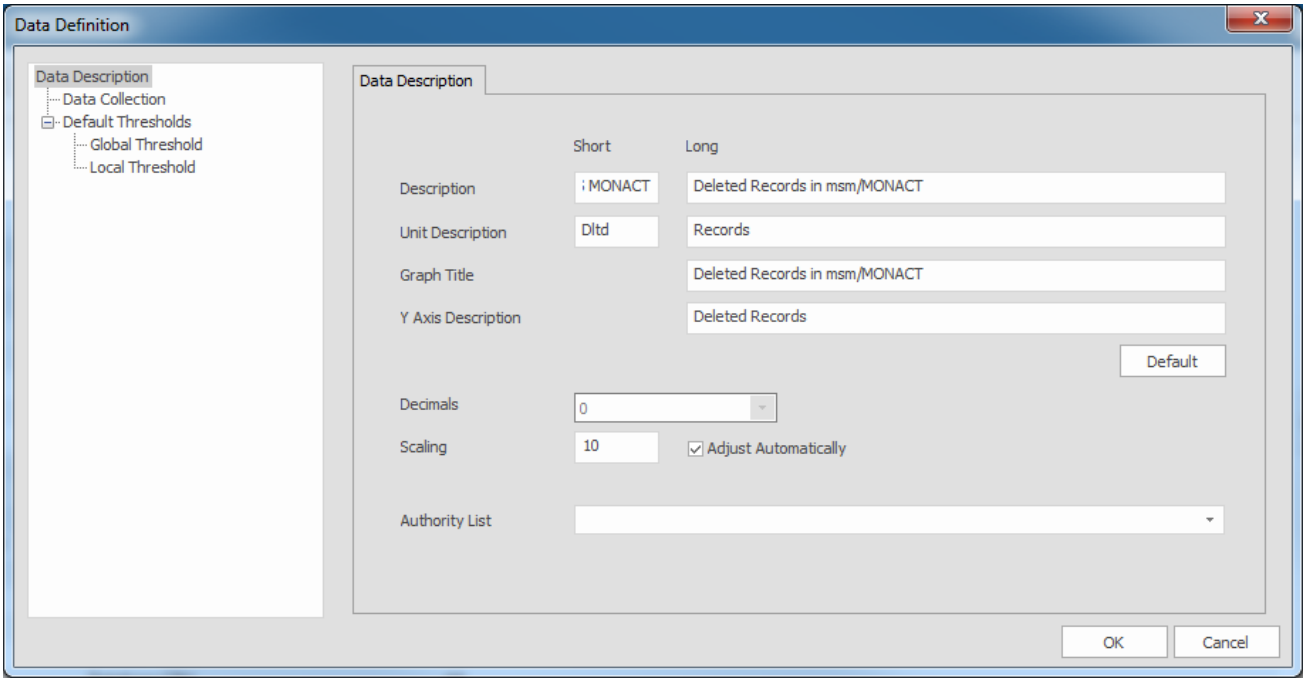
Things You Can Do

- Right-click an entry and select **Properties** to view the Data Description screen on the Data Definition panel for that element. You can use this screen to edit the element's definition or add thresholds.
- Right-click an entry and select **Where Used** to open the Groups Containing X panel, where *X* is the name of the element selected.
- Right-click an entry and select **Delete** to remove an element from the list. This deletes the definition, and detail and historical information will be marked for removal from Robot Monitor the next time a purge is run.
- Right-click one or more entries and select **Export to Preset Elements File** to export your selections to an elements file (.rmpreset).
- Click **Import Preset Elements** in the upper right corner to import a predefined set of definitions or a custom set of element definitions (.rmpreset file). See Importing Preset Elements for more information.
- Click **Monitor something new** in the upper right corner to create a new element. See Creating an Element for more information.
- Go to **File > Export** to export the current view to a CSV file. See Export for more information.

Data Definition Panel

The Data Definition panel allows you to specify the attributes of a data element.

To access this panel, open the Data Definitions view, right-click a description, and select **Properties**.



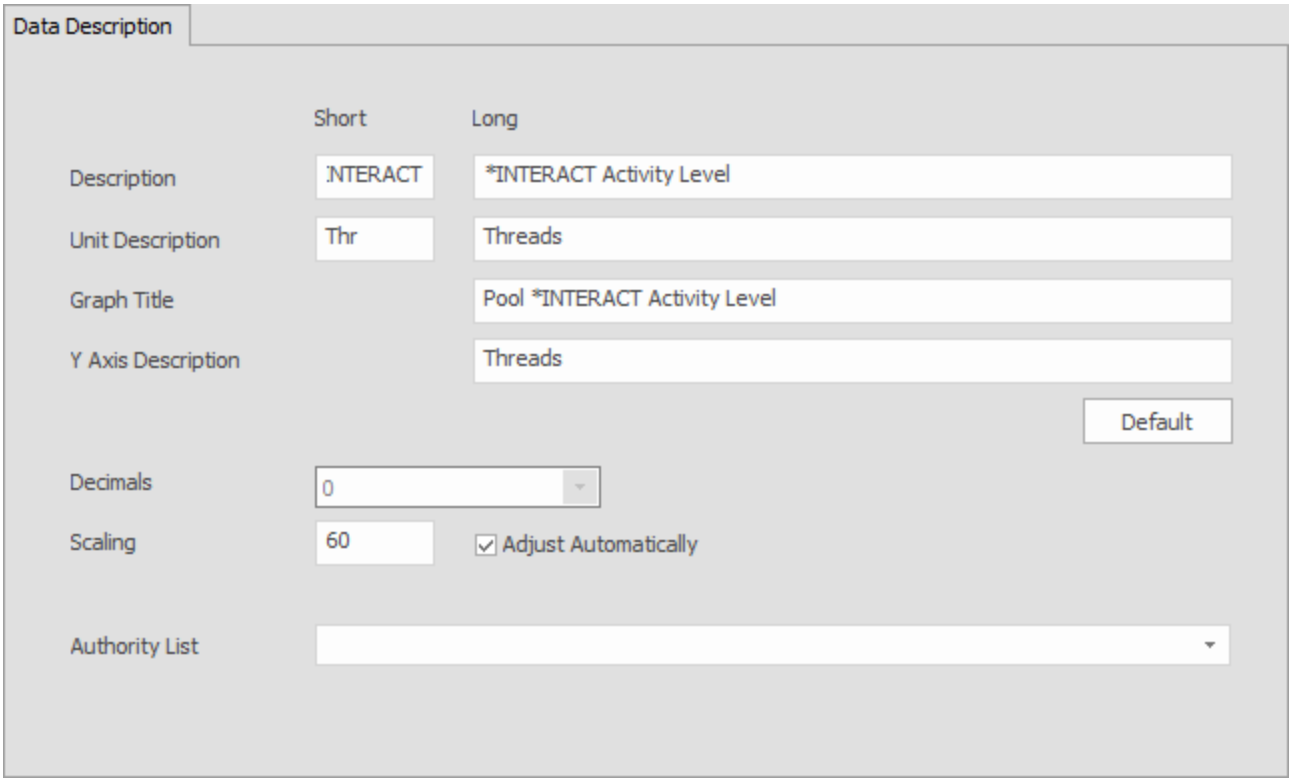
There are several tabs in this panel that can be used to change element attributes.

The following table describes the tabs you may see in the Data Definition panel, depending on the view and type of element currently selected.

Tab	Description
Data Description	Displays the Data Description screen, allowing you to specify basic attributes for the element such as the description and default scaling.
Data Collection	Displays the Data Collection screen, allowing you to specify the element type and any parameters required for the collection job.
User Data Collection Job	Displays the User Data Collection Job screen, allowing you to specify a job to collect data for user defined data and text items. A job specified here will run on all systems.
Global Threshold	Displays the Global Threshold (All Systems) tab on the Default Thresholds screen, allowing you to select or edit the default threshold for this element.
Local Threshold	Displays the Local Threshold (All Systems) tab on the Default Thresholds screen, allowing you to select or edit a threshold for this element that is only used on the local PC.
Presentation in this Group	Displays the Presentation in this Group screen, allowing you to determine how this element is displayed when added to a group.

Data Description Screen

The Data Description screen, accessed through the Data Definition panel, allows you to specify basic attributes for an element.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Description

Specify a short and long description for the element if required. Leaving this entry blank will cause Robot Monitor to assign the element a default description.

Unit Description

Specify a short and long unit description for the element if required, such as *MB*, *Seconds*, or *Percent*. Leaving this entry blank will cause Robot Monitor to assign the unit a default description.

Graph Title

Specify the title that should be used whenever this element is graphed. Leaving this entry blank will cause Robot Monitor to assign the graph a default title.

Y Axis Description

Specify a description to be used for the Y axis whenever this element is graphed. Leaving this entry blank will cause Robot Monitor to assign the Y axis a default description.

Default

Click Default to assign all description fields with a default description.

Decimals

Select the number of decimal places for this element from the drop-down.

If you want Robot Monitor to decide where the decimal place should go based on the magnitude of the number, select **Automatic**.

Scaling

Enter the maximum expected that should be allowed when the element is displayed as a bar or line graph.

Certain data types determine their own scale if this value is left at 0:

- Current Memory (CRM): Maximum memory for partition
- Current Processors (CRP): Maximum processors or maximum shared processors for this partition
- ASP Free: Asp size
- ASP Used: Asp size
- Pool Size: Current Memory (CRM)
- Pool Reserved Size: Current Memory (CRM)

Automatically Adjust

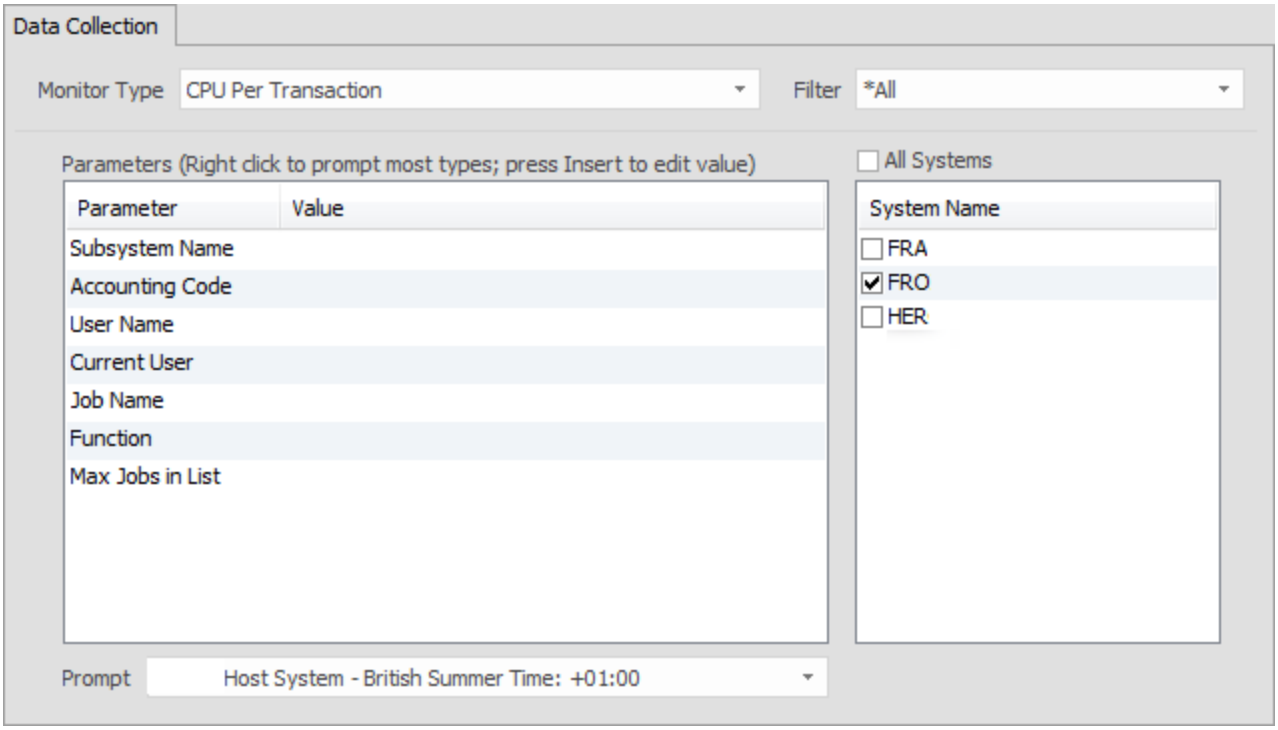
Select this option to allow the maximum scaling value to increase when graphed elements exceed the entered value.

Authority List

Select an Authority List for the element. This authority list is assigned, by default, to any objects added to this element.

Data Collection Screen

The Data Collection screen, accessed through the Data Definition panel, allows you to define Configurable Elements. Each element has a type, a system selection, and one or more parameters.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Monitor Type

Select the Monitor Type you want to create from the drop-down list. Each monitor type has different parameters associated with it.

> **NOTE:** Once an element is created, the monitor type cannot be changed.

Filter

Use the Filter to limit the entries in the Monitor Type drop-down by class.

System Name

Select the systems you want to define this element for, or click **All Systems** to define this element for all systems.

Parameters and Values

Most element types require parameters to function. Those parameters are listed here. You can add values to most parameters.

Prompt

Select which system should be used for prompting values from the drop-down. When you prompt for values that exist on the host system, Robot Monitor will fetch the list from the prompt system specified.

Collection Frequency

This option only displays for some data types.

Enter a numerical value to control how often the collection is performed. For example, if you set the collection frequency to 6 and the detail collection interval is set to 30 seconds, this item will be measured every three minutes (or every six collections).

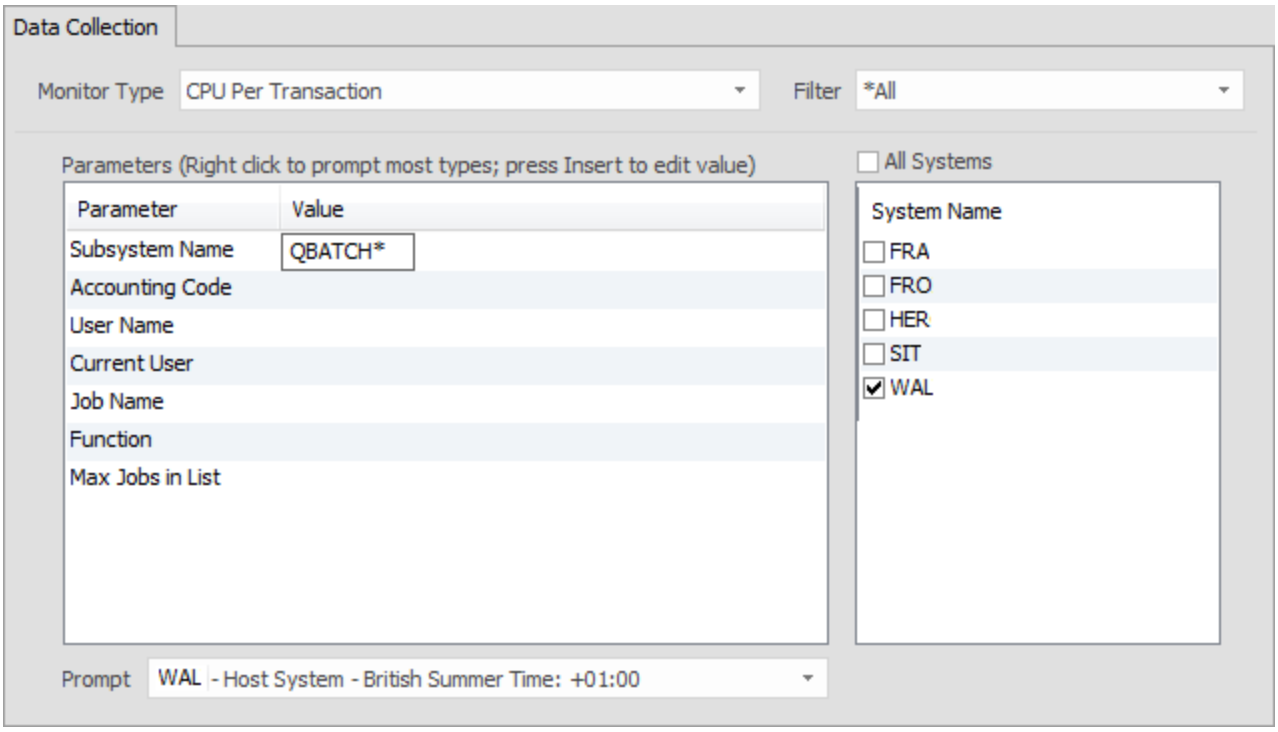
Adding Values to Parameters

There are two ways to add values to a parameter. You can enter them manually or select them from a list of possible values generated by the prompt system.

Entering Values Manually

Although it is usually easier to prompt and select a value from the list, you can enter values directly by highlighting the parameter you want and pressing `Insert`.

Type in a value, then press **Enter** to save your changes.



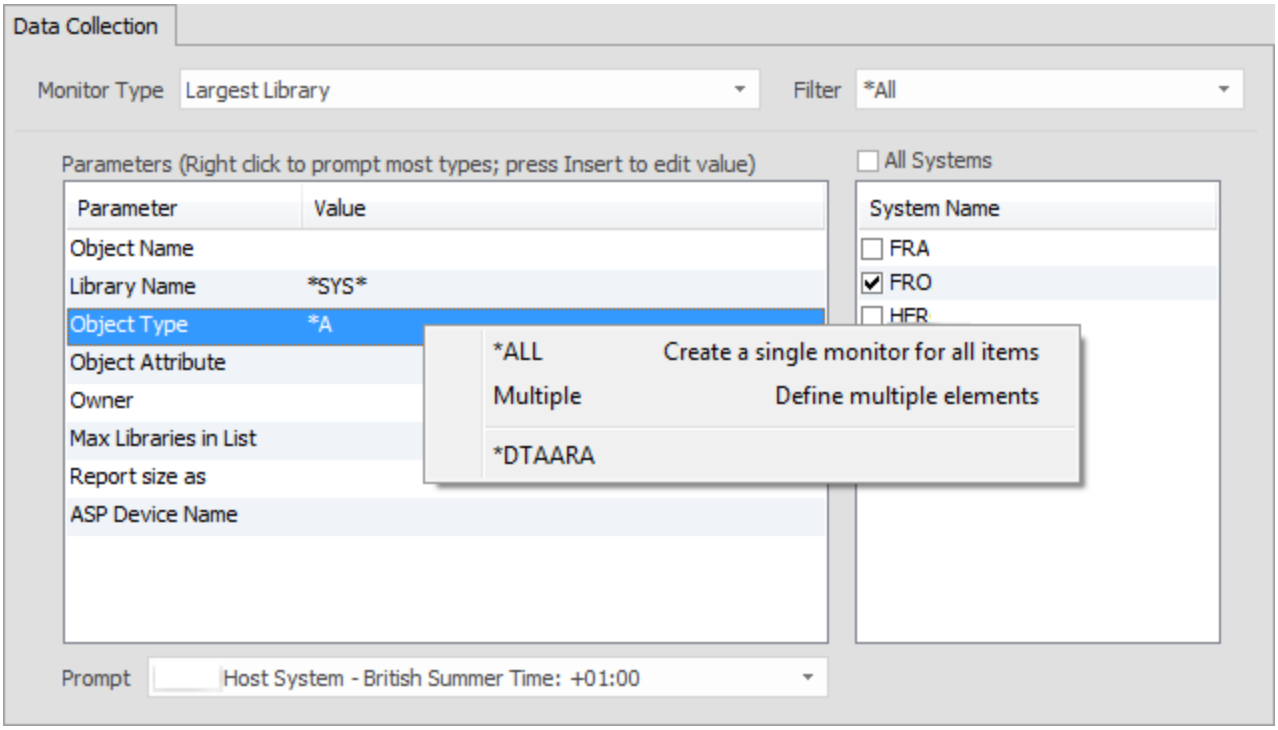
Prompting Values

Most parameter types support prompting. To prompt a value, right-click the parameter. Robot Monitor will fetch the list from the prompt system (if required) and display a list of possible values.

For elements with library or type parameters, you must specify the library name and object type before prompting the object name.

To limit the list of values, you can specify a generic for the parameter using manual entry. For example, enter A*, *A*, or *A as a value and then right-click, and the prompt system will only display values that start with A, have an A in the middle, or end with A.

You can also enter a quick generic search. To do this, click a parameter and press the first letter of the value you are looking for. The prompt system will quick display all values beginning with that letter.



Special Parameter Values

There are special parameter values available, depending on the parameter. They appear at the top of the list.

Refresh

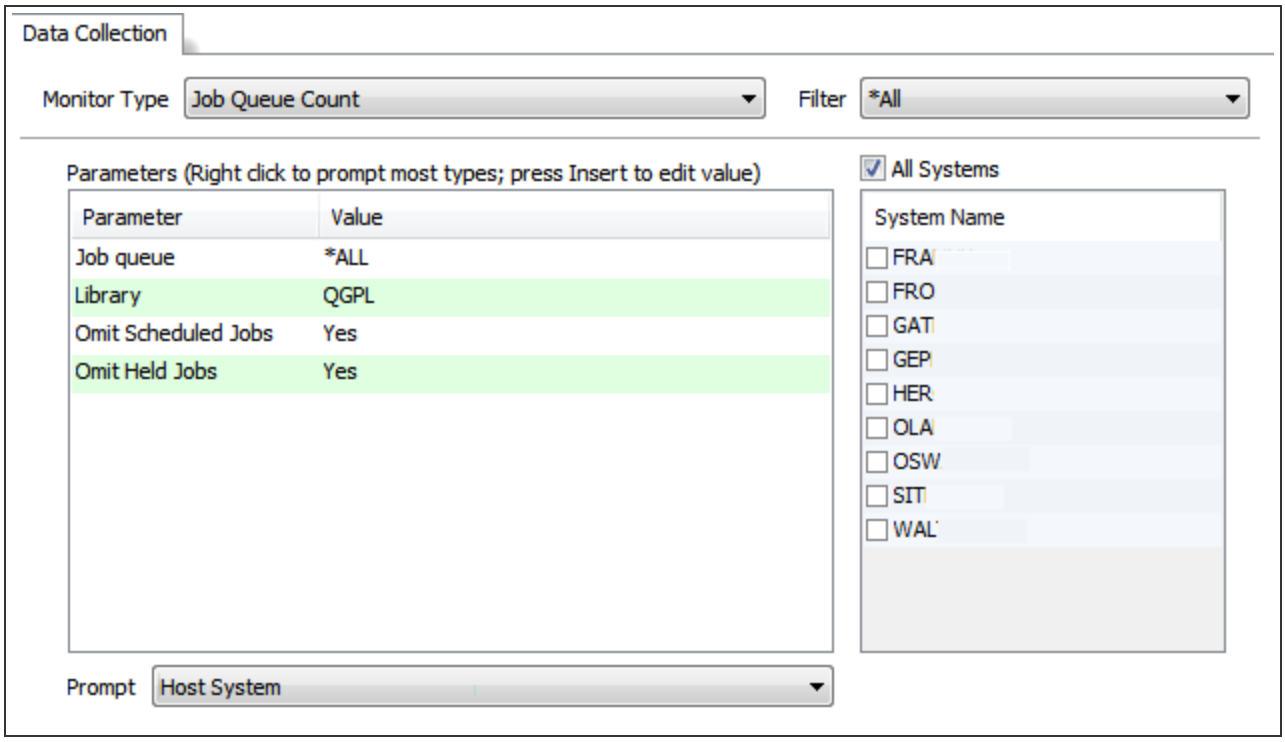
Robot Monitor keeps all prompt lists cached in two places: the host system (which caches lists fetched from remote systems) and your local PC (which keeps cached lists in a file on the disk).

If you prompt from the host system and someone else has prompted the same specification since the last time Robot Monitor was started, the information is taken from its cached lists. If you prompt something you have prompted before on your PC, the information is taken from the local cache.

Selecting **Refresh** forces Robot Monitor to bypass the caches and fetch the list from the prompt system again. This ensures the data you are presented is valid and up-to-date.

*ALL

When ***ALL** is available for a parameter, you can create a single element that monitors all occurrences of an object.



In the image above, we set Job Queue for the monitor type Job Queue Count to *ALL. This creates an element that returns the total number of jobs waiting on queues in QGPL. It will not, however, create an element for each job queue in QGPL. To do this, you need to select **Multiple** (see the section below) and then select all values.

Multiple

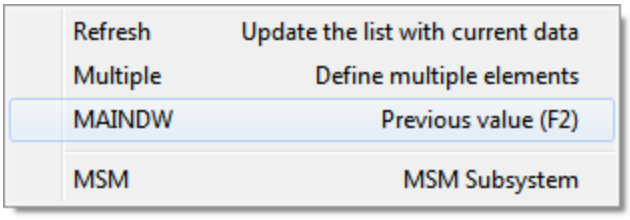
When **Multiple** is available for a parameter, you can create multiple elements in a single operation. You can only set Multiple as a value for one parameter.

When you create multiple elements, the short description is assigned from the varying parameter rather than from the element type.

When you set Multiple as a value for a parameter, the Multiple Values for Parameters panel displays.

Previous Value (F2)

If you want to use the same value as last time for a parameter, right-click to prompt. The last value chosen for that parameter will display at the top of the list.

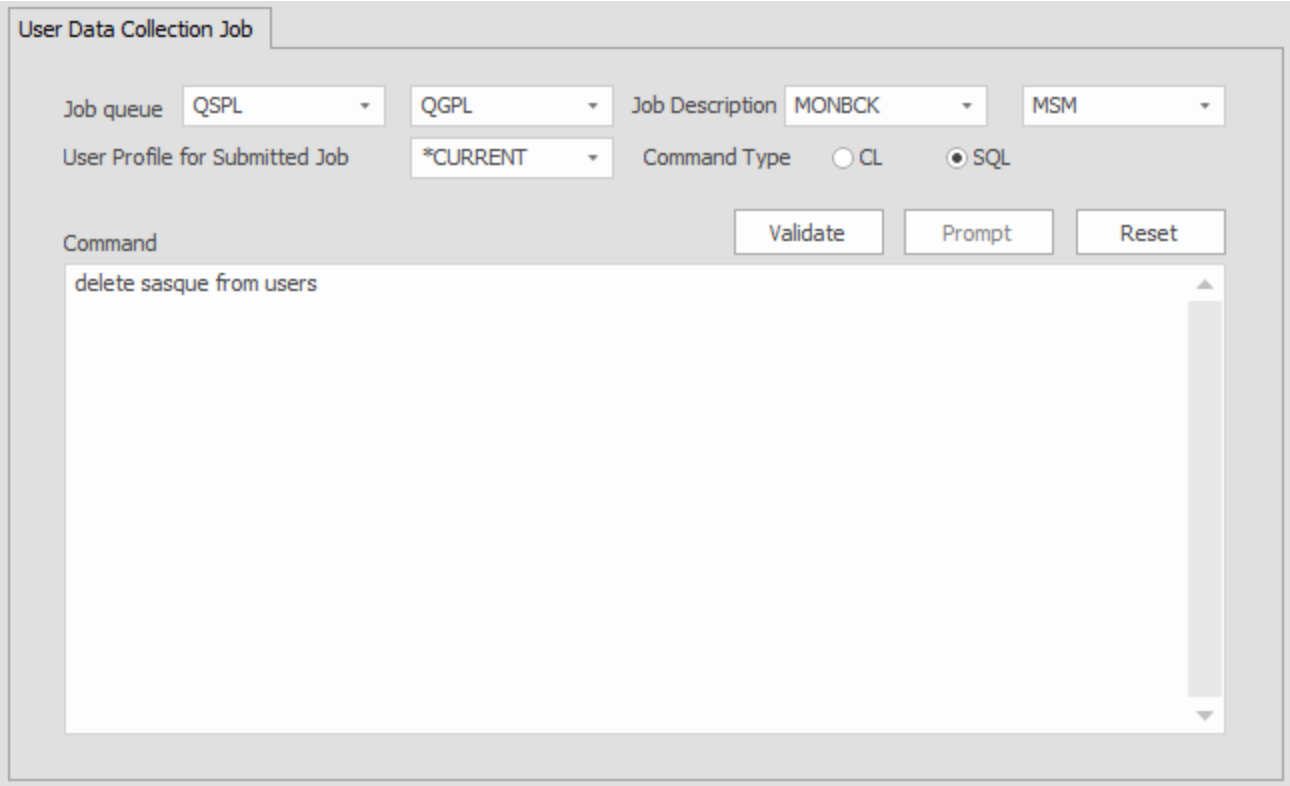


In the image above, the last value selected for the particular parameter was MAINDW, so this value is at the top of the list and can be quickly selected. You can also repeat the previous value by right-clicking the parameter and pressing F2.

User Data Collection Job Screen

The User Data Collection Job screen, accessed through the Data Definition panel, allows you to specify jobs to run on select systems whenever Robot Monitor starts.

> **NOTE:** This screen is only available for user supplied items.



The purpose of the User Data Collection Job screen is to run a job that collects data for a user text or user data item and periodically updates the item using the MONAPUPD API. User text and user data items can be used to include application data with performance data or collect types of data not supposed by the automatic data collectors in Robot Monitor.

A collect job is required for each user supplied value.

Fields and Descriptions

> **NOTE:** A 'Refresh' option is at the top of the list of all drop down fields on the **User Data Collection Job** screen. If necessary, use 'Refresh' to update the drop down list from the system to display any updated or added data.

The following lists the fields in this screen and their descriptions.

Job Queue

Enter the name of the job queue and library to which the job is submitted when Robot Monitor starts.

Job Description

Enter a name and library for the job description to be used when Robot Monitor submits the collection job.

User Profile for Submitted Job

If the collection job needs to run under a special profile, enter the profile name here.

> **NOTE:** If a value other than *CURRENT is specified, the user will need to be authorized to the profile or the submit will fail.

Command Type

Select whether you want the command type to be *CL* or *SQL*.

Validate

Click Validate to ensure that the command that is in the **Command** field is valid.

Prompt

Click Prompt to prompt the command. For this to work, Operations Navigator must be installed with the command option. You will be prompted to sign on to Operations Navigator if required, although Robot Monitor will do its best to configure and sign on to the system automatically.

The server job for the prompt function only has the system default library list. If your command is not in QSYS or QGPL, you will need to qualify it before clicking the command button.

If you are not sure which command you want, type a few letters and an asterisk (WRKA*, for example), then click **Prompt**. The prompter will display a list of commands to choose from that start with those letters.

Reset

Click Reset to clear the command and reset any other parameters to their default values. The default values for these parameters are the values from the last added or updated record.

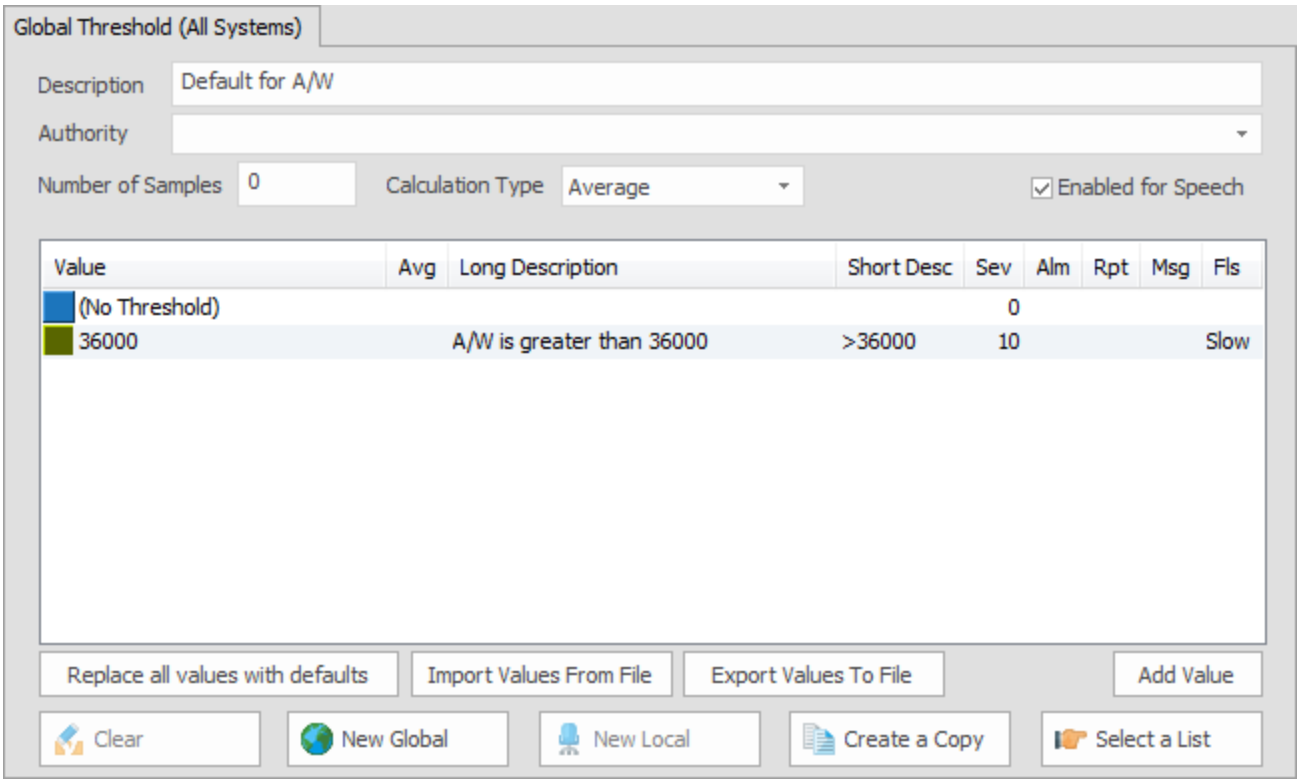
> **NOTE:** Clearing the command removes the configuration for this job from the system.

Command

Type a command into the Command text box. This command is submitted to collect data. The collection needs to know the number of the item to be updated; this can be passed as a parameter, or the program can retrieve it from the first 3 bytes of the LDA.

Default Thresholds Screen

The Default Thresholds screen, accessed through the Data Definition panel, displays the thresholds for the selected element. You can access this screen for all systems under *Global Threshold*, or for your current system under *Local Threshold*.



Things You Can Do

- Double-click a threshold entry to edit its threshold detail record.
- Right-click and select **Add** from the menu to create a new entry for the threshold list. This opens the Threshold Detail Record panel.
- Right-click and select **Copy** from the menu to copy the threshold's existing settings and create a new one.
- Right-click an entry and select **Delete** from the menu to remove the threshold from the list.

Options and Descriptions

The following lists the options on this screen and their descriptions.

Description

Enter a description for the threshold list. Useful descriptions for your own threshold lists might be *Communications Status Expecting to be Varied Off* or *Response Time for Production Systems*.

Authority

Select an authority list that defines which users can alter the threshold definitions.

> **NOTE:** Robot Monitor security must be activated.

Number of samples

When a number is specified, Robot Monitor uses the calculation type to determine the average of a value before testing it against the threshold. This is useful for smoothing out threshold checks on values that can spike on single collections.

Calculation type

When the *Number of Samples* field (N) is greater than 1, the calculation type can be any of the following:

Type	Description
Average	The average of the last N values.
Delta	The difference between this sample and the one N samples ago.
Minimum	The lowest value from the last N samples. For example, the value must have been above the threshold level for at least N samples to trigger.
Maximum	The highest value from the last N samples. For example, if any value in the previous N samples were above the threshold level.

Enabled for speech

This is checked by default and allows Robot Monitor to speak when the threshold triggers.

Replace all values with defaults

Click Replace all values with defaults to replace the current threshold values with the default threshold list values for the data type of the element being edited.

Import values from file

Click Import Values From File to select a file containing previously exported values. You can use this file to replace the current threshold values.

Export values to file

Click Export Values To File to export the current threshold values to a file. You can save this file on your PC and use it to replace existing values at a later date.

Add value

Click Add Value to create a new entry for the threshold list. This displays the Threshold Detail Record panel.

Clear

Click Clear to completely remove a threshold at this level.

> **NOTE:** This option is not available for global thresholds.

New global

Click New Global to create a new global threshold list and assign it to the current level.

New local

Click New Local to create a new local threshold list and assign it to the current level.

> **NOTE:** This option is not available for global thresholds.

Create a copy

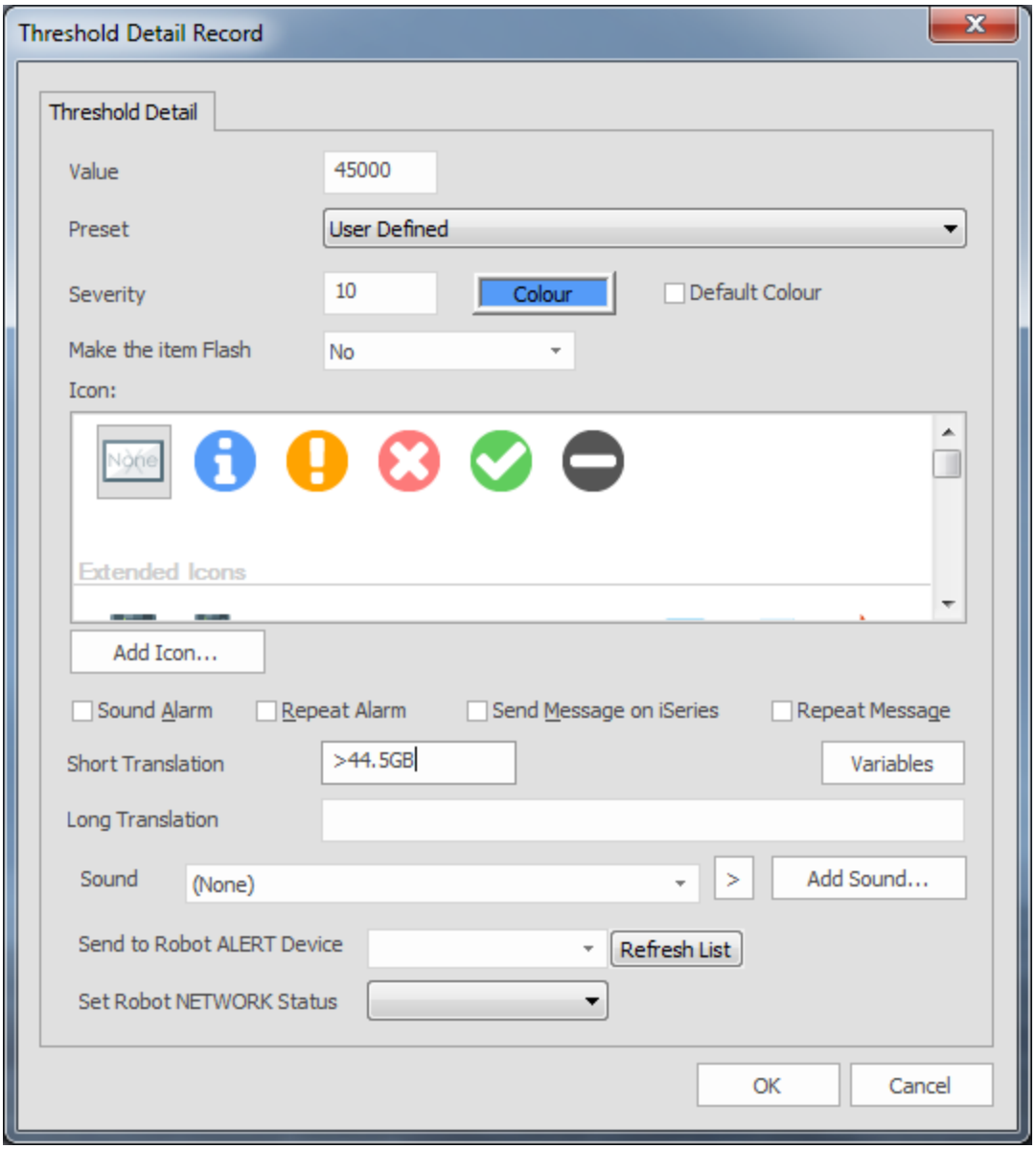
Click Create a Copy to copy the current threshold list and create a new one using its settings. Copied lists are assigned to the current level.

Select a list

Click Select a List to select an existing threshold list and use it to replace the current one.

Threshold Detail Record Panel

The Threshold Detail Record panel, accessed from the Default Thresholds screen, displays a threshold and lets you change its properties.



For more information on how thresholds work, see About Thresholds.

Options and Descriptions

The following lists the options on this screen and their descriptions.

Value

Enter a value for this entry to select the threshold record for an element.

The first record found with a value equal to or less than the current value of the element will be triggered.

Preset

Select which preset you want to use for the threshold detail record. You can select Neutral, Warning, Critical, Down, Positive, or User Defined.

Severity

Assign a severity to the record. The higher the number, the worse the situation is. Robot Monitor uses the severity to make decisions, such as which threshold to display when multiple thresholds are selected in a group and which elements to display when filtering is being used.

Color: Select a color to be assigned to the element whenever this record is triggered.

Default Color: Select Default Color if you want Robot Monitor to ignore the selected color and use the color from the default view instead.

Make the item flash

Choose whether or not you want the element to flash when this record is triggered. You can also specify the speed of the flash.

Icon

> **NOTE:** The icon option is only available if you specified User Defined as your preset above.

Select an icon to be used as the summary icon. This icon displays on the Monitor view whenever this record is triggered.

Click **Add Icon** to add a user defined icon from your PC to the set of icons available.

User defined icons are stored on the iSeries and are available to all PCs automatically.

Sound Alarm

Select Sound Alarm if you want the default sound to go off whenever this record is triggered.

> **NOTE:** For the sound to play, "Play Threshold Sounds" under Options in the File menu must be enabled.

Repeat Alarm

Select Repeat Alarm if you want the default sound to repeat. Otherwise, the sound only plays when this record is first triggered.

Send Message on iSeries

> **NOTE:** This is only valid at global levels.

When Send Message on iSeries is selected, and this record is triggered, the monitor program on the iSeries describes the problem by sending message MON0079 (Threshold Reached) from message file MONMSGF to message queues MONTHR and MONTHRLC. This is then picked up by Robot Monitor and used to escalate procedures, paging, or automated recovery.

When a different threshold is triggered that does not have this flag set, message MON0179 (Threshold Reset) is sent. When a different threshold record is triggered that does have this flag set, MON0379 (Threshold Change) is sent.

The host system has two message queues: MONTHR and MONTHRLC. MONTHR receives messages for all systems being monitored and can control centralized escalation and paging. MONTHRLC has messages only for the local system. If a threshold message is sent to the host system, it is sent to both MONTHR and MONTHRLC.

Remote systems have only MONTHRLC. These queues receive threshold messages for the local system only and are cleared when Robot Monitor starts up. If they become full, they are set to wrap.

Summary of threshold messages sent:

MON0079 - Threshold Reached: A threshold has been reached with the Send Message flag set.

MON0179 - Threshold Reset: A threshold record has been selected that does not have the message flag set, and a message had been issued.

MON0279 - Threshold Repeat: The same threshold record as last time was selected, which had the repeat flag set.

MON0379 - Threshold Change: The threshold selection changed from one record with Send Message set to another.

Repeat Message

Select Repeat Message to send MON0079 (Threshold Reached) the first time this record is triggered and MON0279 (Threshold Repeat) each subsequent sample on which the same record is triggered.

Short/Long Translation

Enter a description that describes the condition this record is testing for.

The short description is used on element labels, and the long description is used in tip windows and for speech.

Threshold descriptions can be entered as template strings. Click **Variables** to view a list of supported variables in the GUI.

Sound

Select a sound file from the drop-down to be played whenever this record is triggered.

> **NOTE:** For the sound to play, "Play Threshold Sounds" under Options in the File menu must be enabled.

Add Sound

Click Add Sound to add a new sound file from your PC to the set of sounds available.

Sound files are stored on the iSeries and are available to all PCs automatically.

Send to Robot Alert Device

Select a configured Robot Alert device from the drop-down. If a device is specified, the user will receive a message on their device every time this record is triggered.

Click **Refresh List** to refresh the list of configured Robot Alert devices.

> **NOTE:** You cannot send an alert to a Robot Alert Device within local thresholds.

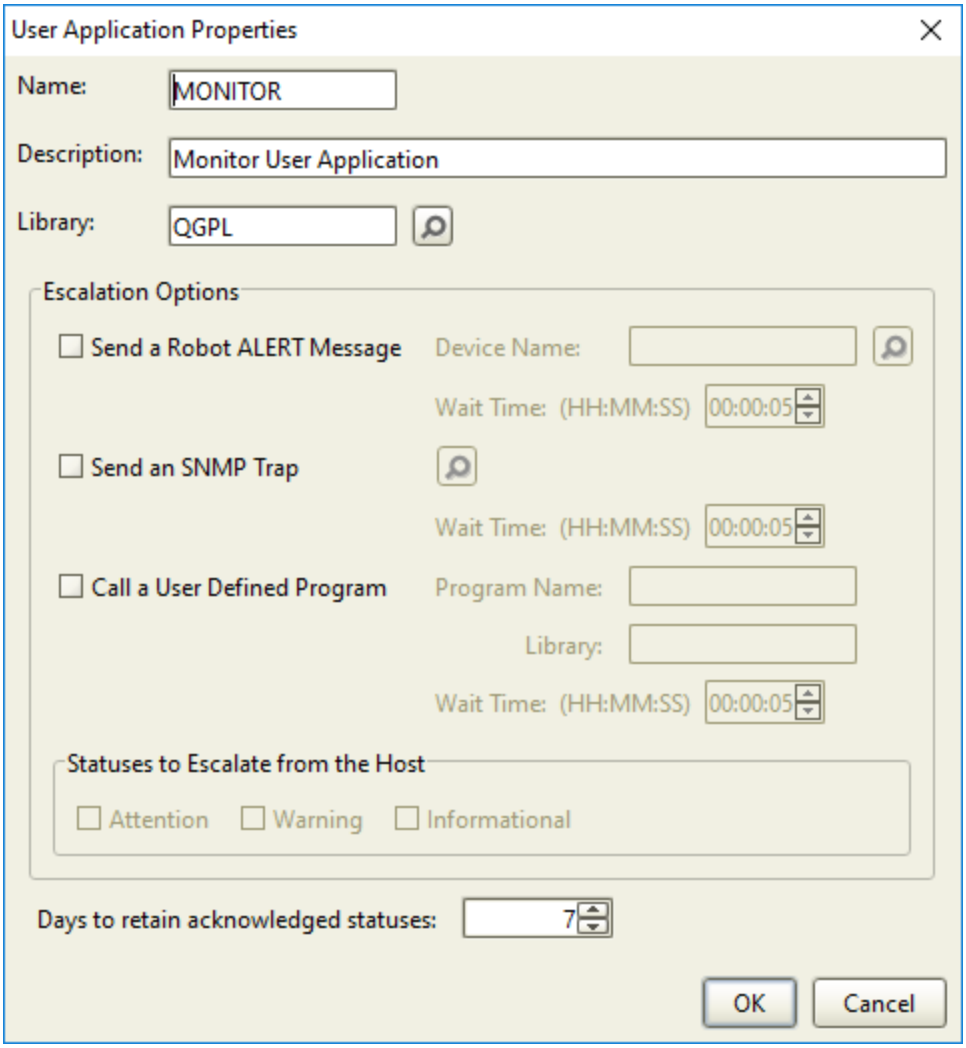
Set Robot Network Status

Select a Robot Network status from the drop-down. You can choose Informal, Warning, or Attention.

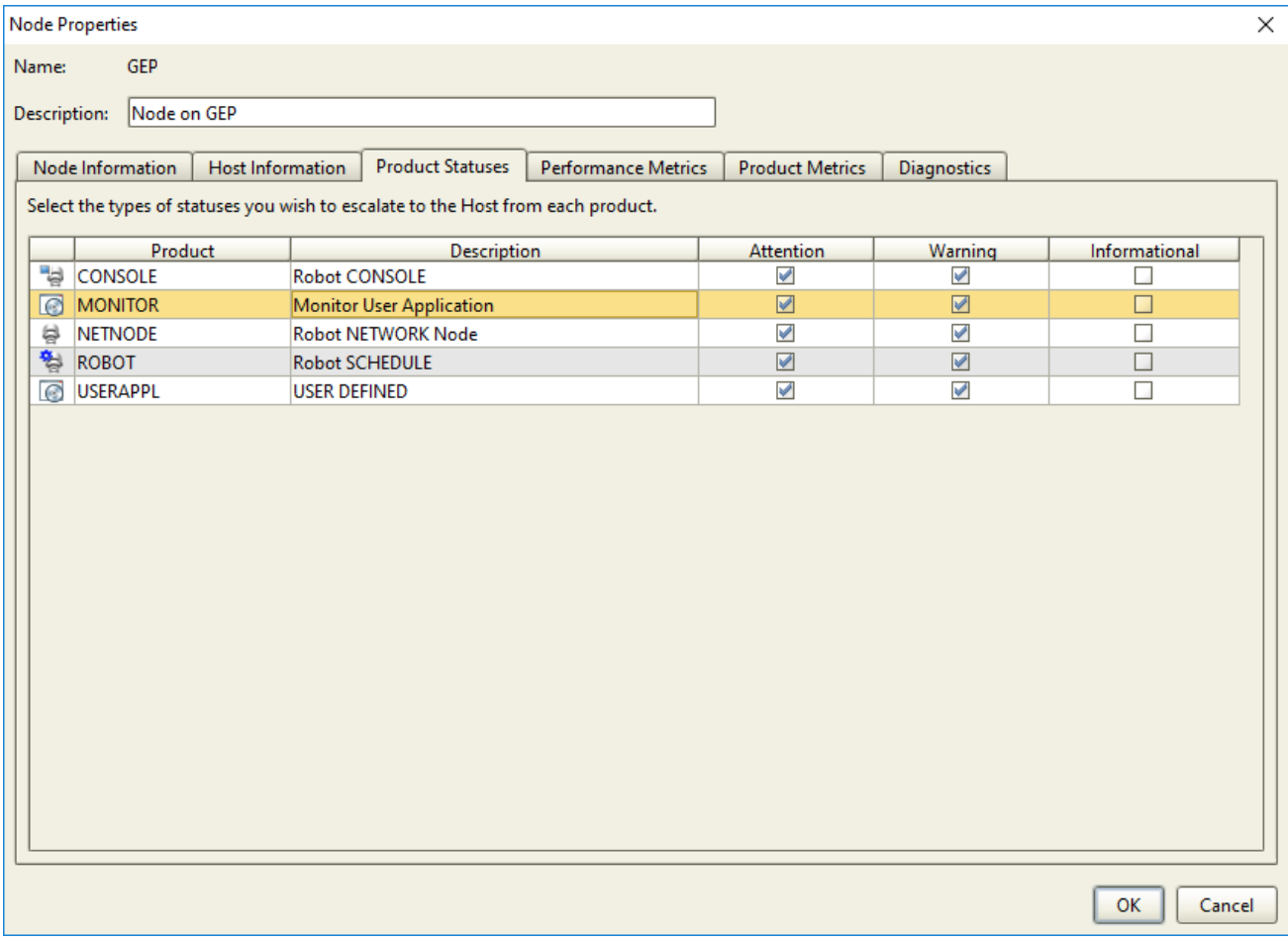
NOTE: For threshold statuses to escalate to Robot Network, you must first create a user application in Robot Network.

To receive Robot Monitor status escalation messages in Robot Network you will need to create a User Application.

1. Connect to and expand the Host system in Robot Network.
2. Right click **User Applications** and select New.
3. Enter MONITOR for the Name and add a description. The Library you should use is QGPL.



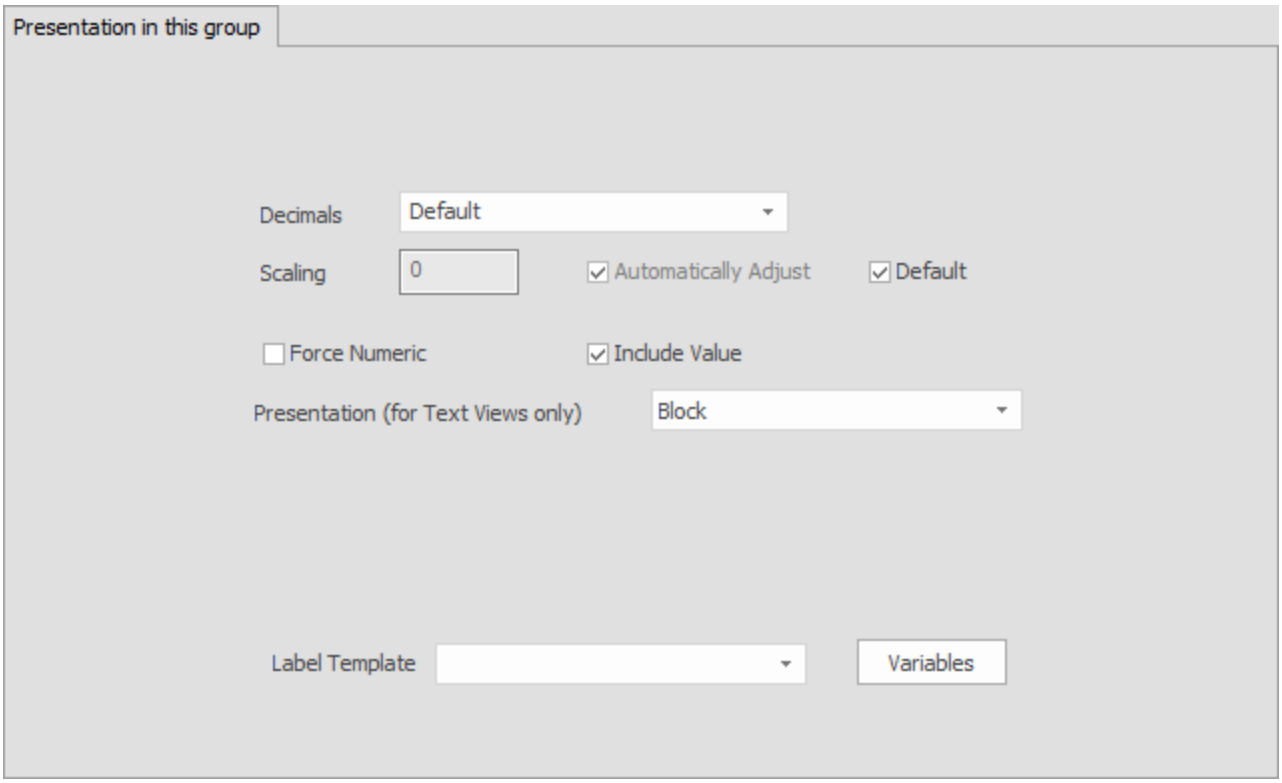
4. Click OK.
5. Next, expand the nodes.
6. Right click the node and select Properties.
7. Select the **Product Statuses** tab.
8. On the MONITOR row, check 'Attention', 'Warning', and 'Informational' depending on what level you want to be notified of in the status center.



9. Click OK.

Presentation in this Group Screen

The Presentation in this Group screen, accessed through the Data Definition panel, allows you to specify how elements should be displayed within a group.



Fields and Descriptions

The following lists the fields in this screen and their descriptions.

Decimals

Type the number of decimals that should be used when displaying a numeric value, or choose an option from the drop-down.

If the value *Automatic* is selected, Robot Monitor will make a decision for you based on the magnitude of the number shown.

Scaling

Enter the maximum value that should be allowed when scaling a group as a numeric value.

Automatically Adjust: Select this option to increase the maximum scaling value when a group value exceeds the current scale value.

Default: Select this option to share the scale value between all instances of a group.

Force Numeric

Select this option to always display a numeric value as part of the label. This is different from the usual behavior in text groups, where the translated value is generally displayed.

Include Value

Select this option to have the item contribute to its parent value. Otherwise, the item value will be ignored in any sum, average, minimum, maximum, or maximum severity calculations.

Presentation (Text groups only)

Choose the presentation for a text group. This only applies to numeric values.

Block: This is the default value. When chosen, the item is displayed as a single area of color with a label determined by the selected label template.

Bar: When chosen, items are displayed with a horizontal bar behind the text, showing the magnitude of the current value.

Histogram: When chosen, items are displayed with a histogram behind the text, showing the current value and a certain amount of history.

Line: When chosen, items are displayed with a line graph behind the text, showing the current value and a certain amount of history.

Label Template

This field determines how text is displayed for the elements in a group. Label templates are often used in text groups to change the description and include the value and threshold translation for elements.

If the label template field is left blank, it inherits a template from the closest ancestor that has one specified. If no template is found, a bar group will use the default value of **&d** for a single system view or **&s** for a multiple system view. A text view will use **&d &t** for a single system view or **&s &d** for a multiple system view.

See the section on Label Templates below for a list of variables you can use or click **Variables** to display the descriptions in the GUI.

Label Templates

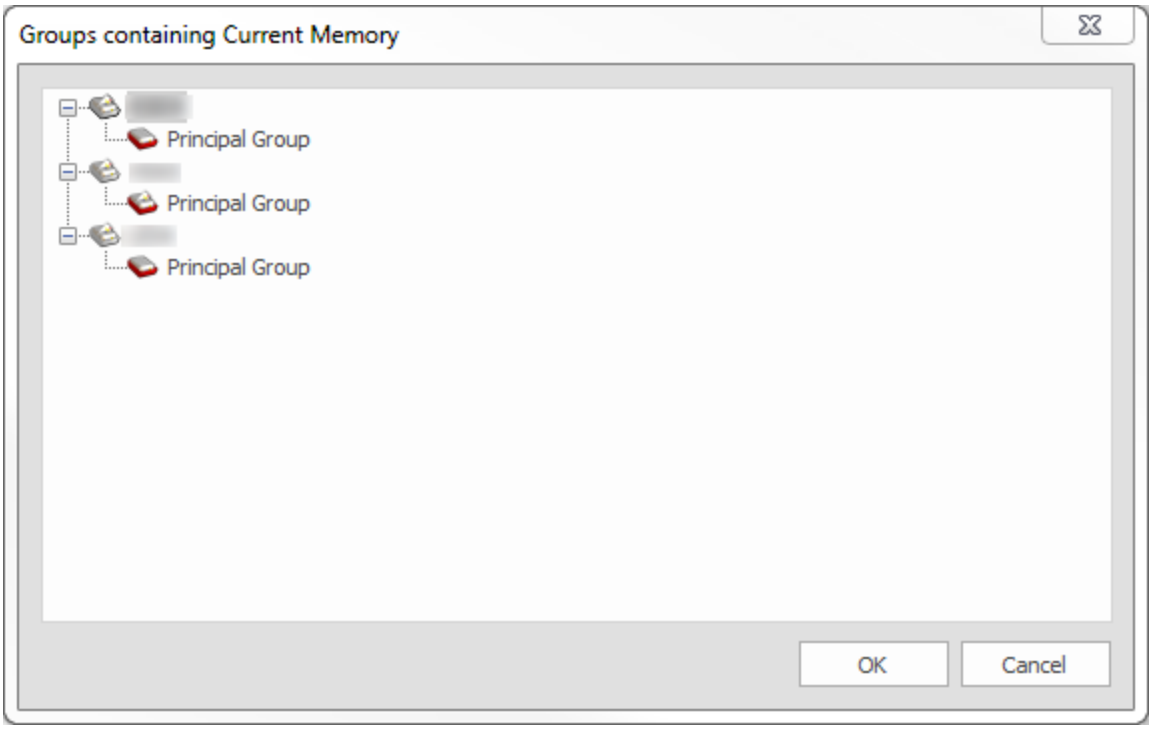
Label templates are entered as template strings. The variables that can be used are as follows:

Variable	Value
&d	Short description of element or group
&D	Long description of element or group
&t	Short description from threshold
&T	Long description from threshold
&u	Unit Description
&U	Long Unit Description
&v	Value
&S	System name
&s	Short system name
&1...&99	Parameters 1-99 from the data collection definition
&p	All parameters from the data collection definition

Variable	Value
&y	Type of check, abbreviated (built in, output queue status, and so on)
&Y	Type of check, full

Data Definitions: Where Used

From the Data Definitions view, you can right-click an element and select **Where Used** to see which groups contain the element, and on which systems.

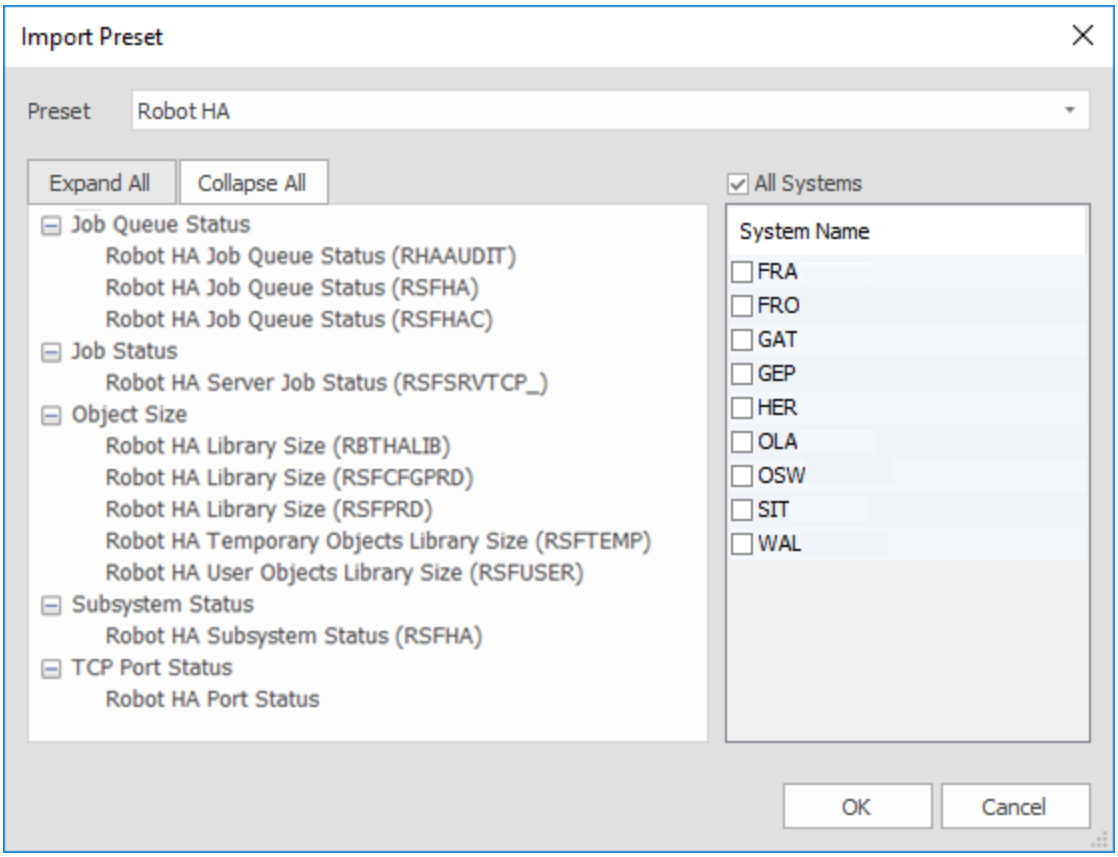


Importing Preset Elements

The import preset elements functionality allows you to import predefined element definitions (Robot HA) or to import your own custom element definitions via a defined (.rmpreset) file. The imported elements will then be available for you to monitor.

To add Robot HA elements to monitor

1. Click the **Import Preset Elements** button on the Data Definitions screen.
2. On the Import Preset window, ensure that 'Robot HA' is selected in the **Preset** drop-down.

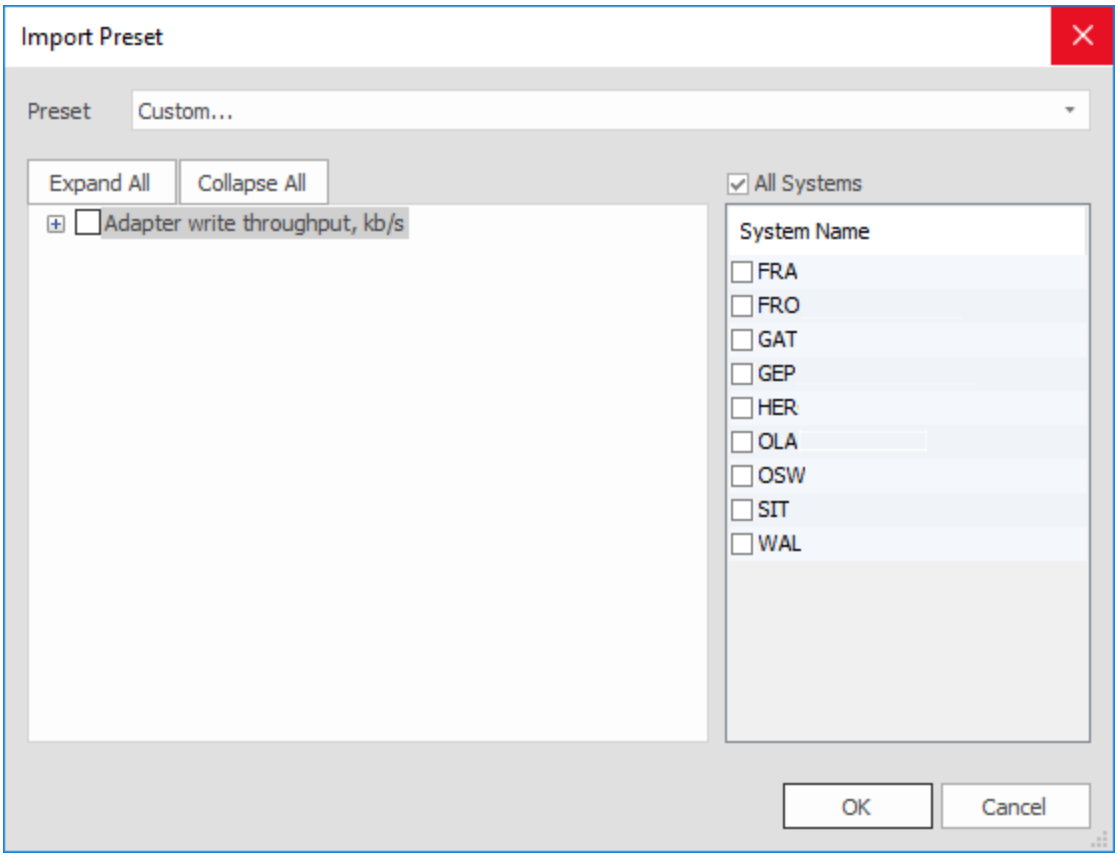


3. Select the Robot HA System or Systems.
4. Click **Expand All** to see all the available elements.
5. Select the elements you would like to monitor.
6. Click **OK**.

You can now add these Robot HA elements to your views and dashboards. See Views for more information.

To add custom elements to monitor

1. Click the **Import Preset Elements** button on the Data Definitions screen.
2. On the Import Preset window, ensure that 'custom' is selected in the **Preset** drop-down.



3. Select the System or Systems.
4. Click **Expand All** to see all the available elements.
5. Select the elements you would like to monitor.
6. Click **OK**.

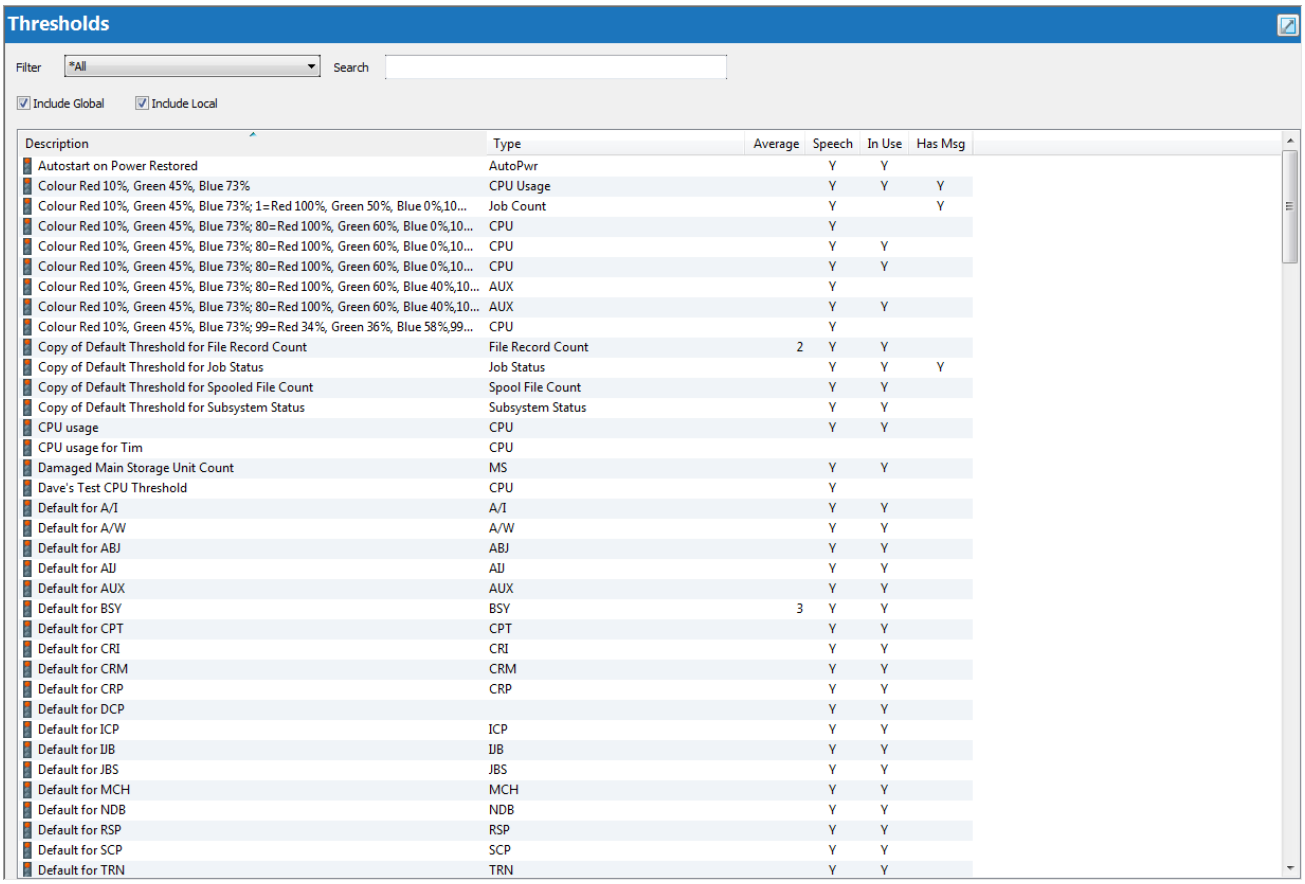
You can now add these elements to your views and dashboards. See Views for more information.

The Thresholds View

NOTE: The Thresholds View is accessible from the Configuration section of the Views menu. If it is not visible, you can reach it by logging in to Security via the Authority Logon.

The Thresholds view displays all thresholds available in Robot Monitor, including the threshold's description, type, and settings.

Use the Filter drop-down to limit the display to thresholds of a particular type, or use the Search field to display thresholds by description.



Description	Type	Average	Speech	In Use	Has Msg
Autostart on Power Restored	AutoPwr		Y	Y	
Colour Red 10%, Green 45%, Blue 73%	CPU Usage		Y	Y	Y
Colour Red 10%, Green 45%, Blue 73%; 1=Red 100%, Green 50%, Blue 0%,10...	Job Count		Y		Y
Colour Red 10%, Green 45%, Blue 73%; 80=Red 100%, Green 60%, Blue 0%,10...	CPU		Y		
Colour Red 10%, Green 45%, Blue 73%; 80=Red 100%, Green 60%, Blue 0%,10...	CPU		Y	Y	
Colour Red 10%, Green 45%, Blue 73%; 80=Red 100%, Green 60%, Blue 0%,10...	CPU		Y	Y	
Colour Red 10%, Green 45%, Blue 73%; 80=Red 100%, Green 60%, Blue 40%,10...	AUX		Y		
Colour Red 10%, Green 45%, Blue 73%; 80=Red 100%, Green 60%, Blue 40%,10...	AUX		Y	Y	
Colour Red 10%, Green 45%, Blue 73%; 99=Red 34%, Green 36%, Blue 58%,99...	CPU		Y		
Copy of Default Threshold for File Record Count	File Record Count	2	Y	Y	
Copy of Default Threshold for Job Status	Job Status		Y	Y	Y
Copy of Default Threshold for Spooled File Count	Spool File Count		Y	Y	
Copy of Default Threshold for Subsystem Status	Subsystem Status		Y	Y	
CPU usage	CPU		Y	Y	
CPU usage for Tim	CPU				
Damaged Main Storage Unit Count	MS		Y	Y	
Dave's Test CPU Threshold	CPU		Y		
Default for A/I	A/I		Y	Y	
Default for A/W	A/W		Y	Y	
Default for ABJ	ABJ		Y	Y	
Default for AIJ	AIJ		Y	Y	
Default for AUX	AUX		Y	Y	
Default for BSY	BSY	3	Y	Y	
Default for CPT	CPT		Y	Y	
Default for CRI	CRI		Y	Y	
Default for CRM	CRM		Y	Y	
Default for CRP	CRP		Y	Y	
Default for DCP			Y	Y	
Default for ICP	ICP		Y	Y	
Default for IJB	IJB		Y	Y	
Default for JBS	JBS		Y	Y	
Default for MCH	MCH		Y	Y	
Default for NDB	NDB		Y	Y	
Default for RSP	RSP		Y	Y	
Default for SCP	SCP		Y	Y	
Default for TRN	TRN		Y	Y	

Things You Can Do

- Right-click a threshold and select **Change** to open the Default Thresholds screen.
- Right-click a threshold and select **Where Used** to open the Where Used panel.
- Right-click a threshold and select **Delete** to delete it.
- Select **Include Global** or **Include Local** to include all global and all local thresholds in the view. Clear either to remove those thresholds from the list.

About Thresholds

Correct use of thresholds is vital to the idea of grouping and summarizing monitored elements. Although they are called thresholds for historical reasons, it may be better to think of a threshold as a translator. For some data types that have discrete values (such as subsystem status), this is their only function.

Every element has a threshold list attached. The threshold list is used to assign attributes such as color, sound, and an icon to an element.

An important attribute assigned by thresholds is *Severity*. Each record on a threshold has a severity field and is assigned a numerical value, typically 1-99 (although higher numbers can be used). When a group of elements has a number of problems, the one with the greatest severity is usually displayed at the summary level.

Severities can also be used for sorting elements or limiting the number of elements shown in a group.

Global and Local Thresholds

Thresholds can be assigned to elements at various levels. These levels can be any of the following:

- Threshold for this Group
- System Local
- System Global
- Default Local
- Default Global

There are two types of thresholds that can be assigned to elements: global thresholds and local thresholds.

Global Thresholds are stored on the iSeries and are available to all systems across all PCs. Normally, global thresholds attached to the element definition are the thresholds being used on all PCs. Globally defined thresholds can also be attached to elements at the global or local level.

Local Thresholds are stored on a PC and are only available to that PC. They are used when you want to change or remove a threshold from your own PC without affecting other users. Locally defined thresholds can only be attached to elements at the local level.

> **EXAMPLE:**
> You might have an element monitoring Order Entry Response Time, which has a threshold attached to it that rings alarms when the figure exceeds 2 seconds. This is the point when the operators should start investigating, so you do not want to change the way this is processed for them.
> However, you are personally not interested until it reaches 4 seconds, which is the maximum allowed by the SLA.
> In this case, you would create a new threshold and assign it as the local threshold for Order Entry Response Time.

Default Thresholds and System Overrides

The other two main differences in threshold assignments are the default and system levels.

A threshold assigned at the default level will affect an element on all systems for which it is defined. This can be overridden for specific systems, however, using system overrides.

Suppose you have an element monitoring Order Entry Response Time, which sets off an alarm when the value exceeds 2 seconds. This is fine for most of your systems, but on system ZEUS, the SLA requires a response time of one second or better. In this case, you would create a global threshold specifying one second as the upper limit and assign it to the Order Entry Response Time element at the system level for system ZEUS.

Threshold Entries

The following sections discuss some concepts that apply to threshold entries.

The Default Entry

Every threshold list has a default entry. This entry cannot be deleted. The attributes from the default entry are used when no match is found in the detail entries.

The description for the default entry on the threshold detail panel is *(No Threshold)*.

Detail Entries

Detail entries form a list of values. Together, they make up a list of ranges. They can be used to assign color, sound, icons and movement to conditions.

Creating and Copying Thresholds

You can create a new threshold or copy an existing threshold to apply to an element.

Creating a New Threshold

Follow these steps to create a new threshold.

1. Open the Data Definitions view under Configuration in the Views Menu.
2. Right-click the element you want the threshold to apply to and select **Properties**.
3. On the Data Definition panel, click the tab for the type of threshold you want to create. You can create a *Global Threshold* or a *Local Threshold*.
4. On the screen for the tab you selected, click **New Global** to create a global threshold or **New Local** to create a local threshold. A new threshold with no entries is created and attached to the selected element.

   > **NOTE:** Only global thresholds can be created at the Global Threshold level.

5. Enter the required attributes for the new threshold (see Default Thresholds Screen for more information).
6. Add new threshold detail records, if necessary.
7. Click **OK** to save.

The new threshold can be found in the list in the Thresholds view.

Copying an Existing Threshold

Follow these steps to copy an existing threshold.

1. Open the Data Definitions view under Configuration in the Views Menu.
2. Right-click the element you want the threshold to apply to and select **Properties**.
3. On the Data Definition panel, click the tab for the type of threshold you want to create. You can create a *Global Threshold* or a *Local Threshold*.
4. On the screen for the tab you selected, click **Create a Copy** to open the Threshold List panel.
5. Select the threshold you want to copy, then click **OK**. A new threshold, copied from the selected one, is created and attached to the selected element.

   > **NOTE:** Only global thresholds can be copied and created at the Global Threshold level.

6. Enter the required attributes for the new threshold (see Default Thresholds Screen for more information).
7. Add new threshold detail records, if necessary.
8. Click **OK** to save.

The new threshold can be found in the list in the Thresholds view.

Editing Thresholds

Follow these steps to edit an existing threshold to apply to an element.

1. Open the Data Definitions view under Configuration in the Views Menu.
2. Right-click the element you want the threshold to apply to and select **Properties**.
3. On the Data Definition panel, click the tab for the type of threshold you want to edit: *Global Threshold* or *Local Threshold*.
4. On the screen for the tab you selected, right-click an existing threshold and select **Change** from the drop-down. You can change any of the values in the Threshold Detail Record panel.
5. When you are finished with your changes, click **OK** to save them.

Deleting Thresholds

You can delete thresholds from the Thresholds view.

To delete a threshold from the Thresholds list, right-click it and select **Delete**. You can select multiple thresholds to delete by holding down `Shift`.

> **NOTE:** Before deletion, Robot Monitor checks to make sure the threshold is not being used on the local PC. Care should be taken when deleting global thresholds, as they may be in use on other PCs. When you delete a global threshold, you delete it for everyone.

Assigning Threshold Lists to Elements

In order for thresholds to be useful, they need to be attached to one or more elements.

Assigning a Threshold to an Element or Group

Follow these steps to assign an existing threshold to an element or group.

1. Right-click the element or group to which the threshold applies and select **Properties**. Depending on whether you have selected an element or group, the Data Definition or Group Properties panel displays.
2. Select a tab to open the threshold level you want. You can choose *Global Threshold* or *Local Threshold*.
3. Click **Select a List**. This opens the Threshold List panel, which displays a list of thresholds of correct type for the selected element or group.
4. Select an entry, then click **OK**.
5. Click **OK** again to save.

Assigning a Threshold to Many Items at Once

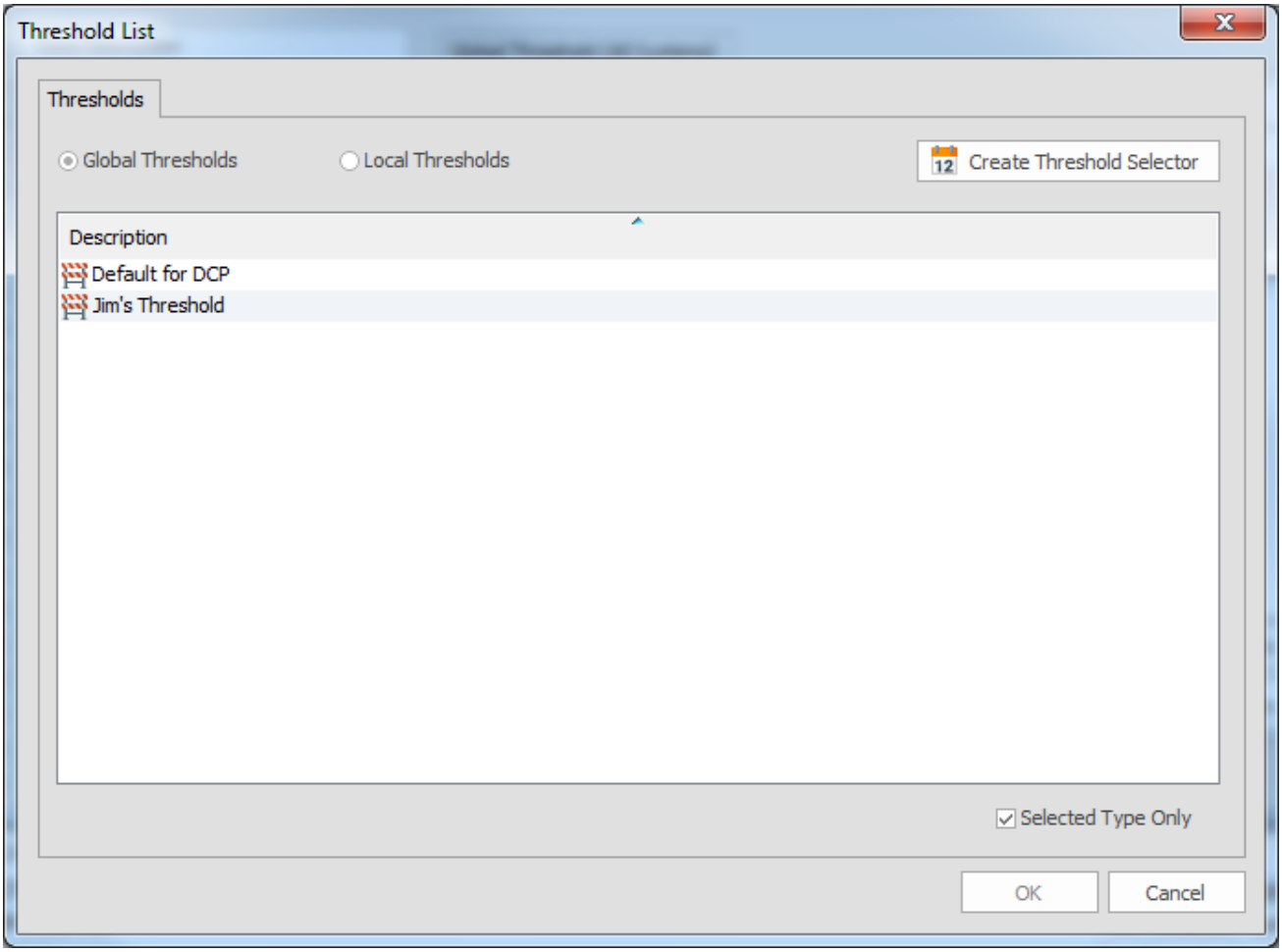
Follow these steps to assign a threshold to many items at once.

1. Select the elements you want to assign a threshold to by holding down `Shift`. You can Control-click an element to remove it from the selection.
2. Right-click and select **Properties**.
3. Select a tab to open the threshold level you want. You can choose *Global Threshold* or *Local Threshold*.
4. Click **Select a List**. This opens the Threshold List panel, which displays a list of thresholds of correct type for the selected element or group.
5. Select an entry, then click **OK**.
6. Click **OK** again to save.

Threshold List Panel

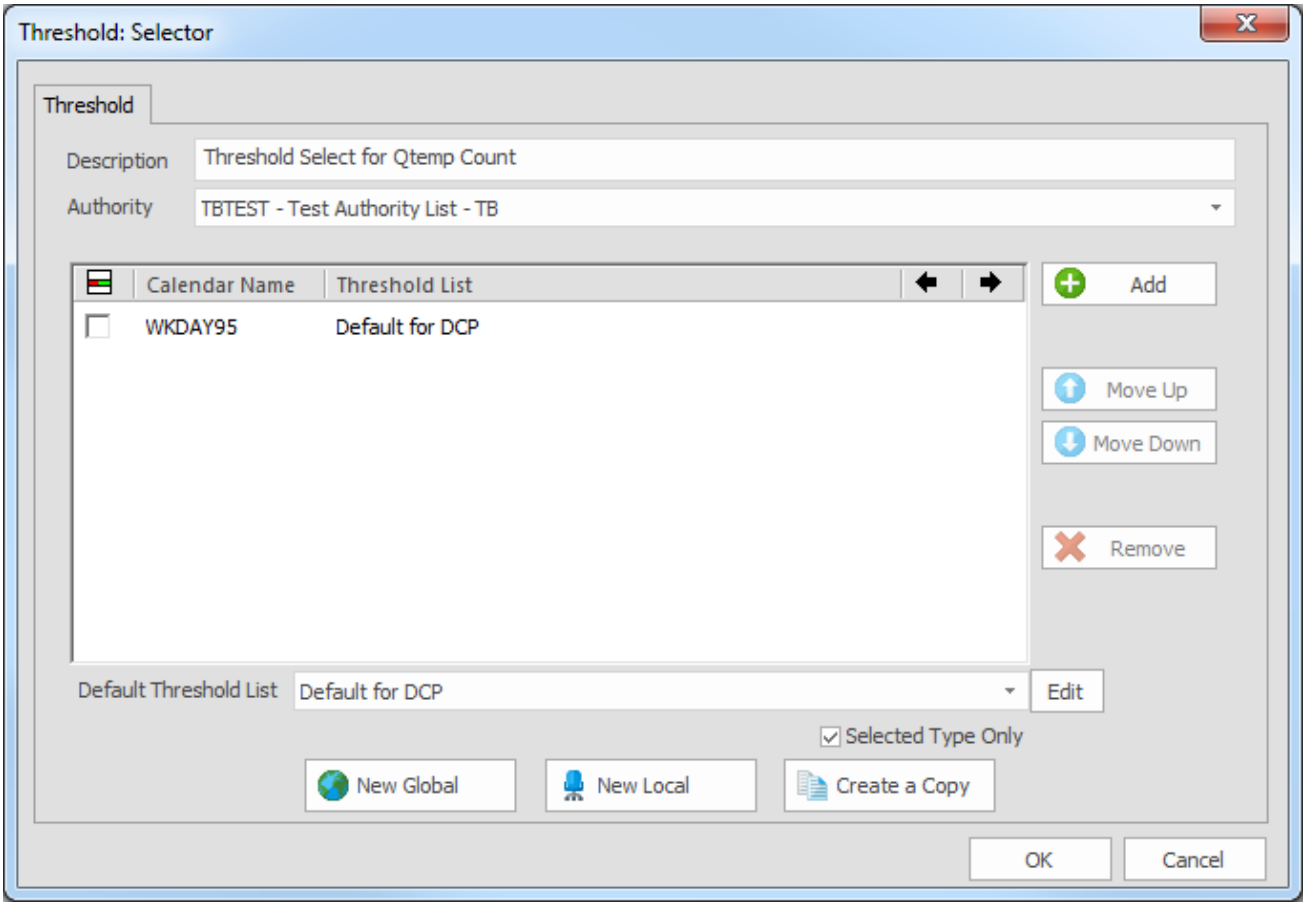
The Threshold List panel displays global and local thresholds that you can select. You can access this panel by creating a copy of an existing threshold.

Normally, only thresholds that match the selected data element are displayed. However, if you clear **Selected Type Only**, other defined thresholds display in the list.



Threshold Selectors

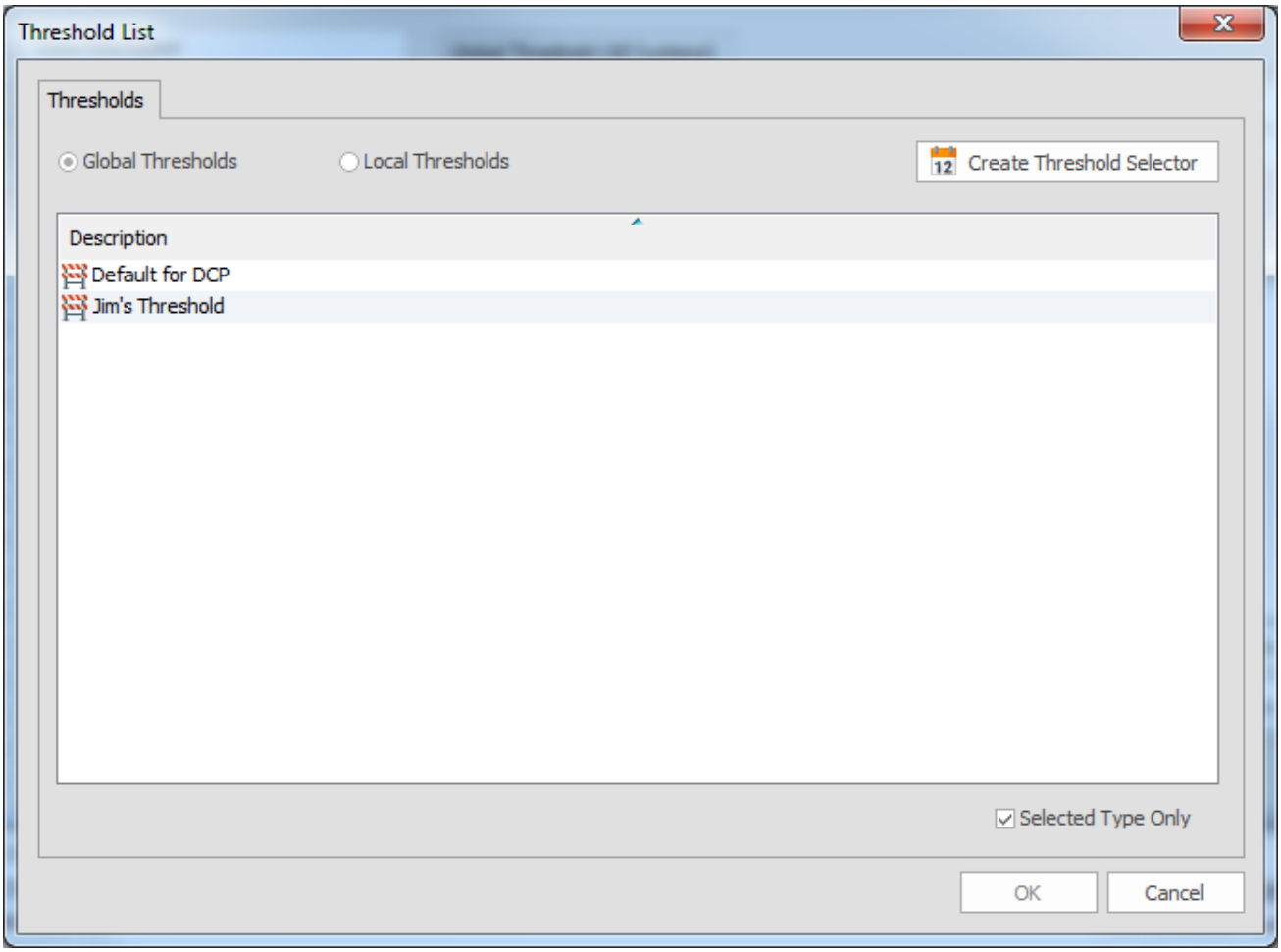
Threshold selectors are special threshold lists that allow threshold lists to be selected based on a calendar.



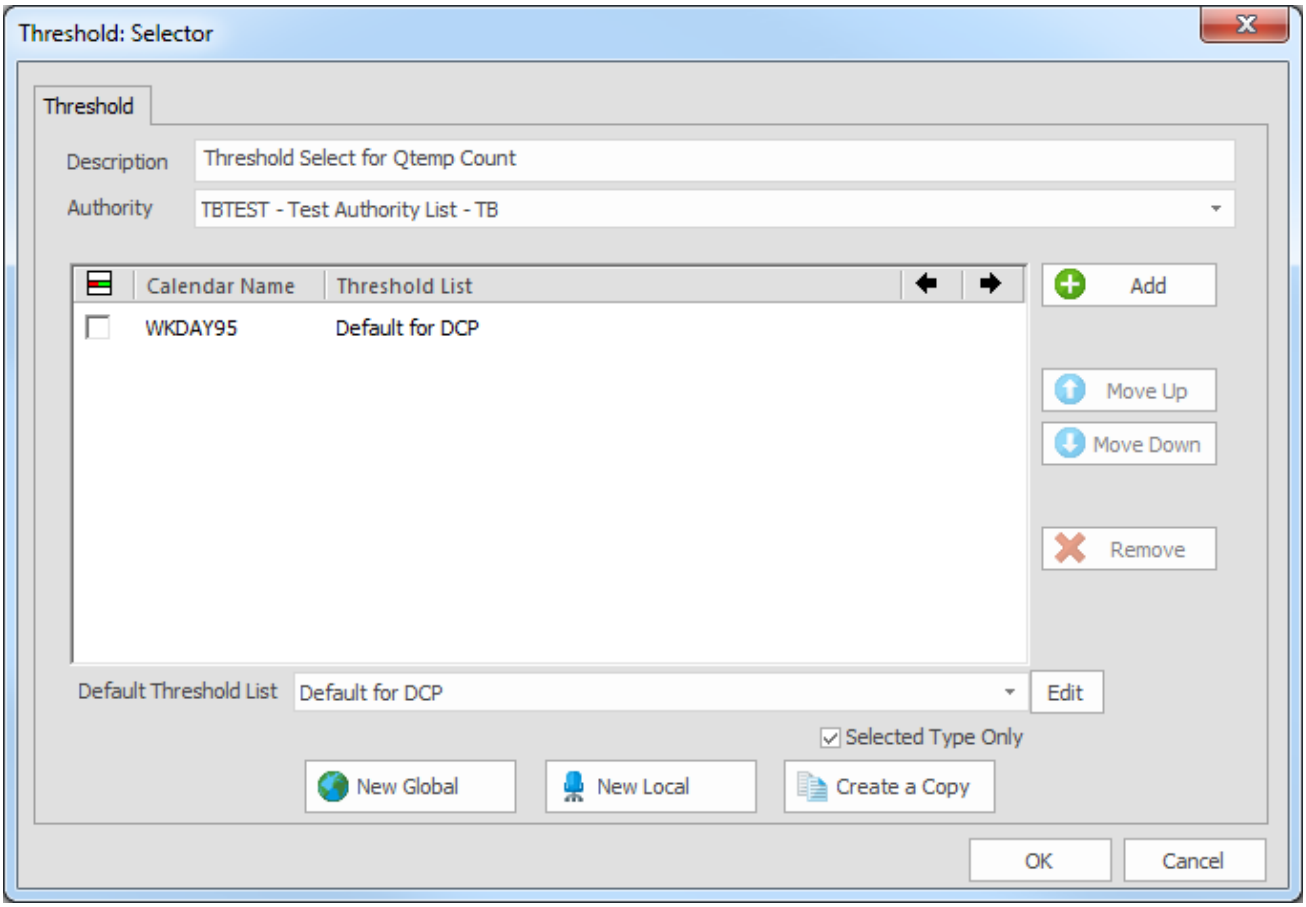
Creating Threshold Selectors

When selecting which threshold list to use for an element, you can choose to create a threshold selector and apply it to the list.

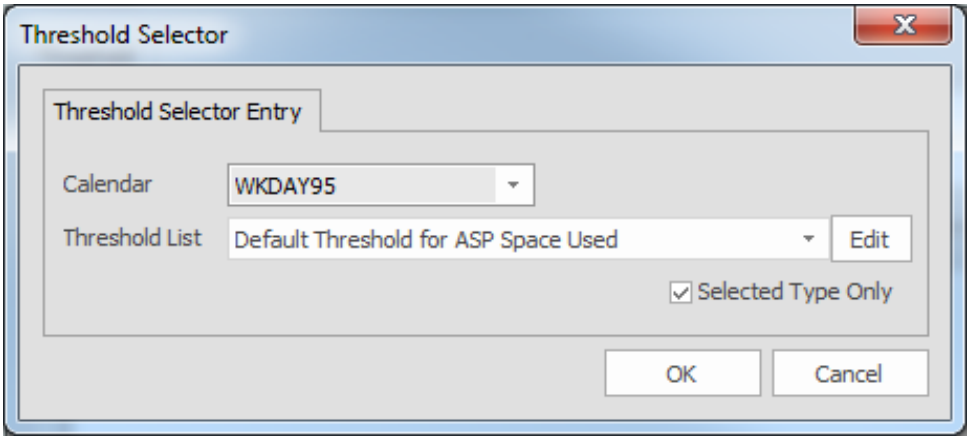
1. Open Data Definitions under Configuration in the Views Menu.
2. Right-click the element you want the threshold to apply to and select **Properties**.
3. On the Data Definition panel, click the tab for the type of threshold you want. You can choose *Global Threshold* or *Local Threshold*.
4. From the Global Threshold or Local Threshold tabs, click **Select a List**. This opens the Threshold List panel.



5. Click **Create Threshold Selector** to create a new threshold selector. This opens the Threshold Selector panel.



6. Click **Add** to add a threshold selector to the threshold list. The Threshold Selector panel displays.



7. Select a calendar from the drop-down. This calendar determines whether or not to use the selected threshold list.
8. Select a threshold list from the drop-down. This threshold list will be used when the selected calendar is available. **Note:** If you need to edit the chosen threshold list, click **Edit**.
9. Click **Selected Type Only** if only threshold lists of the selected type should be shown in the Threshold List field.

10. Click **OK** twice to add the threshold selector to the threshold list.
11. Click the selector you just created, then click **OK** to add it to the Global Threshold for the data definition you have selected.

Thresholds: Where Used

From the Thresholds view, you can right-click an threshold and select **Where Used** to see which elements contain the threshold, and on which systems.

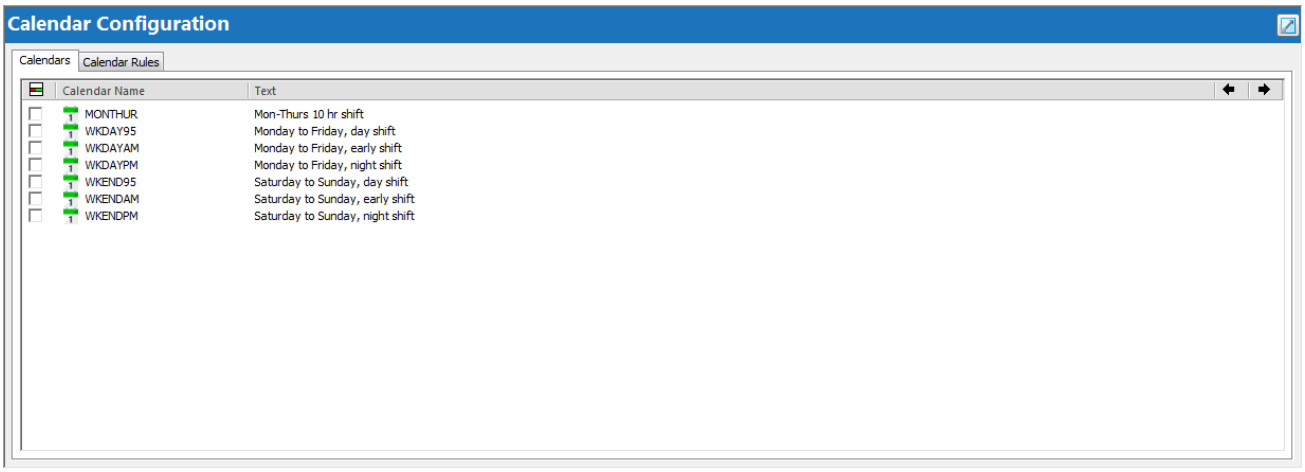
The Calendar Configuration View

> **NOTE:** The Calendar Configuration View is accessible from the Configuration section of the Views menu. If it is not visible, you can reach it by logging in to Security via the Authority Logon.

This Calendar Configuration view displays all calendars and calendar rules configured in Robot Monitor.

There are two tabs in this view: Calendars and Calendar Rules.

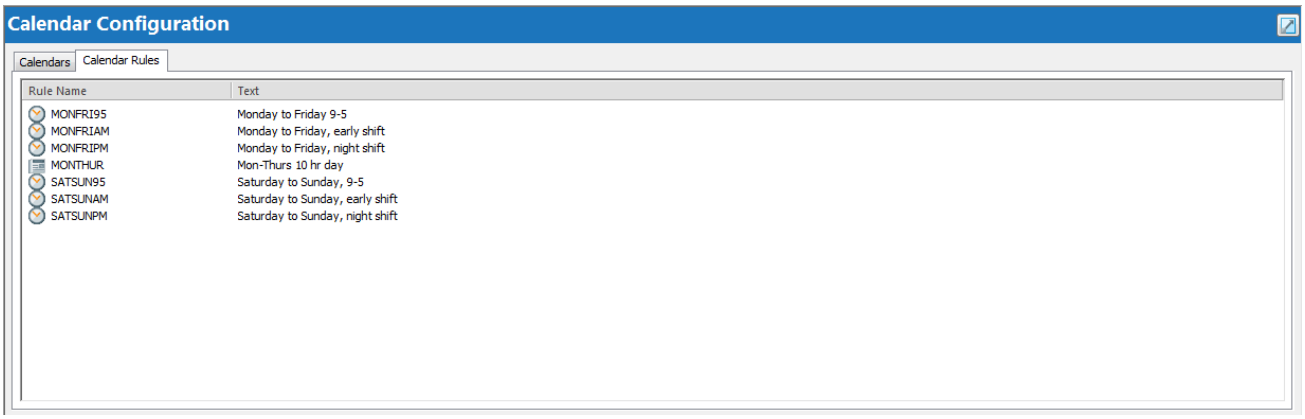
The Calendars tab lists all the calendars currently configured in Robot Monitor.



Things You Can Do

- Right-click and select **Add** from the menu to create a new calendar.
- Right-click a calendar and select **Delete** from the menu to remove it. When prompted, click **OK**.
- Right-click a calendar and select **Properties** to edit the calendar settings.
- Right-click a calendar and select **Where Used** to open the Where Used panel.

The Calendar Rules tab lists all the calendar rules currently configured in Robot Monitor.



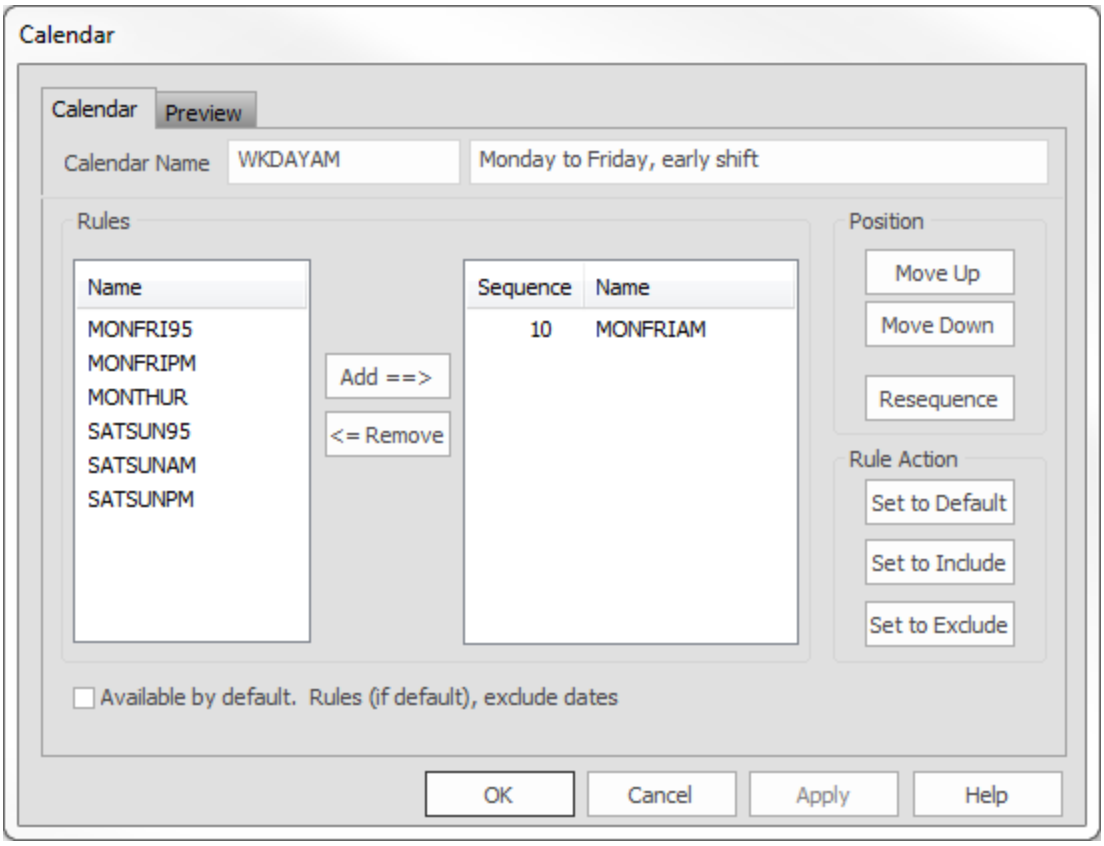
Things You Can Do

- Right-click and select **Add** from the menu to create a new calendar rule.
- Right-click a calendar rule and select **Delete** from the menu to remove it. When prompted, click **OK**.
- Right-click a calendar rule and select **Properties** to edit the calendar rule settings.
- Right-click a calendar rule and select **Where Used** to open the Where Used panel.

Adding a Calendar

You can add a new calendar from the Calendar Configuration view. Follow these steps to create one.

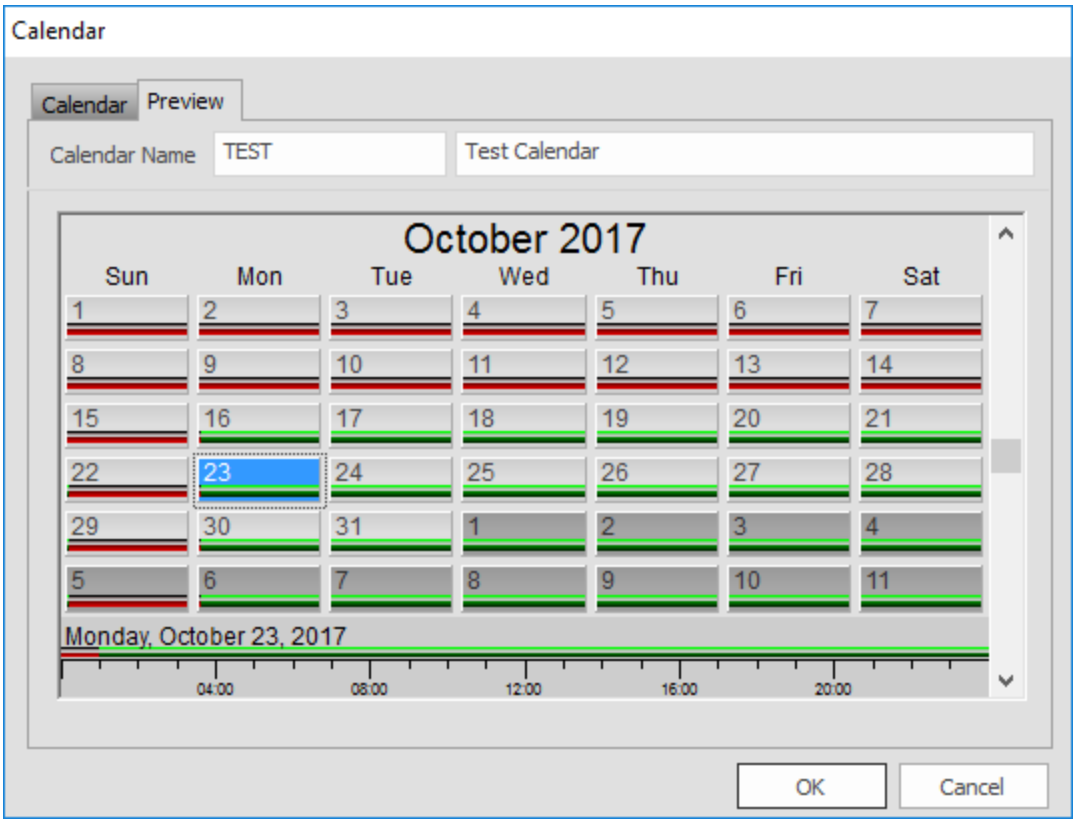
1. If you are not on the Calendar Configuration view, click **Calendars** under the Configuration section in the Views Menu.
2. On the Calendars tab, right-click anywhere and select **Add**. The Calendar panel displays.



3. Enter a **Calendar Name**. The name is used as a reference when assigning the calendar to a threshold selector.
4. Enter a short description for the calendar in the text field next to the calendar name.
5. Select which rules you want to assign to the calendar and click **Add** to add the calendar rule to your calendar. Also, you can click **Remove** to remove the rule from your calendar. You can select more than one by holding down `Shift`. Once they are selected, you can change the position of each rule by using the **Move Up** and **Move Down** buttons.

   Note: The rules added in this step determine the dates and times on which a threshold within a threshold selector is available. See Adding Calendar Rules for more information.
6. (Optional) Set a **Rule Action**. Highlight a rule and use a rule action to set it to default, include, or exclude.
7. Select the **Available by default** checkbox if you want the calendar to be available even when no rules are assigned. This assigns rules to determine the times when the threshold should not be used.

   If left unchecked, the calendar will be unavailable when no rules are assigned. You can then assign rules to determine the times when the threshold is selected in a threshold selector.
8. Preview your calendar. You can see what your calendar will look like before you save by clicking on the **Preview** tab. The previewed calendar displays the duration of the rule(s) added as a green line in the calendar. All other times not encompassed by a calendar rule will display as a red line.

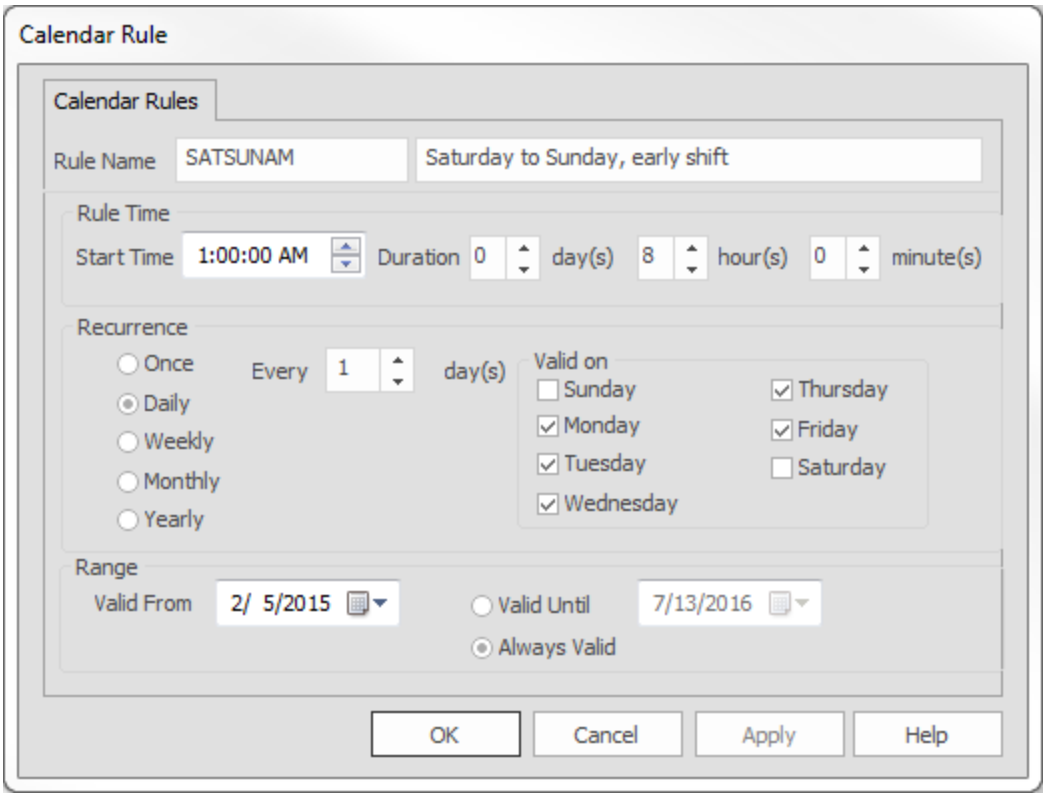


9. Click **OK** to save and add the calendar to the Calendar Configuration view.

Adding a Calendar Rule

You can add a new calendar rule from the Calendar Configuration view. Follow these steps to create one.

1. If you are not on the Calendar Configuration view, click **Calendars** under the Configuration section in the Views Menu.
2. On the Calendar Rules tab, right-click anywhere and select **Add**. The Calendar Rule panel displays.



3. Enter a **Rule Name**. This name is used as a reference when assigning the rule to a calendar.
4. Enter a short description for the calendar rule in the text field next to the rule name.
5. Under **Rule Time**, enter a **Start Time**. This is the time of day that the rule will come into effect.
6. Enter a **Duration** for the time period you are defining. The duration of the rule will depend on the recurrence schedule you define below. Choose the number of days, hours and minutes that the rule will be in effect.
7. Specify whether and when you want the time period to reoccur.
    - **Once** - Specify a **Start Date**. The rule will only come into effect one time, at the date and time specified, and only for the duration specified. See One-off Calendar Rules.
    - **Daily** - Specify whether you want the rule to come into effect every *nth* day, the days of the week that the rule will be valid on, and the **Valid From** date, on which the rule will come into effect. See Daily Calendar Rules.
    - **Weekly** - Specify whether you want the rule to come into effect every *nth* week, the days of the week that the rule will be valid on, and the **Valid From** date, on which the rule will come into effect. See Weekly Calendar Rules.
    - **Monthly** - Specify whether you want the rule to come into effect every *nth* month, the day of the month that the rule will be valid on, and the **Valid From** date, on which the rule will come into effect. See Monthly Calendar Rules.
    - **Yearly** - Specify a start month for the rule, the day of the month that the rule will be valid on, and the **Valid From** date, on which the rule will come into effect. See Yearly Calendar Rules.

8. If you want the calendar rule to only be valid through a certain date, select **Valid Until** and enter an end date. Otherwise, select **Always Valid** to keep the rule in effect indefinitely.
9. Click **OK** to save and add the calendar rule to the Calendar Configuration view.

About Calendar Rules

In the Calendar Configuration view, you can add calendar rules to your calendars. Calendar rules allow you to define when and how often the rule should run.

The following sections provide descriptions of the calendar rules you can create. For more information about a calendar rule, such as what it does and instructions on customizing it, click the "Read more" link in the description.

This rule determines a single time period with no recurrence. Read more...

This rules determines time periods that re-occur either every day, every other day, every third day, and so on. Read more...

This rule determines time periods that re-occur either every week, every other week, every third week, and so on. Read more...

This rule determines time periods that re-occur either every month, ever other month, every third month, and so on. Read more...

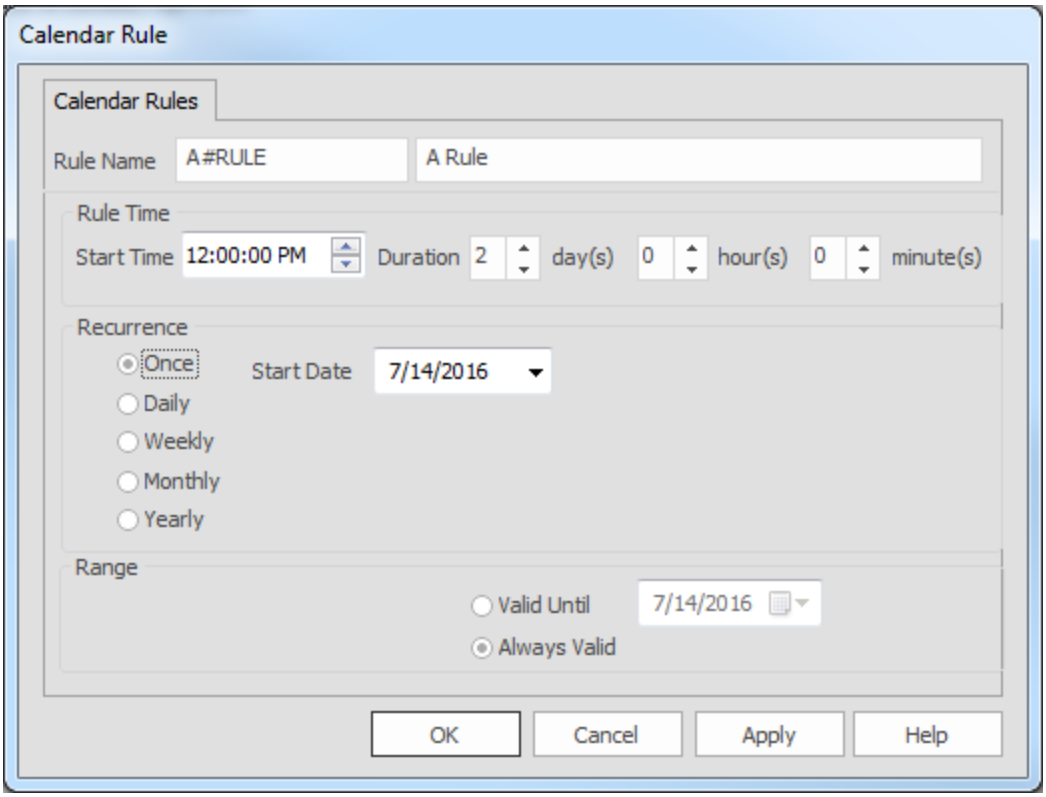
This rule determines time period that re-occur every year. Read more...

One-off Calendar Rules

A calendar rule that happens one time only is a one-off calendar rule.

To define this rule, right-click anywhere on the Calendar Configuration view and select **Add** to display the Calendar Rules panel.

From there, select **Once** from the list of recurrence types and enter a start date for the rule. This allows the rule to run one time for the duration set.



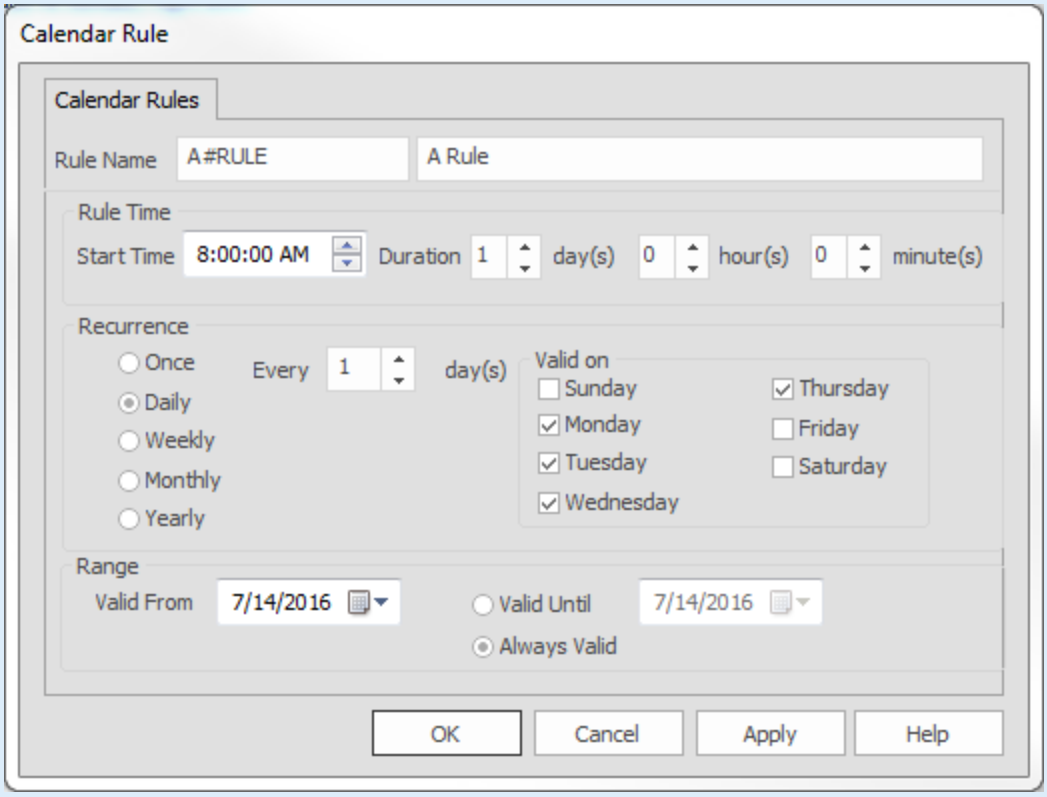
Daily Calendar Rules

A calendar rule that reoccurs either every day, every other day, every third day, and so on is a daily calendar rule.

To define this rule, right-click anywhere on the Calendar Configuration view and select **Add** to display the Calendar Rules panel.

From there, select **Daily** from the list of recurrence types. Enter how often you want the rule to run and select which days the rule should be valid on.

EXAMPLE:
This calendar rule is set to run every day at 8 a.m., valid Monday through Thursday. Because only certain days are checked, however, the calendar rule will not run Friday through Sunday.



Weekly Calendar Rules

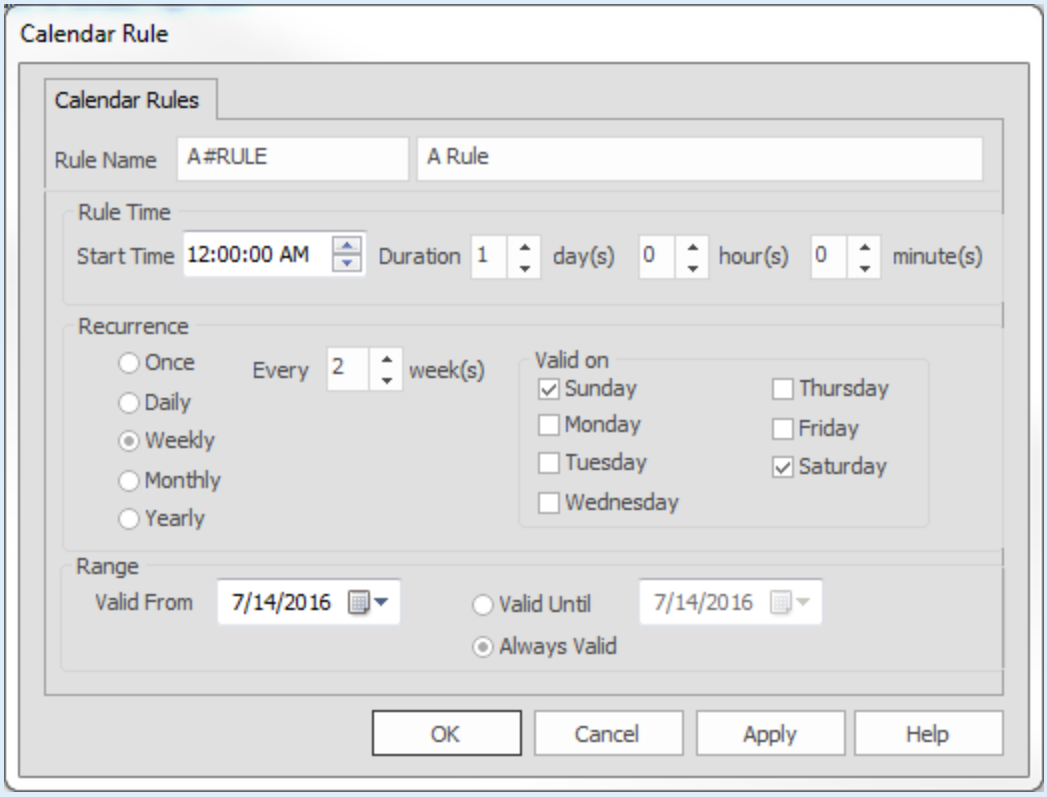
A calendar rule that reoccurs either every week, every other week, every third week, and so on is a weekly calendar rule.

To define this rule, right-click anywhere on the Calendar Configuration view and select **Add** to display the Calendar Rules panel.

From there, select **Weekly** from the list of recurrence types. Enter how often you want the rule to run and select which days the rule should be valid on.

EXAMPLE:
This calendar rule is set to run every two weeks at 12 a.m., valid on weekends only (Saturday and Sunday).

> **NOTE:** The **Valid From** date determines which day is deemed the start of the week. In this example, the Valid From day is a Thursday, so weeks run from Thursday to Wednesday.



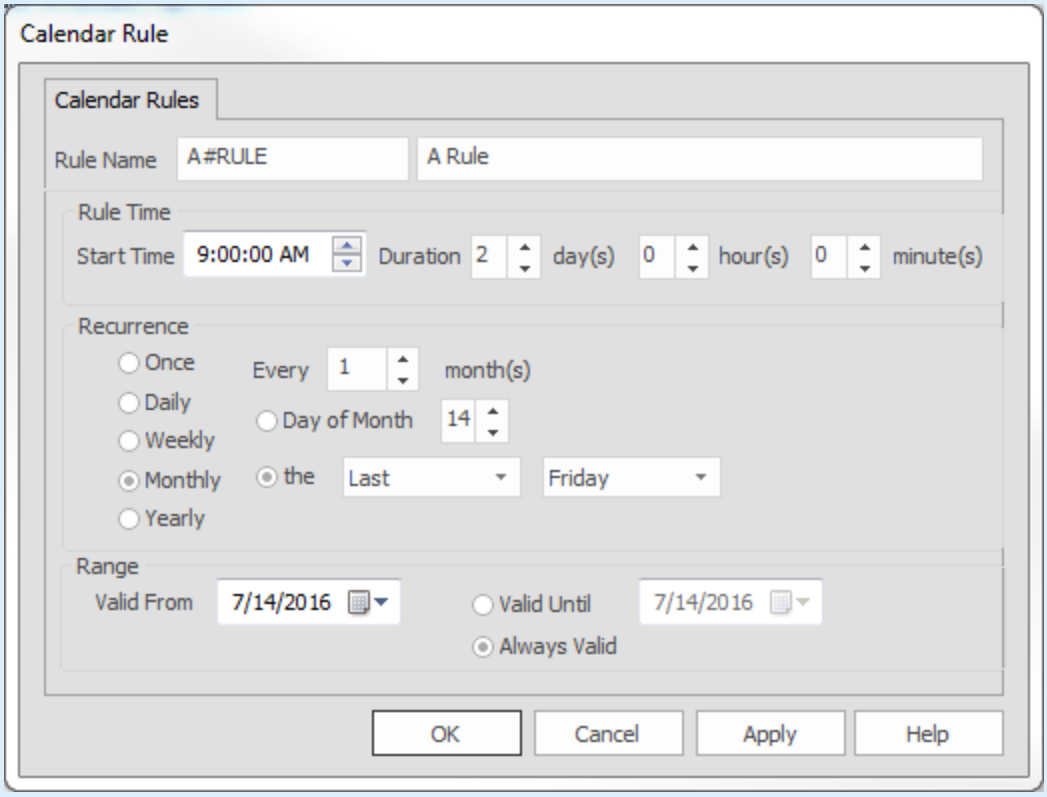
Monthly Calendar Rules

A calendar rule that reoccurs either every month, every other month, every third month, and so on is a monthly calendar rule.

To define this rule, right-click anywhere on the Calendar Configuration view and select **Add** to display the Calendar Rules panel.

From there, select **Monthly** from the list of recurrence types. Enter which day of the month you want the calendar rule to run on **OR** determine whether you want it to run on the first, second, third... Monday, Tuesday, Wednesday... of the month.

EXAMPLE:
This calendar rule is set to define a monthly meeting. it will run for 2 hours, starting at 9 a.m., on the last Friday of every month.



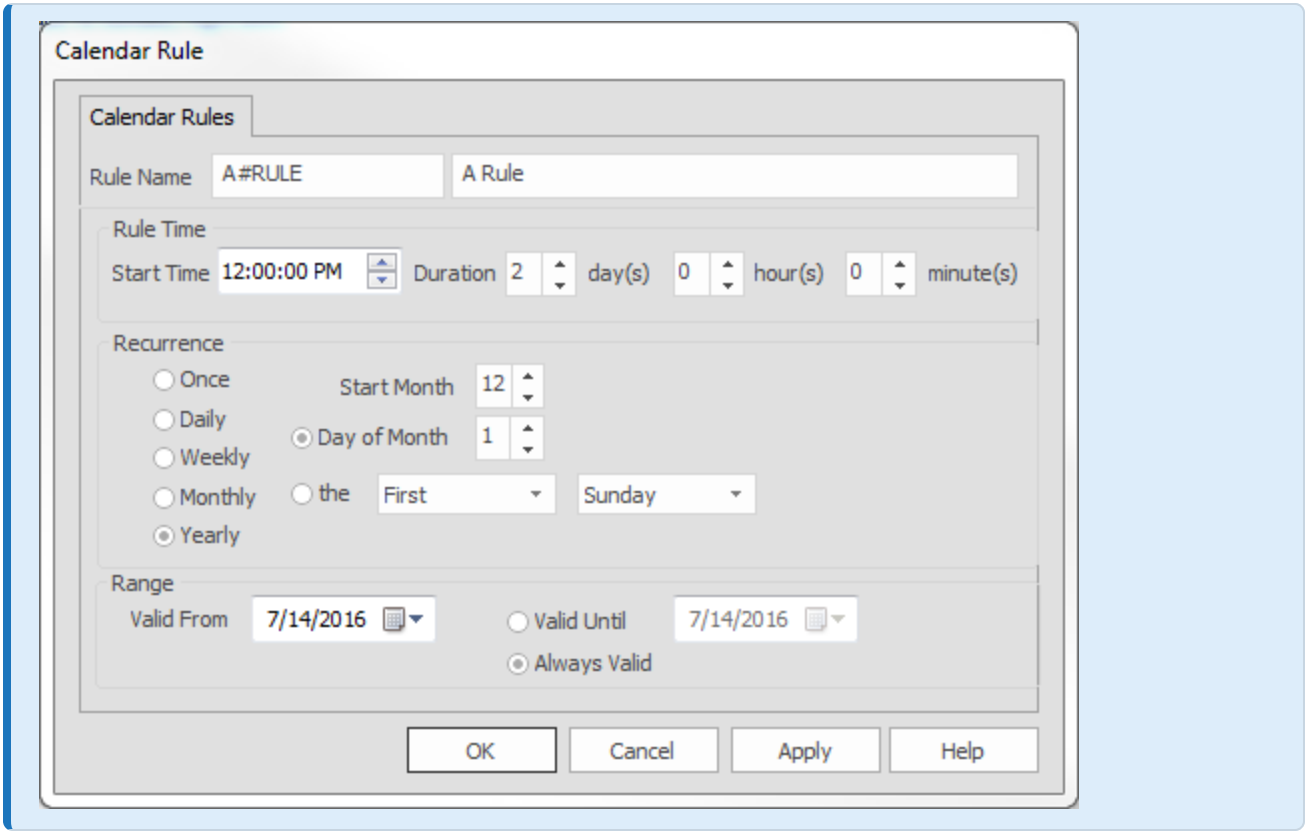
Yearly Calendar Rules

A calendar rule that reoccurs every year is a yearly calendar rule.

To define this rule, right-click anywhere on the Calendar Configuration view and select **Add** to display the Calendar Rules panel.

From there, select **Yearly** from the list of recurrence types. Enter which month you want the calendar rule to run in, then determine whether you want it to run on a specific day that month **OR** on the first, second, third... Monday, Tuesday, Wednesday... of the month.

EXAMPLE:
This calendar rule is set to run for two days in December, starting December 1, every year.



The SST Configuration View

NOTE: The SST Configuration View is accessible from the Configuration section of the Views menu. If it is not visible, you can reach it by logging in to Security via the Authority Logon.

The SST Configuration View allows you to review and change the attributes used by MSM to access functions in System Service Tools.

MSM uses System Service Tools to monitor Battery Cache status. When Robot Monitor requires SST access to fetch data to be monitored, it uses the security information entered here to create an interactive session, sign on to the system, and collect the required information.

Security information is held on the system in encrypted form and uses MD5 hash values to detect any attempts to change the security files from outside the product.

For maximum security, we recommend you allow MSM to manage all profiles. This ensures that each profile on each system is assigned a random password and held in encrypted form. No one knows the passwords being used to gain access to SST. You can, however, create the profiles yourself and provide the details to MSM. If you do this, MSM flags the profiles as having been created outside the product and limits what can be done with them using this view to update the records. It will not change passwords or delete profiles that were created outside the product.

In addition to passwords, the initial program used for the iSeries profile provides a second level of authentication to ensure that this sign on can only be used by MSM. This second level of authentication requires responses that cannot be generated from a workstation.

Things You Can Do

- To configure a system for SST access, select it (or multiple systems using `Shift`) from the list and click **Configure**. The SST Configuration Details panel opens.

  > **NOTE:** You can also double-click a system to open the SST Configuration Details panel.

- Click **Test** to perform a test run of the battery cache monitor and update the status and message fields with the results.

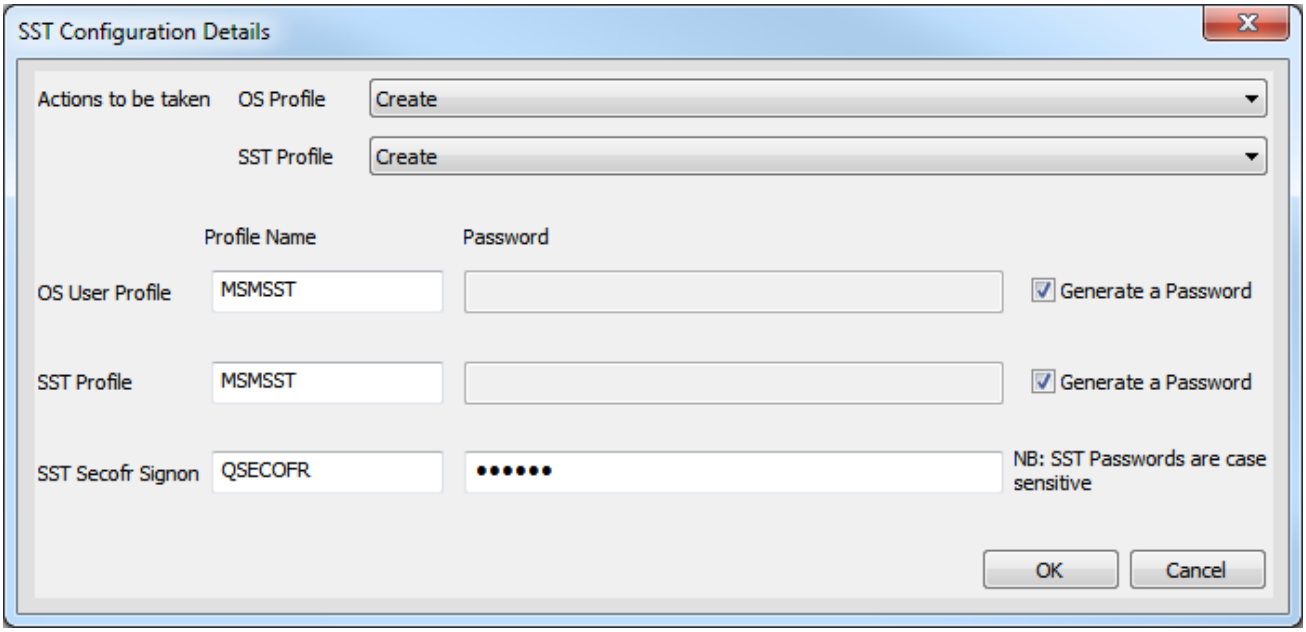
  > **NOTE:** Systems must be configured with SST access before they can be tested.

Virtual Device

In order to perform Configure or Test a system, Robot Monitor requires access to a virtual device. It first looks for a virtual device called MSMSST and uses this if configured. If not found, or if MSMSST is in use, it selects an existing device or uses automatic configuration to create a new one instead.

SST Configuration Details Panel

The SST Configuration Details panel is used to configure SST access for MSM. To access this panel, open the SST Configuration view, highlight a system, and select **Configure**.



In this example, we have entered options to create OS and SST profiles and generate random passwords for the MSMSST profile on each system.

Options and Descriptions

The following sections list the options in this screen and their descriptions.

Actions to be taken

For *Actions to be taken*, you can choose from several options for the OS and SST profiles:

No Change: Take no action for this profile.

Create: Create a profile.

Change Password: Change the password for the indicated profiles.

Use Existing Profile: Record the details provided for the indicated profile. Once this option has been used for a profile, the profile is marked as created outside MSM and cannot be managed directly by Robot Monitor. To re-enable direct management, manually delete the profile and use MSM to create it again.

Delete Profile: Delete the profile (where possible) and clear the record. For profiles created outside of MSM, this option only clears the record.

Clear Configuration: Clear MSM's record of the indicated profiles.

OS User Profile

This profile is an OS user profile used to sign on to the system to access SST.

If this profile is created outside of MSM, the profile must be dedicated to this function and must be authorized to command STRSST.

If this profile is created by MSM, QSECOFR owns the profile. **Note:** In order to have MSM create an OS user profile, you must provide a user profile and password that has *SECADM rights on the host system.

Enter a valid password. It can be short or long, depending on the system's security settings, and may be mixed case if long passwords are in use. If short passwords are used, the password will be translated to upper case by the monitor.

Generate a Password

Check this box to have the monitor generate a random password. Passwords are up to 120 characters long and may be mixed case, depending on the system security settings. Each system is assigned a different password.

SST Profile

This profile is a SST user profile used by Robot Monitor after signing on to the system and starting SST.

If this profile is created outside of MSM, it must be authorized to use SST and have Display/Alter/Dump capabilities.

Enter a valid password. It can be short or long, depending on the DST security settings. **Note:** SST passwords are case sensitive.

Generate a Password

Check this box to have the system generate a random password for this profile. Each system is assigned a different password.

SST Secofr Signon

If you selected an option that requires MSM to perform SST Management functions (create, change password, or delete), you must provide the sign on details for a SST profile with sufficient authority to perform the requested operation.

> **NOTE:** SST passwords are case sensitive.

Reports

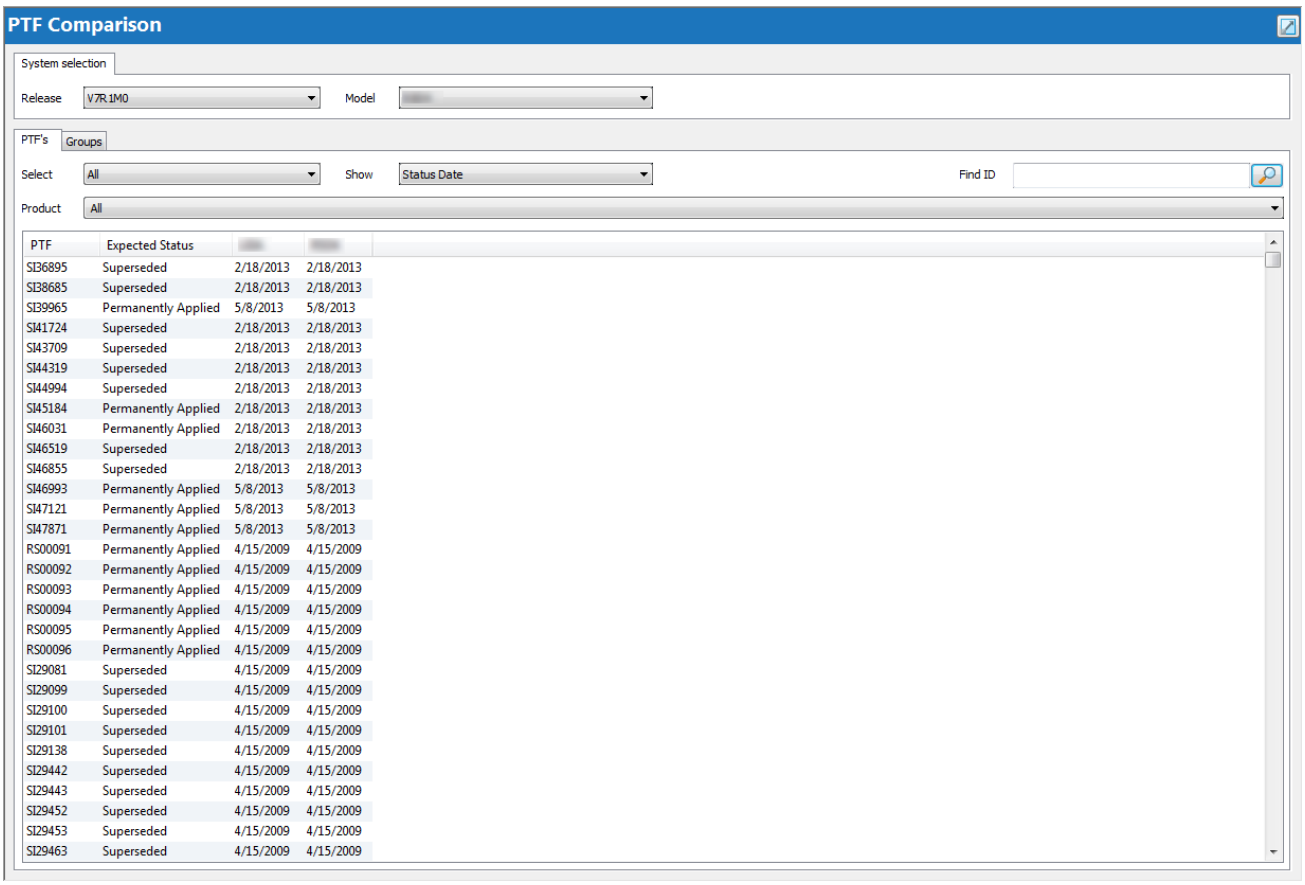
These topics describe general information about reports in Robot Monitor.

Click the following link to learn more about the topic.

- The PTF Comparison View

The PTF Comparison View

The PTF Comparison view displays a table of PTFs installed on systems at the same release level. These PTFs are compared, and any differences between them are highlighted.



One system can be selected as the model system, which becomes the standard by which the PTF listings for other systems are judged. If there is not a model system, Robot Monitor determines which PTFs are missing or in the wrong status based on a series of internal algorithms.

PTF information is collected from each system when Robot Monitor starts. It submits the job GET.PTF, which fetches the complete PTF listing, compares it to the previous PTF listing, and sends changes back to the host system.

When the PC monitor starts, the complete PTF listing for all systems is sent. This can be a lengthy process, as there is a lot of data space to be sent. This process occurs in the background, and progress messages display on the status bar as each system's PTF information is received.

A summary of the PTF status for each system is available as a data element and can be added to a group.

Things You Can Do

- Double-click a PTF ID to run a search for it in Google.
- Double-click a PTF status or status date to display the PTF Details view.

Options and Descriptions

The following sections list the options in this screen and their descriptions. Some options differ depending on the tab selected.

Release
Select the Release version you want from the drop-down. Different systems may be listed depending on the version you select.

Model
Select the Model system you want to use from the drop-down, or select **None** to have Robot Monitor consider each PTF on an individual basis.

For PTFs

Select
Use the drop-down to limit the amount of PTF information displayed. You can choose from the following options:

All: Display all PTFs.

Action Required: Display only PTFs that require action on the part of the operator.

Action Pending: Display only PTFs that have action pending, typically during the next IPL.

Mismatched: Display only PTFs that appear to be in error.

Exceptions: Display all PTFs that require attention.

Show
Select what information should be shown in the system column.

Status Date: Show the date of the PTF status.

PTF Status: Show the PTF status.

Find
Enter a PTF to quickly find and highlight it from the list.

Product
Select a product from the drop-down to limit the display to a selected licensed program.

For Groups

Select
Use the drop-down to limit the amount of PTF information displayed. You can choose from the following options:

All: Display all PTFs.

Mismatched: Display only PTFs that appear to be in error.

Exceptions: Display all PTFs that require attention.

Show
Select what information should be shown in the system column.

Level: Show the level of the PTF group

Status: Show the status of the PTF group. Possible Statuses are:

- Unknown
- Not Applicable
- Supported Only
- Not Installed
- Installed
- Error
- Apply at next IPL
- Related group
- On order

Find

Enter a PTF to quickly find and highlight it from the list.

Right-Click Menu

When you right-click a PTF, a context menu displays. This menu provides a list of options you can select.

Refresh PTF lists: Fetch all PTF listings from the selected systems again.

Look up Release: Look up the release on the internet using the website templates specified under Miscellaneous on the Options window.

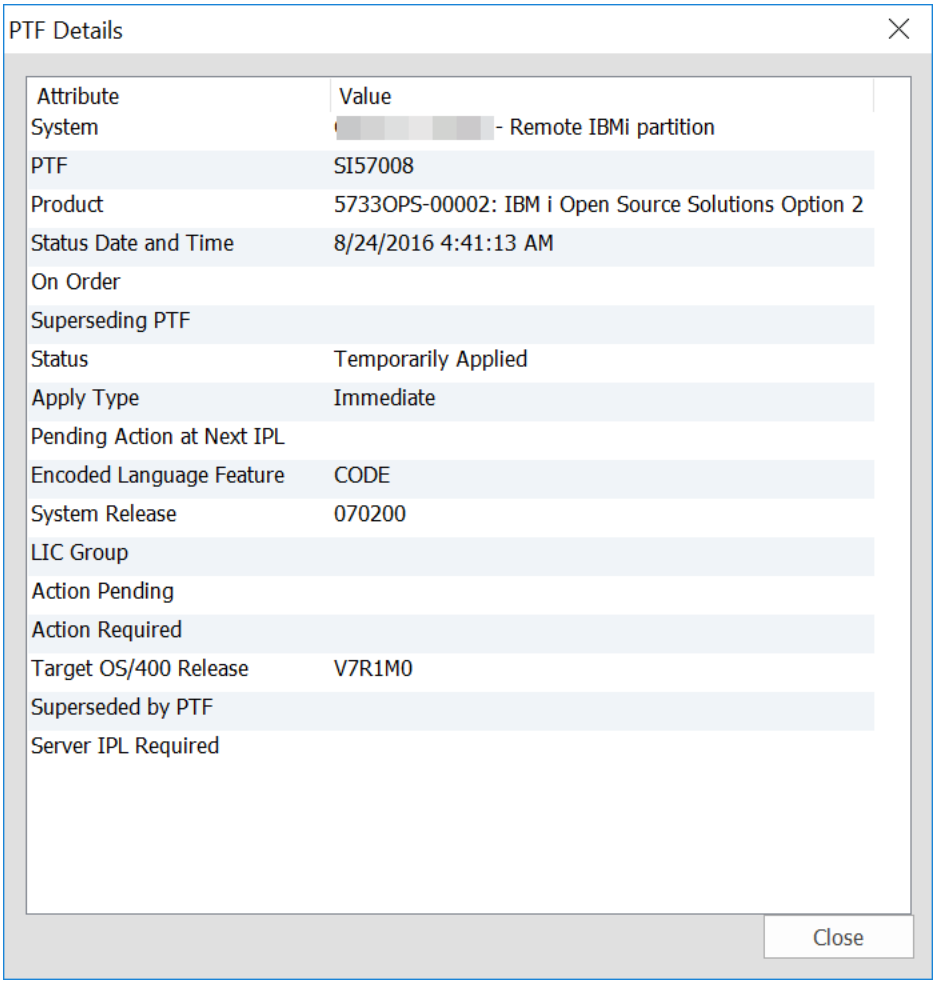
Look up PTF: Look up the PTF on the internet using the website templates specified under Miscellaneous on the Options window.

Search PTF: Run a general internet search for the PTF using the website templates specified under Miscellaneous on the Options window.

PTF Details

The PTF Details panel displays detailed information for the selected PTF.

You can access this panel by double-clicking a PTF status date on the PTF Comparison view.



Data Types and Parameters

Robot Monitor allows you to create a number of different types of elements. Most of these elements have parameters that define what data is collected. For example, a subsystem monitor requires the subsystem name and library in order to collect data.

Many data types have the same set of parameters, and most parameters can be prompted.

Currently, there are data types available for the IBM i, AIX, Linux, and VIOS.

The following pages describe the data types and parameters available in Robot Monitor. Definitions that are specific to AIX, Linux, and VIOS, are located in the Unix sub-sections.

Element Types

Data and element types are often classified into groups. The groups and their members are listed in the following sections, and two elements (built-in elements and user defined values) are described below.

Built-In Elements

The following data types are always collected by Robot Monitor. They are sorted by processor.

Built-in elements for IBM i:

Abbreviation	Element	Description
ABJ	Active Batch Jobs	The number of batch jobs that were active during the last sampling interval. A batch job is considered active if it uses more then 100 milliseconds of CPU time during the interval.
A/I	Active to Ineligible Transitions	This happens when a job is forced to give up the processor because of an external limit (such as the job timeslice), and is then forced to wait for an activity level to become available.
AIJ	Active Interactive Jobs	An active interactive job is defined for this purpose as a workstation that has processed at least one transaction in the last sample. **Note:** This is not the same definition as used by IBM performance tools for active workstations.
A/W	Active to Wait Transitions	This column gives a relative idea of the amount of work being processed by the system. Sudden increases in this figure can be an indication that something abnormal is happening, such as save/restore activity, or communications error recovery.
Autopwr	Auto Restart when Power Restored	This indicates whether the system will restart automatically when power is restored after an outage. Auto Restart when Power Restored is controlled by the QPWRRSTIPL system value.
AUX	Auxiliary Storage	The proportion of disk space used in the system ASP or ASP 1. It is a percentage of the total disk space in the system ASP.

Abbreviation	Element	Description
BSY	Disks Busy	This figure gives an idea of the loading on the disk arms across the system. It is based on a sampling mechanism. The system checks the disk arms on frequent basis, and looks to see whether there are any tasks waiting for another request to be serviced. This element shows the percentage of times that his was done, and there were tasks waiting for other requests to be fulfilled by the disks. Disk busy figures for individual ASPs can be shown using the User Data Bars.
Bypass	UPS Bypass	If the UPS bypass is active, this means the UPS will not be used if power fails. This function may be enabled when maintenance is done on the UPS.
CPT	CPU Seconds per Transaction	This shows the complexity of the interactive work being processed by the system.
CPU	CPU Usage	This value is always expressed as a percentage of the amount of available processing power for a partition. System performance is typically degraded when this figure exceeds 80%.
CRI	Current Interactive Percent	The proportion of the interactive feature currently allocated to the partition. The Interactive Feature limits the amount of interactive work that can be done on many models. When such a model is partitioned, the interactive limit can be apportioned independently to the partitions.
CRM	Current Memory	The amount of memory (in megabytes) allocated to the partition.
CRP	Current Processors	The number of processors allocated to the partition.
DCP	Database CPU usage	The amount of processing power used for database activity. This figure is a percentage of the total amount of processing power available.
FPBatt	Front Panel Battery Status	The status of the front panel battery for the primary partition. The front panel battery keeps the system clock going if there is a power failure. The status can be OK, low, or failed.

Abbreviation	Element	Description
ICP	Interactive CPU Usage	The amount of processing power being used by interactive jobs. Interactive jobs are jobs that use the IBM i, also known as a 5250 interface. This figure is a percentage of the total amount of processing power available.
IJB	Interactive Jobs	The total number of interactive jobs on the system. This figure includes jobs such as suspended group jobs and disconnected jobs.
JBS	Jobs Running in the System	The total number of jobs running on the system.
Key	Key Position	This shows the mode the partition is operating in. It is set differently on different models and types of partition, but for historical reasons, it is known as the key position. It may be set by a key, by buttons, by buttons and a key stick, from the console, or using the CHGIPLA command. Possible values are Auto, Manual, Normal, and Secure.
MCH	Machine Pool Faults	A machine pool fault occurs when a task in the machine pool wants to use something that has been paged out of memory, and it has to be paged in again from disk. The machine pool is the memory pool in which most system tasks run, so a lot of paging in this pool can have a significant effect on all system performance.
MS	Damaged Main Storage Units	The number of failed memory cards detected during the last IPL of the primary partition. These cards are marked as unusable, and the system operates with only the functional cards.
NDB	Non-Database Faults	A non-database fault occurs when a user's program or local storage is required but has been paged out and must be fetched again from disk.
NextIPL	Next IPL Type	This shows the current front panel setting for which microcode version will be used by default on the next IPL.
Panel	Front Panel Status	This shows whether the front panel passed all its self checks during the last IPL.

Abbreviation	Element	Description
PrcNW	Processors Not Working	The number of processors that were not operating at all during the last IPL of the primary partition. Currently, this problem can only be detected on the first 16 processors.
PrcPart	Processors Partly OK	The number of processors that had failures detected but still operate with reduced performance. Currently, this problem can only be detected on the first 16 processors.

Abbreviation	Element	Description
Ptf	Ptf Status	The PTF status for a system is derived from the system PTF listing. Optionally, it is also derived by comparing the PTFs to a model system. The model system can be selected from the PTF Comparison view. When a system is selected as the model, the monitor takes this list as the PTFs required for all systems at the same OS release. If the PTF lists and statuses do not match, then a status of **Mismatched** will be returned for this metric. If no model system is selected, or if the PTF lists match, then the following values can be returned. These values match the values shown in the DSPPTF display. **Damaged:** One or more PTFs are damaged. **Action Required:** One or more PTFs have a status of Action Required. This means that a PTF needs some special action to make it active. Consult the PTF Comparison view for instructions. **Action Pending:** One or more PTFs have a status of Action Pending. **IPL Action Pending:** One or more PTFs have this status. This means that the status of the PTF is set to be changed during the next IPL. Typically, this means the PTF will be applied or removed when the system is next restarted. When multiple conditions exist, only one will be shown for the PTF status. The priority list (in descending order) is as follows: • Damaged • Action Required • Action Pending • IPL Action Pending • Mismatch
RmtPwr	Remote Power On Enabled	Indicates whether the system can be powered on remotely by calling up the ECS modem. This attribute is controlled by the QRMTIPL system value.

Abbreviation	Element	Description
RSP	Response Time	The average response time for all interactive jobs in the system. Interactive jobs are jobs that use the IBM i (also known as a 5250 interface). Response time is the elapsed time taken from an operator pressing a function key (such as Enter or F6) to the time that the terminal is ready for new input. This is an internal measurement and does not include overheads such as communications delays.
Term	Last Termination Cause	This shows why the partition last ended. You can have one of the following causes: **Normal (PWRDWNSYS):** The user issued the PWRDWNSYS command. **Power Failed:** Power failed and there was no UPS available. **Battery failed while running on UPS:** Power failed and had not been restored by the time the UPS ran out of power. **System powered down from Front Panel:** The user forced an immediate termination of the system.
TRN	Transactions per Hour	This shows the number of transactions per hour being processed by the system. A transaction is when a user of the IBM i presses a function key, such as Enter or F6.
UnalcDisk	Unallocated Disk Units	The number of disk units that have not been assigned to an ASP.
UPS	Running on UPS	This shows whether the system is currently running on UPS.
UpsBatt	UPS Battery Status	This can show a status of OK or Low. Rarely, it may show a status of Dead, but never for long.
W/I	Wait to Ineligible Transitions	This happens when a job has finished waiting for a long delay (such as user input), then changes immediately to another wait state, as there is no activity level available for the job to start running. The number of activity levels is set as part of the memory pool definition and is tuned to limit the number of jobs competing for memory at the some moment.

Built-in elements for AIX/Linux/VIOS:

Abbreviation	Element	Description
ALG	Users Online	Stands for Active Logins. The number of users who are currently on the system.
BSY	Disks Busy	This number gives an idea of the loading on disk arms across the system. it is based on a sampling mechanism. The system checks the disk arms on a frequent basis and looks to see whether there are any tasks waiting for another request to be serviced. This element shows the percentage of times that this was done with tasks waiting for other requests to be fulfilled by the disks. Disk busy figures for individual ASPs can be shown using the User Data bars.
CPU	CPU Usage	This value is always expressed as a percentage of the amount of available processing power for a partition. System performance is typically degraded when this figure exceeds 80%.
CRM	Current Memory	The amount of memory (in megabytes) allocated to the partition.
CRP	Current Processors	The number of processors allocated to the partition.
CSW	Context Switch Rate	The number of context switches per second. A context switch (also known as a process switch or a task switch) is the switching of a CPU from one process/thread to another. A low context switch rate on a busy system indicates a process or thread may be hogging the system. A high context rate might indicate too much contention for the number of processors on the system. A significant increase in context switch rate, considerably above disk I/O or network packet rates, may be cause for investigation.
DTX	Disk I/O Rate	The number of disk transfers (to/from disk) per second over the sample interval.
FKR	Fork Rate	The number of processes created, per second, over the sample interval for all CPUs.
FLG	Failed Log-in Attempts	The number of failed log-in attempts made.

Abbreviation	Element	Description
HPF	Hard Fault Rate	The number of hard page faults during the sample interval. Hard page faults result in swap activity that requires disk I/O.
IRR	Interrupt Request Rate	The rate at which the processor receives and services hardware interrupts. Processes generate an interrupt when they finish a task and need to report that fact to the CPU. Abnormally high rates can be an indication of hardware or device driver problems.
JBS	Jobs Running in the System	The total number of jobs running on the system.
LA1	Load Average 1 Minute	"Load average" is an exponentially-weighted average of the load number. An idle computer has a load number of 0, and each process using or waiting for CPU time increments the number by 1. The load average can be used to better budget the number of CPUs required by a system. This number is the load average calculated over the last minute.
LA2	Load Average 5 Minutes	"Load average" is an exponentially-weighted average of the load number. An idle computer has a load number of 0, and each process using or waiting for CPU time increments the number by 1. The load average can be used to better budget the number of CPUs required by a system. This number is the load average calculated over the last five minutes.
LA3	Load Average 15 Minutes	"Load average" is an exponentially-weighted average of the load number. An idle computer has a load number of 0, and each process using or waiting for CPU time increments the number by 1. The load average can be used to better budget the number of CPUs required by a system. This number is the load average calculated over the last fifteen minutes.
NPR	Network Packet Rate	The number of packets received and transmitted per second over the sample interval.
PBL	Blocked Processes	The number of processes blocked waiting for I/O at the end of the collection period (for all CPUs). If this number is high for longer than short periods of time, it could indicate slow or problematic devices.

Abbreviation	Element	Description
RQS	Runnable Processes	Stands for Run Queue Size. The average number of running processes (in the run queue, in the running state) for all CPUs over the sample period.
SCR	System Call Rate	The number of system calls per second over the sample interval. it is not possible to define how many system calls are too many, but over 10k system calls per second per processor could be a cause for further investigation.
SSP	System Storage	The proportion of space used in O/S filesystems as a percentage of the total space available.
UPT	System Up-time	The length of time the system has been up.
TAJ	Total Active Jobs	The total number of interactive jobs on the system. This figure includes jobs such as suspended group jobs and disconnected jobs.

User Supplied Values

User supplied values allow you to write programs to add new data types to Robot Monitor. You can have as many user supplied values as you like.

You write a program that fetches the data required. This could be additional performance metrics, information from the production database, BRMS status, mirroring status... anything you like.

The program should use command MONAPUPD or MONTXUPD to pass the value to the monitor. Use MONAPUPD for numeric elements and MONTXUPD for text items.

Between collections, use the command MONAPWAT to wait for the next collection cycle.

Here is a minimal example program to demonstrate the basic idea:

```
Pgm &Inc



DCL VAR(&INC) TYPE(*DEC) LEN(15 5) /* Increment amount */

DCL VAR(&VALUE) TYPE(*DEC) LEN(9 2)



Loop:
                                                    MONAPUPD   VALUE(&Value)
                                                    monapwat
                                                    monmsg     mon0000 *n return
```

```
                                                    chgvar     &value (&value + &inc)



goto loop

endpgm
```

This program simply accepts an amount by which to count and keeps adding that value to the current value of the element.

NOTE: Regarding the MonMsg for message mon0000 on the MONWAT command, MONWAT issues an escape message when the monitor is ended. The program should monitor for this and end as shown.

Here is an example script to demonstrate the basic idea:

```
[/opt/helpsystems/rbtmon/node/log] cat
/opt/helpsystems/rbtmon/node/bin/usercount.ksh
#!/bin/ksh
#
       1. user-example.sh
          #
       2. Robot Monitor example script to deliver user-supplied metrics
          #
       3. Copyright (c) 2017 HelpSystems LLC
          All rights reserved
          #
       4. set up path to locate monapupd and monapwat
          PATH="$PATH:$RBTMON_HOME/bin"
          export PATH

       1. what type of metric to deliver
       2. command-line argument can be integer, decimal, percentage or text
       3. default is text
          mtype="$1"

       1. standard input, output, error are connected to /dev/console
       2. two file descriptors are used for pipes back to the service

       1. you could use these lines to set stdout and stderr to go to a
       2. file instead:
          #exec >/tmp/script.sh.out
          #exec 2>&1

       1. here we loop waiting for a trigger from the host (monapwat),
       2. upon which we obtain and send back a metric (using monapupd)
          #
       3. note that the script should exit upon receipt of a non-zero
       4. exit code from monapwat or monapupd, as this indicates loss
```

```
       5. of connectivity with the service on the node
          #

value=0
while true; do

       1. wait for a message from the service to begin collection
          monapwat || exit $?

       1. exec >/tmp/script.sh.out
       2. echo `id` woke @ `date`
       3. generate a value and post it back to the service
          value=`ps -ef |grep "-f=6" |wc -l`
          case "$mtype" in
          integer)
          monapupd -i $value || exit $?
          ;;
          decimal)
          monapupd -f ${value}.33 || exit $?
          ;;
          percentage)
          value=`expr $value % 99`
          monapupd -p ${value}.55 || exit $?
          ;;
          none)
          monapupd -n || exit $?
          ;;
          text|*)
          monapupd -t "$value @ `date`" || exit $?
          ;;
          esac
          done
```

Configuring user supplied values

Once your program is ready, create a new element in the usual way. Select one of the user supplied values:

User Supplied Decimal: Value is a number with a fractional value.

User Supplied Integer: Value is an integer. If a fractional value is passed to MONAPUPD, it rounds up or down to the nearest whole number.

User Supplied Percentage: Value is a percentage, with decimals, and is typically between 0 and 100.

User Supplied Text: Value is a one or two character value that is translated to a description using a threshold.

Collection Services

Some data types use collection services APIs, including communications performance, IOP monitoring, and system overhead.

When these APIs are used, the collection services are started by i5/OS. This is a mandatory requirement of the API since version 5.1.

The collection services stores performance data in management collection objects. By default, it keeps a months worth of these on disk. You can change this figure to something more sensible, such as one day, by following these steps:

1. Enter the command **CFGPFRCOL** and press **F4** or prompt on it.
2. Change the *MGTCOL retention period fields to **24 *HOURS** or **1 *DAYS**

```
                        Configure Perf Collection (CFGPFRCOL)

Type choices, press Enter.

Default interval . . . . . .   15.00          *SAME, .25, .50, 1.0, 5.0...
Collection library . . . . . .   QPFRDATA      Name, *SAME
Default collection profile . . .   *STANDARDP  *SAME, *MINIMUM, *STANDARD...
Cycle time . . . . . .   000000              Time, *SAME
Cycle interval . . . . . .   24               *SAME, 1-24 hours
*MGTCOL retention period:
  Number of units . . . . . .   24            *SAME, 1-720, *PERM
  Unit of time . . . . . .   *HOURS           *HOURS, *DAYS
Enable system monitoring . . . .   *NO         *SAME, *YES, *NO
Create standard database files     *YES        *SAME, *YES, *NO

                                                                        Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display        F24=More keys
```

3. Press **Enter**.

System Metrics

System metrics always exist and are always collected by the monitor. They cannot be selected as a monitor type, and no parameters can be set.

These element types can be added to groups, however, and different thresholds can be assigned as required, the same as any other element type. You can also assign messages to thresholds attached to system metrics.

Metrics Taken from the System Information View

The following metrics are the same as those displayed on the System Information view:

- UPS Battery Status
- Running on UPS
- UPS Bypass
- Unallocated Disk Units
- Damaged Main Storage Units
- Front Panel Battery Status
- Processors Not Working
- Processors Partly OK
- Front Panel Status
- Last Termination Cause
- Remote Power On Enabled
- Auto Restart when Power Restored
- Next IPL Type
- Key Position

Ptf Status

The PTF status for a system is derived from the system PTF listing (optionally, you can also derive it by comparing your PTFs to a model system).

The model system can be selected from the PTF Comparison view. When a system is selected as the model, Robot Monitor takes this list as the PTFs required for all systems at the same OS release. If the PTF lists and statuses do not match, then a status of *Mismatched* will be returned for this metric.

If no model system is selected, or if the PTF lists match, then the following values can be returned. These values match the values shown in the **DSPPTF** display.

Damaged: One or more PTFs are damaged.

Action Required: One or more PTFs have a status of Action Required. This means that a PTF needs some special action to make it active.

Action Pending: One or more PTFs have a status of Action Pending.

IPL Action Pending: One or more PTF's have this status. This means that the status of the PTF is set to be changed during the next IPL. This usually means the PTF will be applied or removed when the system is next restarted.

When multiple conditions exist, only one will be shown for the PTF status. The priority list (in descending order) is as follows:

Damaged
Action Required
Action Pending
IPL Action Pending
Mismatch

See the PTF Comparison view for a detailed comparison of PTFs on systems.

ASP Information Data Types

This group of element types monitors individual ASPs.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

ASP Busy

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.

Description

For the selected ASP, the microcode checks the disk controllers at regular, frequent intervals. It records the number of times the controller was busy processing disk requests. This figure shows the percentage of times that the disks were busy.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Notes

Performance of jobs using this ASP will be affected when this figure reaches 60% and are greatly affected around 80%.

ASP Busy Unit#

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.

Description

For the selected ASP, this is the unit number (or disk number) that is busiest.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Notes

If a unit is consistently very busy, disk traces should be done to determine the cause. Disk balancing may be required to redistribute data in the ASP and improve performance.

ASP Busy Unit%

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.

Description

Percent busy of the busiest unit in the select ASP.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Notes

If the same unit is consistently very busy, disk traces should be done to determine the cause. Disk balancing may be required to redistribute data in the ASP to improve performance.

ASP Space Free

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.
Report size as	No	No	No	Select whether to report this value in gigabytes or terabytes. The default is gigabytes.

Description

The amount of free disk space remaining in the selected ASP.

If the scale value for this data type is left as zero, Robot Monitor uses the ASP size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

ASP Space Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.
Report size as	No	No	No	Select whether to report this value in gigabytes or terabytes. The default is gigabytes.

Description

The amount of disk space used in the selected ASP.

If the scale value for this data type is left as zero, the monitor will use the ASP size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

ASP Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.

Description

The status of the selected ASP. This could include Offline, Vary on Pending, and Active.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

ASP Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
ASP Number	Yes	No	No	The System ASP is ASP 1. User ASPs are numbered 2-32. Independent ASPs are numbered 33-255.

Description

The percentage disk used in the selected ASP.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Assure MIMIX Monitors Data Types

Robot Monitor supports a number of monitors for Assure MIMIX version 8 and above. These monitors replace the functionality of the MONCHKMXS command. These are grouped according to the object type monitored.

MIMIX Replication Status Metrics

This group brings together elements related to MIMIX Replication Status.

MIMIX Rollup Data Group Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The rollup data group status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Source Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database source status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Target Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database target status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Source Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object source status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Target Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object target status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX RJ Link Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The RJ link status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Send Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database send status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Read Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database read status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply A Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply A status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply B Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply B status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply C Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply C status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply D Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply D status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply E Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply E status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply F Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply F status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Send Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object send status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Retrieve Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object retrieve status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Connector Send Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The connector send status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Apply Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object apply status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply A Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply A threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply B Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply B threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply C Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply C threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply D Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply D threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply E Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply E threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Database Apply F Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The database apply F threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Object Apply Threshold Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The object apply threshold status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of Objects in Error

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of objects in error.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of Files on Hold

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of files on hold.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of Files on Hold for Other Reasons

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of files on hold for other reasons.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of Files Not Journaled on System 1

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of files not journaled on system 1.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of Files Not Journaled on System 2

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of files not journaled on system 2.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of IFS Objects in *HOLD Error

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of IFS objects in *HOLD error.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of IFS Files on Hold for Other Reasons

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of IFS files on hold for other reasons.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of IFS Files Not Journaled on System 1

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of IFS files not journaled on System 1.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of IFS Files Not Journaled on System 2

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of IFS files not journaled on System 2.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of DA/DQ Objects in *Hold Error

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of DA/DQ objects in *HOLD error.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of DA/DQ Objects on Hold for Other Reasons

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of DA/DQ objects on hold for other reasons.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Number of DA/DQ Objects Not Journaled on System 1

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of DA/DQ objects not journaled on System 1.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

MIMIX Number of DA/DQ Objects Not Journaled on System 2

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The number of DA/DQ objects not journaled on System 2.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Audit Compliance Status

Parameters

Data Group Name - The name of the Data Group to be monitored.

Description

The audit compliance status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Manager Status Metrics

This group brings together elements related to MIMIX Manager Status.

MIMIX System Manager Status

Parameters

System Name - The name of the system to be monitored.

Description

The system manager status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Journal Manager Status

Parameters

System Name - The name of the system to be monitored.

Description

The journal manager status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Monitor Process Status

Parameters

System Name - The name of the system to be monitored.

Description

The monitor process status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Master Monitor Status

Parameters

System Name - The name of the system to be monitored.

Description

The master monitor status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Collector Services Status

Parameters

System Name - The name of the system to be monitored.

Description

The collector services status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Monitor Status Metrics

This group brings together elements related to MIMIX Monitor Status.

MIMIX Monitor Status

Parameters

Monitor Name - The name of the monitor to be monitored.

Description

The monitor status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MIMIX Audit Status Metrics

This group brings together elements related to MIMIX Audit Status.

MIMIX Audit Status

Parameters

Short Data Group Name - The short name of the Data Group to be monitored

Rule Name - The name of the rule to be monitored

Description

The audit status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Communications Performance Data Types

This type of group element monitors the performance of communication links (such as lines and remote locations) for the IBM i and network performance statistics (at the adapter and interface levels) for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

APPC Pinger

Robot Monitor's APPC Pinger data type performs the same processing that the IBM i command **APING** does. It uses CPI-C to send a start request to the target system, which responds by sending the associated data packet back. Robot Monitor times the transaction, giving a numeric indication of the speed of the link and a confirmation that the line and the system are up.

Parameters

Parameter	Rqd	*ALL	Notes
Remote Location	No	No	Choose a remote location to connect with. Right-click to prompt location. The information is taken from the topology database on the prompt system.
Network ID	No	No	Specify a network ID.
Mode	No	No	Specify the name of the mode used for the APPC conversation. You can right-click to prompt and select a mode from the drop-down.
Collection Job Priority	No	No	Pingers run in separate jobs, one for each location. Because the collection job times the packets by looking at the clock, it has to run at a high priority in order to get accurate results. The default priority for these jobs is 5. This parameter can be used to override the priority by entering a number from 1 to 99. If you lower the priority of the job, the measurements will be affected by system performance.

Description

The round trip time in milliseconds.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms (Ethernet) More than 16 Retries

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The number of times more than sixteen retries were required to send a packet on the Ethernet link. If this figure stays high, this is an indication that there are serious collisions or other errors taking place.

Type

Integer

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms (Ethernet) More than One Retry

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The number of times one to fifteen retries were required to send a packet on the Ethernet link. If this figure stays high, this is an indication that there are serious collisions or other errors taking place.

Type

Integer

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms (Ethernet) One Retry

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The exact number of times one retry was required to send a packet on the ethernet link. This is an indication that there are low level collisions taking place.

Type

Integer

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms Error Count

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The error count for the monitoring interval.

Type

Float

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms Throughput Receive

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The data received on one line in kilobytes per second.

Type

Float

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms Throughput Transmit

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The data transmitted on the line in kilobytes per second.

Type

Float

Notes

All line types are supported. This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Comms Utilization

Parameters

Parameter	Rqd	*ALL	Notes
Line Description	Yes	No	Enter a line description.

Description

The percentage of capacity used for the specified line.

Type

Float

Notes

All line types are supported. This monitor type invokes PM/400.

The monitor takes the line speed from the line description and the number of bytes received and transmitted. From this, it estimates the percentage of capacity used.

For a full duplex line, it takes the larger of bytes sent and received and divides it by the line speed times the interval time. For a half duplex line, it adds the two byte counts and divides the sum by the line speed times the interval time.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

IOP Utilization (Comms Only)

See IOP Monitor Data Types for more information.

TCP Ping

Parameters

Parameter	Rqd	*ALL	Notes
TCP Address	Yes	No	This parameter can be in symbolic form (a website) or entered as a dotted IP address. It cannot be prompted.
Collection Job Priority	No	No	Pingers run in separate jobs, one for each location. Because the collection job times the packets by looking at the clock, it runs at a high priority in order to get accurate results. The default priority for these jobs is 5. This parameter can be used to override the priority, by entering a number from 1 to 99. If you lower the priority of the job, the measurements will be affected by system performance.

Description

The average of three pings to the specified address.

Single character values are returned in the case of error:

Value	Meaning
L	Packet Loss: The program did not receive as many responses as expected.
R	No response: No packets were returned from the target address.
N	Not Found: The symbolic address could not be resolved by the DNS server.

Type

Integer, or alpha for errors

Notes

Pinging a system means that a special type of packet is sent to the system and the system immediately sends the packet back. The sending system times this transaction, and from this is able to calculate the average time taken for a packet to cross the network and return. This gives a numeric indication of network performance. It also makes sure the network and remote system are operating correctly.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Communications Status Data Types

This group of element types monitors the status of communications objects, such as lines and controllers.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Controller Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Controller Description	Yes	No	No	Choose a name for the controller.

Description

The status of the selected controller. This could include Offline, Vary on Pending, and Active.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Device Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Device Description	Yes	No	No	Choose a name for the device.

Description

The status of the selected device. This could include Offline, Vary on Pending, and Active.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux		x
VIOS	x	

Distribution Queue Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Distribution Queue	No	No	No	Choose a distribution queue.

Description

The status of the selected distribution queue.

Type

Alpha, translated

Notes

A print-scraping approach is used to collect this information, as there is no API to collect the data in a structured way. However, if one element of this type is defined, adding more will not increase the overhead as the program fetches information for all queues regardless.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

IP Interface Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
IP Address	No	No	No	Choose an IP address from the drop-down list.

Description

The status of the IP interface.

Two special values can be returned.

N: Interface was not found. **T:** TCP is down, so all interfaces are down. If you are sending messages for an interface, we recommend you do not select messages for this value so you will not get a message for each interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Line Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Enter a line description.	Yes	No	No	Choose a name for the line.

Description

The status of the selected line. This could include Offline, Vary on Pending, and Active.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Network Interface Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Network Interface Name	Yes	No	No	Choose a name for the network interface.

Description

The status of the selected interface. This could include Offline, Vary on Pending, and Active.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Network Server Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Network Server Description	Yes	No	No	Choose a name for the network server.

Description

The status of the selected server. This could include Offline, Vary on Pending, and Active.

Type

Integer

Notes

An IP interface is the address to which the system responds on a given network connection. This monitor type is intended for fixed IP addresses only. DHCP assigned addresses are not supported.

This monitor type returns the current status of a single interface and supports starting and ending the interface.

The status of the IP interface is returned as a number, which is translated to the status using the threshold. The standard global threshold assumes that interfaces should normally be up, but additional thresholds can be created for interfaces that are normally down by copying and modifying the standard threshold.

Right-click an element to start or end the interface.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux		x
VIOS	x	

TCP Port Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
From Port	No	No	No	The from and to ports can be specified as raw numbers or symbolic names. Right-click to prompt this parameter for a list of symbolic names, which are taken from the known port table on the prompt system.
To Port	No	No	No	To monitor a single port, specify only the **From Port**. To monitor a range of ports with this element, specify the from and to ports.
Listening	No	No	N/A	Select **Yes** to include servers with this status.
Starting	No	No	N/A	Select **Yes** to include servers with this status.
Established	No	No	N/A	Select **Yes** to include servers with this status.
Closing	No	No	N/A	Select **Yes** to include servers with this status.
Closed	No	No	N/A	Select **Yes** to include servers with this status.
UDP	No	No	N/A	Select **Yes** to include servers with this status.

Description

The number of connections for the specified port or range of ports.

Type

Integer

Notes

Translation of port numbers and prompting is done using the information held in the known port table on the host system.

You can edit this table using the **WRKSRVTBLE** command.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	

OS	Yes	No
VIOS	x	

IOP Monitors Data Types

This group of element types monitors input/output processor attributes.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Cache Battery Life

Parameters

None

Description

The estimated number of days until a battery will fail in the disk controllers for this system.

Type

Integer

Notes

In order to monitor disk cache battery life, you must first configure SST Access.

The cache battery monitor returns the lowest value for all disk controllers that have battery backed cache. In order to see the full details, right-click it and select **Display Details**. This opens a detailed view for the monitor, showing full details for all disk controllers with batteries. If the element is in a multiple system view, the detail view shows details for all systems for that view.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

IOP Utilization

Parameters

Parameter	Rqd	*ALL	Notes
IOP Resource Name	Yes	No	Select a resource name.

Description

The percentage CPU utilization on the I/O Processor.

Type

Float

Notes

I/O Processors for internal partition connections will always return 0. This is because there is not actually an IOP there, so although i5/OS reports an IOP, the performance APIs do not return any information.

This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

IOP Utilization (Comms Only)

Parameters

Parameter	Rqd	*ALL	Notes
IOP Resource Name	Yes	No	Select a resource name.

Description

The percentage of CPU utilization on the I/O processor that was used to service communications lines.

Type

Float

Notes

I/O processors for internal partition connections always return 0. This is because there is not actually an IOP there, so although i5/OS reports an IOP, the performance APIs do not return any information.

This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

IOP Utilization (Disk Only)

Parameters

Parameter	Rqd	*ALL	Notes
IOP Resource Name	Yes	No	Select a resource name.

Description

The percentage of CPU utilization on the I/O Processor that was used servicing disk requests.

Type

Float

Notes

This monitor type invokes PM/400.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Performance Data Types

This group of element types monitor the performance of individual jobs or groups of jobs.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Check Job CPU and Hinder

This element type is a special form of the user supplied data type. It runs the MONCHKJCP command, which checks job CPU or Disk IO and holds or lowers job priority in order to stop runaway jobs from adversely affecting the rest of the system.

Parameters

None

Description

The number of jobs currently being hampered (held or with priority lowered).

Right-click a Check Job CPU element and select **Details** to see a list of jobs currently being hampered by this element.

Notes

This element type has a command associated with it, generally the MONCHKJCP command. Use the Prompt command to fill in the parameters and control the way in which jobs should be treated. See the *Robot Monitor IBM i User Guide* on the MONCHKJCP command for more information on this.

The MONCHKJCP command runs as a user defined collection job in the usual way. It starts and ends with Robot Monitor. When the monitor ends, any hampered jobs are restored.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CPU Seconds per Transaction

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average number of CPU seconds it takes to process each transaction for the selected jobs.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CPU Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so can only be prompted if job accounting data have been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The percentage of CPU being used by jobs that meet the selection criteria. This value is always scaled to 100%.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Database CPU Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The percentage of database CPU being used by jobs meeting the selection criteria. This value is always scaled to 100%.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Disk I/O

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average number, per second, of disk I/O requests for the selected jobs.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Faults per Second

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The number, per second, of faults for meeting the selection criteria.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Interactive CPU Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The percentage of CPU being used by interactive jobs meeting the selection criteria. This value is always scaled to 100%.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Queue Average Wait Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Job queue	No	Yes	Yes	Select a job queue. **Note:** A library must be specified first before you can prompt this value.
Library	No	Yes	Yes	Select a library.
Include Scheduled Jobs	No	No	N/A	Choose whether or not you want to include scheduled jobs.
Include Held Jobs	No	No	N/A	Choose whether or not you want to include held jobs.

Description

For the selected queues, the monitor determines the length of time each job has been waiting to run. It then calculates an average wait time (in minutes), which is the total wait time divided by the number of jobs waiting to run. For most jobs, the time used for the calculation will be the time since the job was put on the queue. For scheduled jobs that have reached their scheduled run time, this will be the time since they were scheduled to run.

Notes

You can exclude scheduled jobs from this calculation. Once a scheduled job has reached its scheduled time, it will then be included in the test.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Queue Max Wait Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Job queue	No	Yes	Yes	Select a job queue. **Note:** A library must be specified first before you can prompt this value.
Library	No	Yes	Yes	Select a library.
Include Scheduled Jobs	No	No	N/A	Choose whether or not you want to include scheduled jobs.
Include Held Jobs	No	No	N/A	Choose whether or not you want to include held jobs.

Description

For the selected queues, Robot Monitor determines which job has been waiting the longest and returns the number of minutes that job has been waiting to run. For most jobs, this will be the time since the job was put on the queue. For scheduled jobs that have reached their scheduled run time, this will be the time since they were schedule to run.

Notes

You can exclude scheduled jobs from this calculation. Once a scheduled job has reached its scheduled time, it will then be included in the test.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Lock Wait Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average time per transaction spent waiting for locks and seize conflicts.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Maximum Job Run Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Min Run Time (Minutes)	No	No	No	Enter the number of minutes this monitor type should run.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The maximum time that a job matching the selection criteria has been running.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Response Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average response time for the selected jobs.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Subsystem Transactions/Hour

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The projected number of transactions per hour for jobs meeting the selection criteria.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Temporary Storage per Job

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average temporary storage per job, allocated by the selected jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Temporary Storage Total

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The total temporary storage allocated by the selected jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Thread Count per Job

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	No	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	No	No	Job User Name. Prompted from list of user profiles.
Current User	No	No	No	Prompted from list of user profiles.
Job Name	No	No	No	Prompted from currently active jobs.
Function	No	No	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The average number of active threads per job running in the selected jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Thread Count Total

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The total number of active threads running in the selected jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Total Job CPU

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	No	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	No	No	Job User Name. Prompted from list of user profiles.
Current User	No	No	No	Prompted from list of user profiles.
Job Name	No	No	No	Prompted from currently active jobs.
Function	No	No	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The total CPU seconds that have been used by jobs meeting the selection criteria.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Job Status Data Types

This group of element types monitors the jobs and objects that control jobs, such as subsystems and job queues.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

NOTE: Batch Job totals also include BCI (Batch Immediate) jobs.

Batch Job Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Select or enter name of the subsystem for jobs to be monitored. You can prompt from active subsystems.
Accounting Code	No	Yes	No	Select a job accounting code. You can prompt from job accounting data. **Note:** This can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Select a job user name. You can prompt from list of user profiles.
Current User	No	Yes	No	Select a current user name. You can prompt from list of user profiles.
Job Name	No	Yes	No	Select a job name. You can prompt from currently active jobs.
Function	No	Yes	No	The job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be a generic or specific entry. If you wanted to select all jobs displaying menu PAYROLL, for example, enter **MNU-PAYROLL**.
Status	No	No	No	Prompt for a full list of options and their definitions.
Max Jobs In List	No	No	No	Enter the maximum number of jobs to show in the details display. You cannot go higher than 30.

Description

The number of batch jobs meeting the selection criteria.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Batch Jobs Held on Job Queue

Parameters

None

Description

The count of held batch jobs on job queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Batch Jobs on Held Job Queue

Parameters

None

Description

The count of batch jobs on job queues that have been held.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Batch Jobs on Job Queue without Subsystem

Parameters

None

Description

The count of batch jobs on job queues which are not attached to an active subsystem.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Batch Jobs on Output Queue

Parameters

None

Description

The count of batch jobs that have finished but still have printed output on output queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Batch Jobs Waiting to Run

Parameters

None

Description

The count of batch jobs waiting to run, both on job queues and scheduled jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Interactive Job Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Select or enter name of the subsystem for jobs to be monitored. You can prompt from active subsystems.
Accounting Code	No	Yes	No	Select a job accounting code. You can prompt from job accounting data. **Note:** This can only be prompted if job accounting data has been previously collected.
User Name	No	Yes	No	Select a job user name. You can prompt from list of user profiles.
Current User	No	Yes	No	Select a current user name. You can prompt from list of user profiles.
Job Name	No	Yes	No	Select a job name. You can prompt from currently active jobs.
Function	No	Yes	No	The job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be a generic or specific entry. If you wanted to select all jobs displaying menu PAYROLL, for example, enter **MNU-PAYROLL**.
Max Jobs In List	No	No	No	Enter the maximum number of jobs to show in the details display.
Status	No	No	No	Prompt for a full list of options and their definitions.

Description

The number of interactive jobs meeting the selection criteria.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

Interactive Jobs on Output Queue

Parameters

None

Description

The count of interactive jobs that have finished but have printed output waiting on output queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Select or enter name of the subsystem for jobs to be monitored. You can prompt from active subsystems.
Accounting Code	No	Yes	No	Select a job accounting code. You can prompt from job accounting data. **Note:** This can only be prompted if job accounting data has been previously collected.
User Name	No	Yes	No	Select a job user name. You can prompt from list of user profiles.

Parameter	Rqd	Gen	*ALL	Notes
Current User	No	Yes	No	Select a current user name. You can prompt from list of user profiles.
Job Name	No	Yes	No	Select a job name. You can prompt from currently active jobs.
Function	No	Yes	No	The job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be a generic or specific entry. If you wanted to select all jobs displaying menu PAYROLL, for example, enter **MNU-PAYROLL**.
Status	No	No	No	Prompt for a full list of options and their definitions.
Max Jobs In List	No	No	No	Enter the maximum number of jobs to show in the details display. You cannot go higher than 30.

Description

The number of jobs with the selected status.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Job Queue Active Job Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Job queue	Yes	Yes	Yes	You need to specify a library first before you can choose a job queue.
Library	Yes	No	Yes	The library for the job queue.

Description

The number of running jobs that started from the specified queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Queue Average Wait Time

See Job Performance Data Types for more information.

Job Queue Count

Parameters

Parameter	Rqd	Gen	*ALL	Value
Job queue	No	Yes	Yes	You need to specify a library first before you can choose a job queue.
Library	No	No	Yes	The library for the job queue.
Omit Scheduled Jobs	No	No	No	Yes, No

Parameter	Rqd	Gen	*ALL	Value
Omit Held Jobs	No	No	No	Yes, No

Description

The number of jobs waiting on the specified queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Queue Max Wait Time

See Job Performance Data Types for more information.

Job Queue Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Job queue	Yes	No	No	You need to specify a library first before you can choose a job queue.
Library	Yes	No	No	The library for the job queue.

Description

The status of the specified job queue, including active, no subsystem, and held.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Job Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Select or enter name of the subsystem for jobs to be monitored. You can prompt from active subsystems.
Accounting Code	No	Yes	No	Select a job accounting code. You can prompt from job accounting data. **Note:** This can only be prompted if job accounting data has been previously collected.
User Name	No	Yes	No	Select a job user name. You can prompt from list of user profiles.
Current User	No	Yes	No	Select a current user name. You can prompt from list of user profiles.
Job Name	No	Yes	No	Select a job name. You can prompt from currently active jobs.
Function	No	Yes	No	The job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be a generic or specific entry. If you wanted to select all jobs displaying menu PAYROLL, for example, enter **MNU-PAYROLL**.
Max Jobs In List	No	No	No	Enter the maximum number of jobs to show in the details display. You cannot go higher than 30.

Description

The status of the selected job. Displays *NF if not found.

If the more than one job is found that fits the selection parameters, Robot Monitor selects the more interesting status. Most status codes are considered uninteresting. The following list shows the interesting codes in order of ascending interest:

Status	Degree of Interest
RUN	1
SIGW	3
DSC	5
INEL	5
MTXW	5
THDW	5
EOJ	10
JVAW	10
SEMW	10
HLD	40
INQW	50
LCKW	60

For instance, if jobs were found that match the filter with statuses of DSPW, RUN, and HLD, Robot Monitor returns a status of HLD.

Special Status Values

MSGW: MSGW is not quite the same as the MSGW on the WRKACTJOB command. It means the job is waiting for a message from a queue and does not include jobs waiting for a reply to specific message, such as a failure message sent to QSYSOPR.

INQW: INQW means the job is waiting for a reply to a message, such as a failure message sent the QSYSOPR or a printer message sent to the printer's message queue.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	

OS	Yes	No
VIOS	x	

QTemp Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	No	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	No	No	Job User Name. Prompted from list of user profiles.
Current User	No	No	No	Prompted from list of user profiles.
Job Name	No	No	No	Prompted from currently active jobs.
Function	No	No	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Object Name	No	Yes	Yes	Type an object name into the value field.
Object Type	No	Yes	Yes	Select an object type.
Max Objects in List	No	No	No	The maximum number of objects to show in the details display. You cannot go higher than 30.

Description

The number of objects within the QTEMP libraries of jobs with the selected status.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	

OS	Yes	No
AIX		x
Linux		x
VIOS		x

QTemp Size

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	No	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	No	No	Job User Name. Prompted from list of user profiles.
Current User	No	No	No	Prompted from list of user profiles.
Job Name	No	No	No	Prompted from currently active jobs.
Function	No	No	No	Job function is a three character code, as shown on WRKACTJOB. For instance, CMD-* could be used to selected all jobs running commands. This can be either a generic or a specific entry.
Object Name	No	Yes	Yes	Type an object name into the value field.
Object Type	No	Yes	Yes	Select an object type.
Max Objects in List	No	No	No	The maximum number of objects to show in the details display. You cannot go higher than 30.
Report size as	No	No	No	Allows you to select whether size should be reported in MB or GB. The default is MB.

Description

The total size of the objects within the QTEMP libraries of jobs with the selected status.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Subsystem Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	Yes	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems. You need to specify a library first before you can choose a subsystem.
Subsystem Library	Yes	No	No	The library for the subsystem.

Description

Returns the status of the selected subsystem: up, down, or ending.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Total Jobs in System (Count)

See System Performance Data Types for more information.

Total Jobs in System (Percentage)

Parameters

None

Description

The total percentage of all jobs that are in the system.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Total Jobs on Output Queue

Parameters

None

Description

The count of all jobs that have finished but still have printed output on output queues.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Memory Pool Performance Data Types

This type of group element monitors the attributes and performance of memory pools for the IBM i.

Memory Pool Performance

Pool Active to Ineligible

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of active to ineligible transitions for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Active to Wait

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of active to wait transitions for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Activity Level

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The activity level for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Database Faults

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of database faults for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Database Pages

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of database pages for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Faults DB+NDB

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of DB faults plus the number of NDB faults for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Nondatabase Faults

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of nondatabase faults for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	

OS	Yes	No
AIX		x
Linux		x
VIOS		x

Pool Nondatabase Pages

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of nondatabase pages for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Reserved Memory

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The reserved size of the specified memory pool in MB. The reserved size is the amount of memory reserved by the machine for internal tasks, such as Save/Restore.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Size

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The size of the specified memory pool in MB.

Type

Integer

Notes

If the scale for an element of this type is left at 0, the program uses the memory allocated to the partition for the scale value.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Pool Wait to Ineligible

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

The number, per second, of wait to ineligible transitions for the selected pool.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Series Monitors Data Types

Robot Monitor supports a number of monitors for MQ Series (also known as Websphere MQ) version 6. These are grouped according to the object type monitored.

Some monitor types require monitoring to be enabled for the queue or channel being monitored. If monitoring is not enabled, MSM will display the message "MQSeries API reports Not Available".

Monitoring can be enabled at the queue manager level, or by individual queue/channel, by using the chgxxx command to set parameter MONx to the level of monitoring required. *LOW appears to be sufficient for most cases. The level of monitoring affects the frequency of updates to the internal counters in MQS.

For example:

CHGMQMQ QNAME('GBCCS207.TO.GBCCS150') MQMNAME('GBCCS207.QUEUE.MANAGER') MONQ(*LOW)

MQ Channel

This group brings together elements related to the channel, which handles communications with remote systems.

MQ Channel Avg Time on Transmit Queue

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average time (in microseconds) each message spends on the transmit queue before being sent by the channel.

This is not the same as MQ Average Queue Time.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Bytes Received per Second

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average bytes per second received by the channel. This figure is an average measurement calculated by the channel over the last 64 messages.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Bytes Sent per Second

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average Bytes per Second sent by the channel. This figure is an average measurement calculated by the channel over the last 64 messages.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Compression Radio

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for

this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

A measurement of the amount of data saved by using compression on records sent by the channel.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Compression Time

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average time spent (in microseconds) performing compression for each message. This figure is an average measurement calculated by the channel over the last 64 messages.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

MQ Channel Exit Program Processing Time

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average time spent (in microseconds) by user exit programs for each message. This figure is an average measurement calculated by the channel over the last 64 messages.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Message Count

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of messages queued for transmission by the selected channel.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Network Time

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average time taken (in microseconds) for a message sent from the channel to the remote receiver and for the reply to come back to the channel. This figure is an average measurement calculated by the channel over the last 64 messages.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Channel Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Channel (parameter required). The name of the channel to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The status of the selected channel. Statuses can include active, failed, stopped, and so on.

Type

Alpha, special value

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Listener

This group brings together elements related to named listeners. Listeners handle incoming requests from remote queue managers.

Only named listeners (those created with CRTMQMLSR) can be monitored.

MQ Listener Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Listener (parameter required). The name of the listener to be monitored. If you prompt this parameter, the queue manager must be selected first. In order to be monitored, the listener must be named and the name must be specified when the listener is started.

Description

The current status (started, stopped, failed, and so on) for the listener.

Type

Alpha, special value

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue

This group brings together elements related to the queues themselves.

MQ Queue Age of Oldest Message

Parameters

Queue Manager. The name of the queue manager to be monitored, or that queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The length of time (in seconds) that the oldest message on the queue has been waiting to be sent or processed.

Monitoring must be enabled for the queue for this element to return a value.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Application Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

This is a status code, derived from the state of the queue and its application. This is calculated as follows.

If the queue has no messages on it:

- If the queue is open for input, then R (Ready) is returned. There are no messages, but an application is waiting to process any that arrive.
- If the queue is not open for input, then Q (Quiet) is returned.

If the queue has messages on it:

- If the queue is open for input, then A (Active) is returned. There are messages, and an application is processing them.
- If the queue is not open for input, then M is returned. This could indicate a problem with the application, as messages are waiting to be processed but no application is running to do this.

Type

Alpha, special values

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Average Queue Time

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The average length of time (in microseconds) that each message spends on the queue before being sent or processed. This is principally useful for queues that receive messages and gives a measurement of the length of time taken by the application to process these messages.

In order for this element to return a value, monitoring for the queue must be enabled.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Depth

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue. The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of messages on the queue waiting to be sent or processed.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

MQ Queue Depth/Maximum

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of messages on the queue, as a percentage of the maximum number of messages allowed. A figure of 100% would mean the queue can accept no more messages.

Type

Complex

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Depth/Trigger

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of messages on the queue, as a percentage of the trigger depth. A figure of 100% or more would mean the trigger event should have taken place. Very high figures could indicate a problem with the application processing the queue.

Type

Complex

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Open Count - Input

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of applications that have the queue open for input.

Type

Complex

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Open Count - Output

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of applications that have the queue open for output.

Type

Complex

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Uncommitted Message Count

Parameters

Queue Manager. The name of the queue manager to be monitored, or the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Queue (parameter required). The name of the queue to be monitored. If prompting this parameter, the queue manager must be selected first.

Description

The number of uncommitted messages on the queue. Uncommitted messages are messages that need to be committed or rolled back.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Manager

This group brings together elements related to the queue manager.

MQ Queue Manager Channel Initiator Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Description

The status of the initiator for the selected queue manager. Statuses can include active, failed, stopped, and so on.

Type

Alpha, special value

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Manager Command Server Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Description

The status of the command server for the selected queue manager. Statuses can include active, failed, and so on.

Type

Alpha, special value

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Manager Connection Count

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Description

The number of connections to the queue manager.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

MQ Queue Manager Status

Parameters

Queue Manager. The name of the queue manager to be monitored, or the name of the queue manager that owns the object to be monitored. Use *DFT to denote the default queue manager for this system.

Description

The status of the selected queue manager. Statuses can include active, stopped, and so on.

Type

Alpha, special value

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Objects Data Types

This group of element types monitors objects or groups of objects, such as size of number of delete records.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Data Queue Entries

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Data Queue	Yes	No	No	Select or enter name of the data queue you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library.

Description

The number of entries on the specified data queue.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Data Queue Percent

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Data Queue	Yes	No	No	Select or enter name of the data queue you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library.

Description

The percentage of capacity used by entries waiting on the specified data queue.

Notes

Data queues have a maximum size and entry length. From these figures, it is possible to calculate the percentage of available capacity for a data queue. Once it reaches 100%, it will not accept further entries.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	

OS	Yes	No
AIX		x
Linux		x
VIOS		x

Distribution Queue Entries

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Distribution Queue	No	No	No	Choose a distribution queue name.

Description

The number of entries on the selected distribution queue.

Type

Integer

Notes

At security level 30, the collection for this data type is very efficient as the program looks directly at the SNADS internal control areas. For higher security levels, a print-scraping approach is used. However, if one element of this type is defined, adding more will not increase the overhead, as the program fetches information for all queues regardless. The print-scraping approach is also used if Distribution Queue Status is selected for any element.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

File Deleted Record Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	Yes	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library before you can prompt this value.
Library Name	Yes	No	Yes	Select a library name.
ASP Device Name	No	No	No	Select an ASP device name.

Description

The number of deleted records in the files specified.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

File Deleted Record Percentage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	Yes	No	No	Select or enter name of the object you want. **Note:** You must specify a library before you can prompt this value.
Library Name	Yes	No	No	Select a library name.
ASP Device Name	No	No	No	Select an ASP device name.

Description

The percentage of deleted records in the specified files.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

File Record Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	Yes	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library before you can prompt this value.
Library Name	Yes	No	Yes	Select a library name.
ASP Device Name	No	No	No	Select an ASP device name.

Description

The number of records in the files specified. This figure does not include deleted records.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x

OS	Yes	No
Linux		x
VIOS		x

Journal Receiver Size

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Journal	Yes	No	No	Select or enter name of the journal you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library name.

Description

The total size, in megabytes, of all receivers attached to the specified journal.

Type

Integer

Notes

Make sure you specify the journal, not the receiver name. The monitor will find all receivers associated with the journal and tally their sizes.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Journal Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Journal	Yes	No	No	Select or enter name of the journal you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library name.

Description

The status of the journal.

Type

Text

Notes

This is mostly useful for remote journals and shows whether the journal is active and communicating with the remote system.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Largest Library

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	No	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library and object type before you can prompt this value.

Parameter	Rqd	Gen	*ALL	Notes
Library Name	No	No	Yes	Select a library name.
Object Type	No	No	Yes	Select an object type.
Object Attribute	No	No	No	Type an object attribute into the value field.
Owner	No	No	No	Select the owner of the object.
Max Libraries in List	No	No	No	Enter how many libraries should be in the list.
Report size as	No	No	No	Choose whether you want the size reported in megabytes (MB) or gigabytes (GB).
ASP Device Name	No	No	No	Select an ASP device name.

Description

The total size of the objects specified.

Type

Integer

Notes

The 'largest object' and 'largest library' elements are always drawn from the disk data collection results, so real time collection is a good idea if you intend to use these element types.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Largest Object

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	No	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library and object type before you can prompt this value.
Library Name	No	No	Yes	Select a library name.
Object Type	No	No	Yes	Select an object type.
Object Attribute	No	No	No	Type an object attribute into the value field.
Owner	No	No	No	Select the owner of the object.
Max Objects in List	No	No	No	Enter how many objects should be in the list.
Report size as	No	No	No	Choose whether you want the size reported in megabytes (MB) or gigabytes (GB).
ASP Device Name	No	No	No	Select an ASP device name.

Description

The size of the largest object that meets the criteria.

Type

Integer

Notes

The 'largest object' and 'largest library' elements are always drawn from the disk data collection results, so real time collection is a good idea if you intend to use these element types.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	

OS	Yes	No
Linux	x	
VIOS	x	

Network File Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	No	No	No	Select or enter name of the user you want.

Description

The number of network files waiting to be received by a specified user. This is equivalent to the number of files shown for the **WRKNETF** command.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Object Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	Yes	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library before you can prompt this value.
Library Name	Yes	No	Yes	Select a library name.
Object Type	Yes	No	Yes	Select an object type.

Parameter	Rqd	Gen	*ALL	Notes
ASP Device Name	No	No	No	Select an ASP device name.

Description

The total count of the objects specified.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Object Size

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Object Name	Yes	Yes	Yes	Select or enter name of the object you want. **Note:** You must specify a library before you can prompt this value.
Library Name	Yes	No	Yes	Select a library name.
Object Type	Yes	No	Yes	Select an object type.
Report size as	No	No	No	Choose whether you want the size reported in megabytes (MB) or gigabytes (GB). See the section on notes below for more details.
ASP Device Name	No	No	No	Select an ASP device name.

Description

The total size of the objects specified.

Type

Integer

Notes

The size is always collected and stored in MB (1 MB = 1048576 bytes). This means that objects of less than 1 MB in size will show as a size of 0.

Report size as only changes the way the figure is presented, not the way it is stored. It can be changed at any time.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Output Queue Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Output queue	Yes	No	No	Select or enter name of the output queue you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library name.

Description

The status of the specified output queue, including held, no writer, writing, and so on.

See the section on notes below for more details.

Type

Text

Notes

If the queue has no writer, then the queue's status is returned.

If the queue has an active writer, then the writer's status is returned.

For queues with remote writers, limited information is returned for the writer. Robot Monitor shows whether the writer is active, but no more.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

QTemp Count

See Job Status Data Types for more information.

QTemp Size

See Job Status Data Types for more information.

Remote Journal Lag

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Remote Journal	Yes	No	No	Select or enter name of the remote journal you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library name.

Description

The number of entries behind the remote journal is from the source journal.

Type

Integer

Notes

You must specify the remote journal, rather than the source journal, for this function. A source journal can have many remotes, so specifying the source journal would not make any sense.

For the system with the source journal

Robot Monitor will locate the source journal for the specified remote journal and start a communications job with that system.

Robot Monitor must be installed on the system with the source journal, although it does not have to be running. If you want to use TCP, the TCP server is required. The MSM user profile and password also need to match the one used on the systems being monitored by MSM. No MSM license is required for this system.

Because the program gets the system name for the system with the source journal, it then has to make a few guesses as to how to connect to it. The system name is not necessarily the name by which it is known to MSM, if it is known to MSM at all. It does not have to beconfigured as an MSM system, although setting up at least a system entry (with *Always Monitor* set to X) is probably a good idea.

The program uses the following three methods to determine the system name (tried in order):

1. It tries to find the system name in the Relational Database directory. If found, it will use the connection details found there.
2. It looks up the system name in the DNS table. If found, it will use the IP address from there.
3. It will use the system name as a location name for an SNA connection.

For the system with the remote journal

MSM must be installed and running.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Spool File Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Output queue	Yes	No	No	Select or enter name of the output queue you want. **Note:** You must specify a library before you can prompt this value.
Library	Yes	No	No	Select a library name.

Description

The number of files on the specified output queue.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

System Performance Data Types

This type of group element monitors items that reflect or affect system performance, such as CPU usage.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Active Batch Jobs

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data, so it can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.
Job Name	No	Yes	No	Prompted from currently active jobs.

Parameter	Rqd	Gen	*ALL	Notes
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, **CMD-*** could be used to selected all jobs running commands. This can be a generic or specific entry. If you wanted to select all jobs displaying menu PAYROLL, you would enter **MNU-PAYROLL**.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The number of active batch jobs meeting the selection criteria. A batch job is considered active if it used at least 100 milliseconds of CPU time during the monitoring interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Active Interactive Jobs

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	No	Yes	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems.
Accounting Code	No	Yes	No	Job accounting code. This is prompted from job accounting data and can only be prompted if job accounting data has been collected.
User Name	No	Yes	No	Job User Name. Prompted from list of user profiles.
Current User	No	Yes	No	Prompted from list of user profiles.

Parameter	Rqd	Gen	*ALL	Notes
Job Name	No	Yes	No	Prompted from currently active jobs.
Function	No	Yes	No	Job function is a three character code, as shown on WRKACTJOB. For instance, **CMD-*** could be used to selected all jobs running commands. This can be a generic or specific entry. If you want to select all jobs displaying the menu PAYROLL, enter **MNU-PAYROLL**.
Max Jobs In List	No	No	No	The maximum number of jobs to show in the details display.

Description

The number of interactive jobs meeting the selection criteria that have processed at least one transaction during the monitoring interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CFInt Overhead

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Max Jobs in List	No	No	No	Enter a number between 1 and 30.

Description

The percentage of CPU being used by CFInt microcode tasks.

Notes

On some older models, processor limits such as interactive capacity are enforced by microcode tasks known as the CFInt tasks. These start using CPU as interactive usage approaches capacity, and they can run completely out of control, taking up 100% of the system if left unchecked.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CPU Seconds per Transaction

See Built-in Element Types for more information.

CPU Usage

See Built-in Element Types for more information.

CPW Available

Parameters

None

Description

The CPW rating of the partition.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x

OS	Yes	No
VIOS		x

Example

A system has two processors and a CPW rating of 1,000. A partition is allocated one processor. The CPW available to that partition is 500.

CPW Percent of Available

Parameters

None

Description

The percentage of CPW being used.

Type

Composite

Notes

This figure is equivalent to CPU usage scaled to 100% for single partitions. This is particularly useful when you want to summarize CPU usage across partitions.

Because this is a composite figure based on CPW usage, it can be used to produce meaningful results when averages are calculated across partitions.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CPW Percent of Configured

Parameters

None

Description

The percentage of CPW being used.

Type

Composite

Notes

This figure is equivalent to CPU usage for single partitions. For partitions configured with capacity on demand, this figure can go over 100%. This is particularly useful when you want to summarize CPU usage across partitions.

Because this is a composite figure based on CPW usage, it can be used to produce meaningful results when averages are calculated across partitions.

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

CPW Used

Parameters

None

Description

The CPW used on the partition.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Example

A system has two processors and a CPW rating of 1,000. A partition is allocated one processor. The CPW available to that partition is 500. CPU usage is 75%. The CPW used on that partition is 375.

Database CPU Usage

See Built-in Element Types for more information.

Disk I/O

See Job Performance Data Types for more information.

Faults per Second

See Job Performance Data Types for more information.

Interactive Capacity Used

Parameters

None

Description

The percentage of the interactive capacity used for the partition.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Example

A system has an interactive capacity of 8%. Interactive CPU is running at 4%. The Interactive Capacity Used is 50%.

Interactive CPU Usage

See Built-in Element Types for more information.

Lock Wait Time

See Job Performance Data Types for more information.

Microcode Overhead

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Max Jobs in List	No	No	No	Enter a number between 1 and 30.

Description

The percentage of CPU being used by microcode overhead.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Permanent Addresses Used

Parameters

None

Description

The percentage of possible permanent addresses used by the system.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Processors Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Status	No	No	No	Select a status.

Description

The number of available processors being used. If 8 processors are available and the CPU percentage is 50%, the Processors Used value totals to 4 (50% of 8).

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Response Time

See Built-in Element Types for more information.

Subsystem Transactions/Hour

See Job Performance Data Types for more information.

System Overhead

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Max Jobs in List	No	No	No	Enter a number between 1 and 30.

Description

The percentage of CPU being used by system tasks. System tasks include system jobs, microcode tasks, subsystem monitors, spool readers and writers, and SCPF.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Temporary Addresses Used

Parameters

None

Description

The percentage of possible temporary addresses used by the system.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Temporary Storage per Job

See Job Performance Data Types for more information.

Temporary Storage Total

See Job Performance Data Types for more information.

Thread Count per Job

See Job Performance Data Types for more information.

Thread Count Total

See Job Performance Data Types for more information.

Total Jobs in System (Count)

Parameters

None

Description

Total jobs in system. This figure includes all job types, including subsystem monitors and system jobs.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX	x	
Linux	x	
VIOS	x	

Total Jobs in System (Percent)

Parameters

None

Description

Total jobs in system as a percentage of the configured maximum (system value QMAXJOB). This figure includes all job types, including subsystem monitors and system jobs.

Type

Complex

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

W/I Over A/W

Parameters

Values	Red	Gen	*ALL	Description
Pool Name	No	No	No	Select a pool name.

Description

A figure derived by dividing wait to ineligible transitions by active to wait.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i	x	
AIX		x
Linux		x
VIOS		x

Unix Communication Adapters Data Types

This group of element types monitors communication adapters for AIX and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Communications Adapter > 1 Retry

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of times one to fifteen retries were required to send a packet by this adapter. If the figure is consistently high, it is a possible indication that serious collisions are taking place.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter > 16 Retries

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of times more than sixteen retries were required to send a packet by this adapter. If the figure is consistently high, it is an indication that serious collisions or other errors are taking place.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter 1 Retry

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of exact times one retry was required to send a packet by this adapter. This is an incredible that low level collisions are taking place.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Collisions

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of transmission collisions detected for the specified adapter over the sample interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Packets Received

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of packets received for the specified adapter over the sample interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Packets Transmitted

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of packets transmitted for the specified adapter over the sample interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Receive Errors

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of input errors for the specified adapter over the sample interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Receive Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns (in KB) the data received during the sample interval for the specified network adapter.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x

OS	Yes	No
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Transmit Errors

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns the number of output errors for the specified adapter over the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Communications Adapter Transmit Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Adapter	Yes	No	No	The communications adapter name.

Description

Returns (in KB) the data transmitted during the sample interval for the specified network adapter.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Unix Communication Interfaces Data Types

This group of element types monitors communication interfaces for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Communications Interface Collisions

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the number of transmission collisions detected over the sample interval for the specified network interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Packets Received

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the number of packets received over the sample interval on the network interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Packets Transmitted

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the number of packets transmitted over the sample interval on the network interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Receive Errors

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the number of input errors detected over the sample interval for the specified network interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Receive Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the data received, in KB per second, over the sample interval on the specified interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Transmit Errors

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the number of output errors over the sample interval for the specified network interface.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Transmit Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the data transmitted, in KB per second, over the sample interval for the specified network interface.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Communications Interface Utilization

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Communications Interface	Yes	No	No	The communications interface name.

Description

Returns the percentage of capacity used over the sample interval for the specified network interface.

Notes

Robot Monitor takes the “line” speed from the network interface configuration and the number of bytes received and transmitted. From this, it estimates the percentage of capacity used. For a full duplex line, it takes the larger of bytes sent and received and divides it by the line speed x the

interval time. For a half-duplex line, it adds the two byte counts and divides the sum by the line speed x the interval time.

This will result as 0 for interfaces that do not report a line speed (for example, the loopback interface). Full duplex configuration is assumed.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Disk Adapters Data Types

This group of element types monitors disk adapters for AIX and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

NOTE: For all adapter metrics, if the adapter is not found on the node, Robot Monitor returns a value of *NF.

Adapter Frame Error Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the total number of frames received with errors over the collection interval. This is only available for fiber-channel adapters (otherwise, Robot Monitor returns a value of *NA).

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Adapter Link Failure Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the total number of link failure events over the collection interval. This is only available for fiber-channel adapters (otherwise, Robot Monitor returns a value of *NA).

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Adapter Read Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the amount of data read, in KB per second, through the adapter over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Adapter Transfer Rate

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the rate of data transfer (to+from) the disks connected to this adapter (requests/sec).

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Adapter Write Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the amount of data written, in KB per second, through the adapter over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Free Disk Space Across All Disks on Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the amount of free disk space remaining across disks connected to this adapter. If we cannot get the necessary data from the adapter, the value will be *NA. If the scale value is left as 0, Robot Monitor uses the total size of all connected disks as the scale value.

Reports as GB or TB, with a default of GB.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Name of Busiest Disk on Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the name of the disk that is busiest, in definition order, for the selected adapter. If no disk statistics are available, Robot Monitor returns a value of *NA.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Percentage Busy of Busiest Disk on Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the percent busy of the busiest disk for the selected adapter. If no disk statistics are available, Robot Monitor returns a value of *NA.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Percentage of Disk Space Across All Disks on Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the percentage of disk space used across disks connected to this adapter. If no disk statistics are available, Robot Monitor returns a value of *NA.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Percentage of Time Disks on Adapter Busy

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the percentage of time disks were busy for the selected adapter. If no disk statistics are available, Robot Monitor returns a value of *NA.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Status of Disk Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the status of the disk adapter. It can show a status of available, stopped, defined, or undefined.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Usage of Disk Space Across All Disks on Adapter

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Adapter	Yes	No	No	The disk adapter name.

Description

Returns the percentage of disk space used across all disks connected to this adapter. If no disk statistics are available, Robot Monitor returns a value of *NA

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Unix File System Monitors Data Types

This group of element types monitors file system monitors for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Error Report Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Label	No	No	Yes	Label text
Class	No	No	Yes	Any combination of H, S, O, U (hardware, software, operator, undefined)
Type	No	No	Yes	Any of P, T, I, U (permanent, temporary, information, unknown)
Resource Name	No	No	Yes	Name of resource

Description

Returns the number of error reports meeting the selection criteria of the configured parameters during the Collection Interval.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

File Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Path Name	Yes	No	No	The starting directory.

Parameter	Rqd	Gen	*ALL	Notes
File Name	No	No	No	Defaults to *. May include simple wildcards: ? to represent one character, or * to represent more. May not include path elements '..' or '/'.
Max Depth	No	No	Yes	Maximum path depth (number of levels to seek in the directory tree). The default is '*ALL'. '0' means to search no further than the starting directory.
Type	No	No	No	One or more of the following: b (block files), c (character files), d (directory), l (filesystem link), f (regular file), p (named pipe file), s (socket file), 'empty' (default - any type)
Owner	No	No	No	The account name or UID for the file or directory.
Group	No	No	No	The group name or GID for the file or directory.
Permissions	No	No	No	File or directory permissions, in octal representation.
Max Files in List	No	No	No	This is the maximum number of files to include in results.

Description

Returns the number of files under the starting directory meeting the selection criteria of the configured parameters.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

File Size

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Path Name	Yes	No	No	The starting directory.
File Name	No	No	No	Defaults to *. May include simple wildcards: ? to represent one character, or * to represent more. May not include path elements '..' or '/'.
Max Depth	No	No	Yes	Maximum path depth (number of levels to seek in the directory tree). The default is '*ALL'. '0' means to search no further than the starting directory.
Type	No	No	No	One or more of the following: b (block files), c (character files), d (directory), l (filesystem link), f (regular file), p (named pipe file), s (socket file), 'empty' (default - any type)
Owner	No	No	No	The account name or UID for the file or directory.
Group	No	No	No	The group name or GID for the file or directory.
Permissions	No	No	No	File or directory permissions, in octal representation.
Max Files in List	No	No	No	This is the maximum number of files to include in results.

Description

Returns the size of all files under the starting directory meeting the selection criteria of the configured parameters.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x

OS	Yes	No
AIX	x	
Linux	x	
VIOS	x	

Filesystem Blocks Free

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the amount of free disk space remaining. If the scale value for this type is left as 0, Robot Monitor uses the disk size as the scale value.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Blocks Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the number of file system blocks used.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Device Name

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the device name of a mounted file system. This may map to a local volume if under the control of a volume group.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Inode Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the percentage of total available inodes that are in use.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Inodes Free

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the number of file system inodes free. File system entries (files and directories) each have an inode. it is possible to have a file system with space free on which you cannot create new files due to a lack of inodes.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Inodes Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the number of file system inodes used.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Mounted State

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns 0 if not mounted, or 1 if mounted.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Space Free

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the amount of free disk space remaining. If the scale value for this type is left as 0, Robot Monitor uses the disk size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Space Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the percentage of space used for the selected file system.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Filesystem Space Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Mount Point	Yes	No	No	The mount point.

Description

Returns the amount of file system space used. If the scale value for this type is left as 0, Robot Monitor uses the file system size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Logical Volumes Data Types

This group of element types monitors logical volumes for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Logical Volume Read Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Logical Volume	Yes	No	No	The logical volume name.

Description

Returns the data read rate, in KB per second, over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Logical Volume Stale PP Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Logical Volume	Yes	No	No	The logical volume name.

Description

Returns the total number of stale physical partitions in the volume group.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Logical Volume Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Logical Volume	Yes	No	No	The logical volume name.

Description

Returns the status of the selected logical volume. The status can be undefined, defined, opened/stale, opened/synced, or closed.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Logical Volume Transfer Rate

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Logical Volume	Yes	No	No	The logical volume name.

Description

The transfer rate (in and out) in requests per second over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Logical Volume Write Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Logical Volume	Yes	No	No	The logical volume name.

Description

Returns the data write rate, in KB per second, over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Memory Data Types

This type of group element monitors the details of the memory allocated to the partition for Unix.

Page Faults per Second

Parameters

None

Description

The number of page faults per second over the sample interval. This includes faults that do not cause disk activity.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Pages Read from Paging Space, per Second

Parameters

None

Description

The number of pages read from paging space per second over the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Pages Written to Paging Space, per Second

Parameters

None

Description

The number of pages written to paging space per second over the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Percentage of Memory Used by Processes

Parameters

None

Description

The total percentage of real memory allocated to computational page frames (processes).

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Real Memory Free

Parameters

None

Description

The amount (in MB) of physical memory remaining unused, taken at the end of the sample interval. If the scale value for this data is left as 0, Robot Monitor uses the total physical memory as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	

OS	Yes	No
Linux	x	
VIOS	x	

Real Memory Usage

Parameters

None

Description

The amount of used physical memory, as a percentage of total physical memory. This is taken at the end of the sample interval.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Real Memory Used

Parameters

None

Description

The amount (in MB) of physical memory in use at the end of the sample interval. If the scale value for this data is left as 0, Robot Monitor uses the total physical memory as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Swap Space Free

Parameters

None

Description

The amount (in MB) of swap space remaining unused at the end of the sample interval. If the scale value for this data is left as 0, Robot Monitor uses the total virtual memory as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Swap Space Usage

Parameters

None

Description

Swap space utilization, as a percentage of total swap size. This is taken at the end of the sample interval.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Swap Space Used

Parameters

None

Description

The amount (in MB) of swap space used at the end of the sample interval. If the scale value for this data is left as 0, Robot Monitor uses the total virtual memory as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Total Virtual Memory

Parameters

None

Description

The total size (in MB) of active swap space taken at the end of the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Physical Disks Data Types

This group of element types monitors physical disks for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Average Disk I/O Queue Length

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The average length of the queue of I/O requests issued to the device over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	

OS	Yes	No
VIOS	x	

Average Disk Service Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The average service time in milliseconds for I/O requests that were issued to the device over the collection interval. This includes wait time and I/O time.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk I/O Wait Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The average time in milliseconds for I/O requests issued to the device to be served over the collection period. This includes the time spent by the requests in the wait queue and the time spent servicing them.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Read Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The amount of data read, in KB per second, from the device over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Space Free

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name. Select GB or TB - default is GB.

Description

The amount of free disk space remaining. If the scale value for this type is left as 0, Robot Monitor uses the disk size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Space Used

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name. Select GB or TB - default is GB.

Description

The amount of disk space used. If the scale value for this type is left as 0, Robot Monitor uses the disk size as the scale value.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The status of the selected disk device. Can report as undefined or combinations of active, missing, removed, noalloc, stale, hotspare, or backup.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Transfer Rate

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The rate of I/O requests that were issued to the device over the collection interval (requests/second).

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Usage %

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The percentage disk used for the selected disk.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Utilization %

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The amount of time over the sample interval in which disks were active.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Disk Write Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The amount of data written, in KB per second, to the device over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Service Queue Rate Full

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Disk	Yes	No	No	The disk name.

Description

The number of times in the collection interval that the service queue was full (not accepting any more requests).

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Processes Data Types

This group of element types monitors processes for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Maximum Process Run Time

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.

Parameter	Rqd	Gen	*ALL	Notes
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The maximum time that a process matching the selection criteria has been running.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The number of processes with the selected status.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process I/O Rate

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The number of process transfers per second over the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process Resident Memory

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.

Description

The amount (in MB) of non-swapped physical memory used by the processes at the sample time.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.

Description

The status of the selected job. *NF if not found. If more than one job is found that fits the selection parameters, Robot Monitor selects the more interesting status.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process Thread Count Total

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The total number of active threads running in the selected processes.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x

OS	Yes	No
AIX	x	
Linux	x	
VIOS	x	

Process Total CPU Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The percentage of CPU power used by the processes over the sample interval.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Process Virtual Memory

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The total size (in MB) of active swap space taken at the end of the sample interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Subsystem Status (Process)

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Subsystem Name	Yes	No	No	Name of the subsystem for jobs to be monitored. Prompted from active subsystems. You need to specify a library first before you can choose a subsystem.
Subsystem Library	Yes	No	No	The library for the subsystem.

Description

Returns the status of the selected subsystem: running, stopped, locked, or disabled.

Type

Text

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Thread Count per Process

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The average number of active threads per process, running in the selected processes.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	

OS	Yes	No
Linux	x	
VIOS	x	

Total Jobs in System (Count)

See System Performance Data Types for more information.

Total Process CPU

Parameters

Parameter	Rqd	Gen	*ALL	Notes
User	Yes	No	No	Process user name. Prompted from list of user profiles.
Group	No	No	No	Select a group.
Current User	No	No	No	Prompted from list of user profiles.
Command	No	No	No	Select a command.
Status	No	No	No	Select a status.

Description

The total amount of CPU time in seconds consumed by the selected processes.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Processors Data Types

This group of element types monitors processors for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

CPU Pressure

Parameters

None

Description

Percentage of time that processes were starved of CPU.

Note: Only available on Linux kernels 5.2 and later.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX		x
Linux	x	
VIOS		x

Percentage of CPU Entitlement Used

Parameters

None

Description

The percentage of entitled CPU capacity consumed. This is only useful if the partition is sharing processors.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Physical CPUs in Use

Parameters

None

Description

The number of physical processors used. This is only useful if the partition is sharing processors.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Processor CPU Usage

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Processor	Yes	No	No	Select a processor.

Description

The CPU utilization, non-idle time as a percentage of available CPU time. This value will never exceed 100%.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Processor CPU Usage I/O Wait

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Processor	Yes	No	No	Select a processor.

Description

The percentage of CPU time over the collection period that the CPU was idle, during which the system had outstanding I/O request.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Processor CPU Usage Idle

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Processor	Yes	No	No	Select a processor.

Description

The percentage of CPU time over the collection period that the CPU was idle without outstanding I/O requests.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Processor CPU Usage Kernel

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Processor	Yes	No	No	Select a processor.

Description

The percentage of CPU utilization for the sample period that occurred while executing at the system (kernel) level. This value will never exceed 100%.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Processor CPU Usage User

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Processor	Yes	No	No	Select a processor.

Description

The percentage of CPU utilization for the sample period that occurred while executing at the user (application) level.

Type

Composite

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Unix Volume Groups Data Types

This group of element types monitors volume groups for AIX, Linux, and VIOS partitions.

TIP: In the following tables, 'Rqd' means the parameter is required, 'Gen' means the parameter can be generic, and '*ALL' means select all instances for the parameter.

Volume Group Read Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Volume Group	Yes	No	No	The volume group name.

Description

The data read rate, in KB per second, over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Volume Group Stale PV Count

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Volume Group	Yes	No	No	The volume group name.

Description

The current number of stale physical volumes in the volume group.

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux		x
VIOS	x	

Volume Group Status

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Volume Group	Yes	No	No	The volume group name.

Description

The status of the selected volume group (active/complete, active/partial, or inactive).

Type

Integer

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	

Volume Group Transfer Rate

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Volume Group	Yes	No	No	The volume group name.

Description

The transfer rate (in and out) in requests per second over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x

OS	Yes	No
AIX	x	
Linux	x	
VIOS	x	

Volume Group Write Throughput

Parameters

Parameter	Rqd	Gen	*ALL	Notes
Volume Group	Yes	No	No	The volume group name.

Description

The data write rate, in KB per second, over the collection interval.

Type

Float

OS Compatible?

This table shows which operating systems you can add this data type to.

OS	Yes	No
IBM i		x
AIX	x	
Linux	x	
VIOS	x	