Robot SCHEDULE 12
User Guide

Copyright Information

Copyright © HelpSystems, LLC. All rights reserved.

Robot is a division of HelpSystems.
www.helpsystems.com/robot
U.S.: +1 952-933-0609
Outside the U.S.: +44 (0) 870 120 3148
Robot Technical Support email: support.robot@helpsystems.com

CONTENTS

ROBOT SCHEDULE

About Robot SCHEDULE

Robot SCHEDULE, advanced job scheduling software for IBM i (OS/400, i5/OS) running on IBM Power Systems (System i, iSeries, AS/400), automates common operator duties including job scheduling and batch job management. Schedule jobs based on time patterns or in reaction to events on any IBM i in a network. In any scenario, Robot SCHEDULE runs jobs as directed, freeing your operators to concentrate on other tasks and making them more productive. Robot SCHEDULE offers:

- Job scheduling software
- Batch job management system
- Audit reports for SOX compliance
- Enterprise job scheduler

Robot Automated Operations Solution

Robot SCHEDULE also works with the other products of the Robot Automated Operations Solution, giving you the ability to completely automate all your scheduling needs. Robot SCHEDULE runs all your jobs as scheduled, day after day, without your constant attendance. If a job fails or requires human intervention, Robot SCHEDULE works with Robot ALERT to send a text, email, or pager message directly to your operator.

If your systems are connected in a network using Robot NETWORK, our network management software, you can use Robot SCHEDULE in host mode to send jobs, scheduling objects, and system setup information among systems, receive statuses from other systems, and provide cross-system reactivity.

Enterprise Scheduling

Robot SCHEDULE Enterprise is an add-on for Robot SCHEDULE that provides job scheduling for Windows, UNIX, and Linux; servers connected to your IBM i. See Robot SCHEDULE Enterprise for more information.

Manage Jobs Across Your Network

If your IBM i is in a network using Robot NETWORK, you can use the Robot SCHEDULE Product Master to create jobs and product setup instructions on the host system and distribute them to selected nodes in the network. Robot NETWORK takes the instructions and installs them on the node systems. You also can send job setup instructions to another host system and have that system distribute the instructions to its nodes. See Using Robot SCHEDULE in Host Mode for complete information.

Create Reactivity with a Remote Skybot Scheduler Server

You can set up reactivity between Robot SCHEDULE and a remote Skybot Scheduler server. And, the reactivity can go both ways: a Robot SCHEDULE job or group job can react to a status sent from the Skybot Scheduler server, or a Skybot Scheduler job or job suite can react to a status sent from the Robot SCHEDULE server. See Overview of Reactivity for information on setting up the reactivity on the Robot SCHEDULE server.

About This Guide

This user guide is a reference guide to Robot SCHEDULE, the job scheduling, batch job management, and automated computer operator software for your IBM i (OS/400, i5/OS) running on IBM Power Systems (System i, iSeries, AS/400). The guide describes Robot SCHEDULE program features, the user interface, and provides some examples of how you can use them to automate your job scheduling tasks.

This user guide is for IBM i users who are responsible for setting up and managing Robot SCHEDULE job scheduling on your systems. You should be familiar with the following:

- Basic IBM i operations
- Basic PC operations
- Other Robot software installed on your systems

Accessing this Guide from the Robot SCHEDULE Explorer

This user guide is meant to be used as a reference while you work. Therefore, it's organized so the sections match the options in the product. The topics within each section basically follow the order of the Robot SCHEDULE options in the Explorer's Tree view. Press the **F1** key from most windows for help specific to that window.

Additional Guides

The **Robot SCHEDULE User Guide** describes using the Robot SCHEDULE IBM i interface. Some Robot SCHEDULE functions are available only through the green screen panels, and are described completely in that user guide.

The **Robot SCHEDULE OPAL Reference Guide** describes using OPerator Assistance Language (OPAL) in Robot SCHEDULE. It's a complete discussion of all OPAL operations, keywords, and variables, and provides examples of how to use OPAL for common scheduling tasks.

These guides are available in PDF format from the Robot Support Self-Service tab on our website.

Housekeeping Utilities

Robot SCHEDULE includes a group of useful commands and programs that do housekeeping tasks on your IBM i. See the *Robot SCHEDULE User Guide* for the IBM i for complete information on all the utilities and programs listed here.

General Utilities

You should schedule Robot SCHEDULE jobs to run these utilities at regular intervals.

CNLIDLEJOB

Use the Cancel Idle Job (CNLIDLEJOB) command to cancel unattended workstations if they have used no CPU seconds in a given period of time. This can improve your system performance because the system must use CPU cycles to manage every signed-on workstation, even when it is not in use. It also improves security for your system by preventing unauthorized access from unattended workstations.

You can exclude up to 30 workstations or user profiles from monitoring by CNLIDLEJOB. CNLIDLEJOB automatically excludes and does not cancel workstations signed on to other systems with a passthrough job. Group jobs can be optionally canceled.

Although CNLIDLEJOB does work for non-interactive jobs, you should use extreme caution. CNLIDLEJOB cancels batch jobs that exceed the time limit while waiting for someone to answer a message. It also cancels sleeper jobs (such as Robot SCHEDULE) if they exceed the time limit without using any CPU seconds.

Note: Only job types BCH and INT are included in the cancel.

AGEOUTQ

The AGEOUTQ command removes spooled files that have been in an output queue longer than the given time limit. Old spooled files should be removed from your system for two reasons:

- Spooled files take up a lot of disk space.
- The system keeps job information for a spooled file in work management areas for as long as the spooled file is on the output queue. This slows performance because the system must use CPU cycles to manage the information. Keeping output queues relatively clean can improve your system's performance.

You also can use AGEOUTQ to remove old job logs. You probably do not need job logs that are more than 8 hours old during a regular workday.

AGEIFS

The AGEIFS command removes objects that have not been accessed for a specified number of days from IFS directories. Create a Robot SCHEDULE job to run this command on a regular basis to make the IFS easier to manage.

- You can specify the objects to be purged by name and object type, directory, and the age of the objects. For objects that qualify for the purge, the date type that was specified in the command is also checked.
- Use a wildcard (*) in the Object Name to purge by file type. For example, "*.pdf" will purge all PDF files.

DLTHSTLOG

The DLTHSTLOG command removes old history logs. We recommend that you create a Robot SCHEDULE job to run this command once a week. The command should delete all logs over seven days old. You always will have the last seven days of logs available on your system.

DLTPRB

The DLTPRB command is an IBM command that deletes old device problem logs. Create a Robot SCHEDULE job to run this command once a week. Have it delete all logs over 30 days old. That will still leave the last 30 days of problem logs available on your system.

PRTDSKSPC

The PRTDSKSPC command prints the Disk Usage Report, which shows how much disk space is used by each library in your system. The size of each library is determined by adding up the sizes of all objects in the library.

The Disk Usage Report is most useful if it is run at regular intervals so you can calculate the size differences, compare them, and determine growth trends. We recommend that you run the report once a week.

The report shows the total size of all objects in a library. It does not include the library index so the library size reported differs from that shown on an IBM DSPLIB report. Also, the report does not show the actual total disk space used because it does not include temporary or microcode space.

Note: To read all objects for the report, the security officer must own RBT142, the command processor program.

Optional Utilities

The following optional utilities also are available:

RPLLIBLIST

The RPLLIBLIST command changes your current library list to a library list you have defined in Robot SCHEDULE. Use RPLLIBLIST instead of CHGLIBL so that you do not have to change your CL programs when you add or delete a library. All you need to do is change the library list as defined in Robot SCHEDULE.

The WRKLIBLIST command allows you to work with the library lists defined in Robot SCHEDULE.

RBTDUPSPLF

The RBTDUPSPLF command duplicates a spooled file and puts the copies in up to 25 output queues. You can attach one of the banner pages entered in Robot SCHEDULE Report Distribution to the spooled file copies.

RBT825

Call program RBT825 to calculate a date or a day number. RBT825 uses the Robot SCHEDULE calendar that you specify on the call.

RBT801

Call program RBT801 to get information about a date. You provide the date and the calendar to use, and RBT801 returns the day of the week, the week number, the last date in the month, the day number in the month, and whether the date is a workday or non-workday.

RBT802

Call program RBT802 to calculate a date from another date or the difference between dates.

RBT835

Call program RBT835 to calculate the number of minutes between two times.

IBM i Commands

Robot SCHEDULE includes several IBM i commands that allow you to simulate an event occurring, configure enterprise server ports, change the RBTENTUSER password, and start or stop enterprise server jobs. For additional help with these commands, press **F1** from the command prompt panel.

SNDEVTDTA

The Send Agent Event Data (SNDEVTDTA) command simulates an event occurring on one of your servers. This generates an agent event history record and initiates reactivity for all jobs that use the agent event as a prerequisite. All jobs that have met the defined prerequisites start.

RBECONFIG

Use the Configure Enterprise Server (RBECONFIG) command to customize the communications settings used by the enterprise server and the agent systems it communicates with. Changes to these settings must coincide with changes made to the agent systems that communicate with the enterprise server.

RBECHGPWD

Use the Change RBTENTUSR Password (RBECHGPWD) command to change the password of the RBTENTUSR profile. The RBTENTUSR user profile is used by the enterprise server job for Robot SCHEDULE Enterprise.

RBEENDENT

Use the End Robot ENTERPRISE Server (RBEENDENT) command to stop the Robot SCHEDULE Enterprise server jobs (ENTSERVER and ENTSERVER1).

RBESTRENT

Use the Start Robot ENTERPRISE Server (RBESTRENT) command to start Robot SCHEDULE Enterprise server jobs (ENTSERVER and ENTSERVER1).

RCLEXEC

If you are converting from Robot CLIENT, use the Analyze Robot CLIENT Usage (RBEANZRCL) command to search for instances of Robot CLIENT commands in preparation for migrating your clients from Robot CLIENT to Robot SCHEDULE Enterprise. If you want to use these commands with Robot SCHEDULE Enterprise, you need to replace the RCLEXEC commands with agent jobs.

Note: This command creates a report called Robot SCHEDULE Enterprise - Robot CLIENT Command Usage Report.

EXPLORER

Explorer

The Robot SCHEDULE Explorer is the main navigation tool in Robot SCHEDULE. You use the Explorer to set up and control all aspects of your job schedule. You can connect to a system; create and work with jobs, scheduling objects, and job schedule blueprints; set up and run Robot SCHEDULE reports; create job schedule forecasting; and set up Robot SCHEDULE, including job and product security.
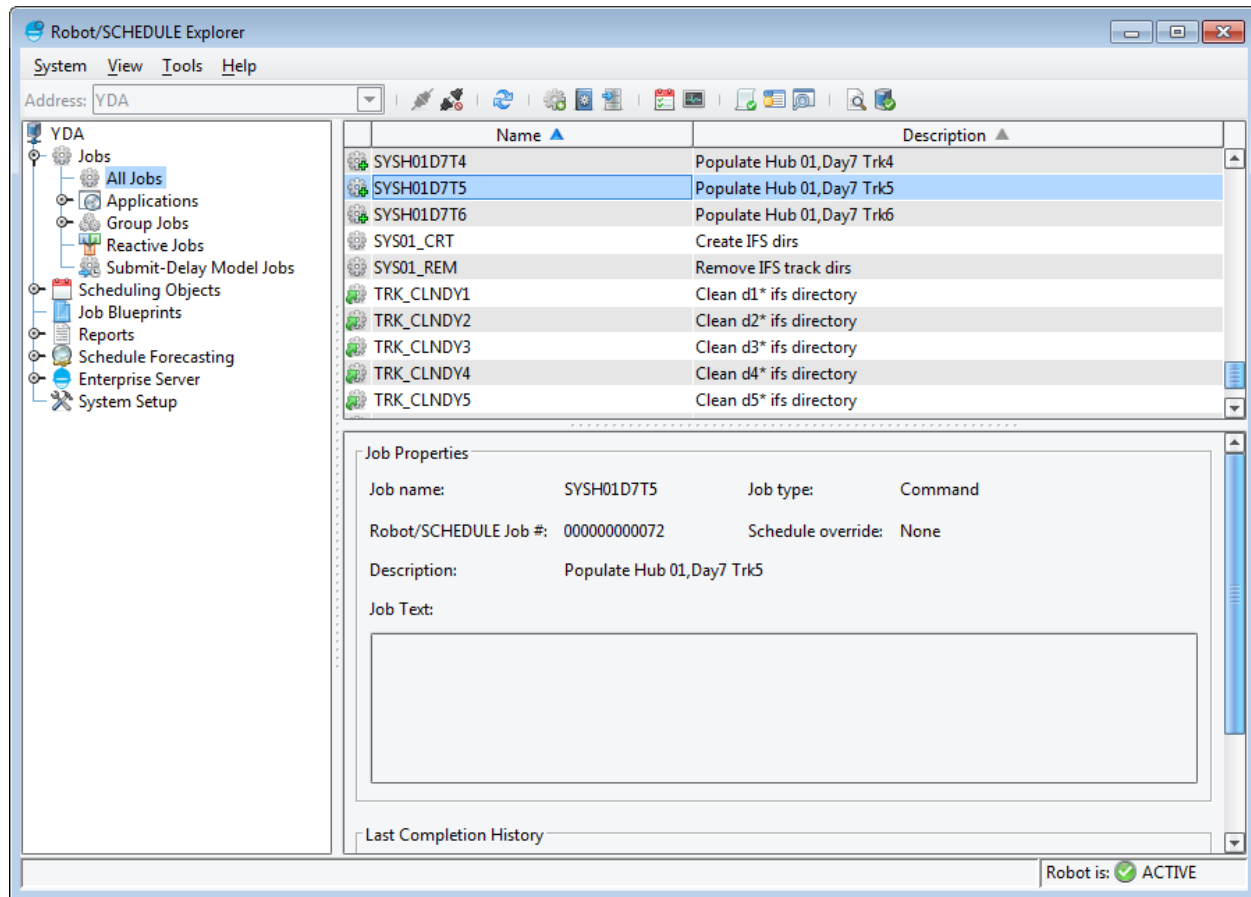
Use the Robot SCHEDULE Explorer to perform the following tasks:

- Schedule jobs.
- Create Job Blueprints to view your job schedules.
- Create Scheduling Objects to share across jobs.
- Schedule and manage jobs on connected Windows, UNIX, and Linux servers using Robot SCHEDULE Enterprise.

Throughout the Robot SCHEDULE Explorer you can display other menus. To determine whether there is a menu on a particular window or tab, select an object and right-click. If a menu displays, the active menu options are black; inactive menu options are grayed out.

See also:

- Explorer Views
- Explorer Menus
- Explorer Toolbar

Explorer Views

The Robot SCHEDULE Explorer allows you to display your network configuration graphically, using a top-down hierarchical structure consisting of three views: Tree view, List view, and QuickView. When you select an item in the Tree view, the List view displays details about that item. Similarly, when you select an item in the List view, the QuickView provides details.

Tree View

The Explorer Tree breaks down Robot SCHEDULE into major functional groups: Jobs, Scheduling Objects, Job Blueprints, Reports, Schedule Forecasting, Enterprise Server (if you have Robot SCHEDULE Enterprise), and System Setup. Under each group, you can see the types of objects (jobs, reports, and so on) that you can work with in Robot SCHEDULE. When you select an option in the Tree view, the List view displays a detailed list of the objects. The Tree automatically organizes the jobs and objects you create and allows you to sort them by type as you work with them.
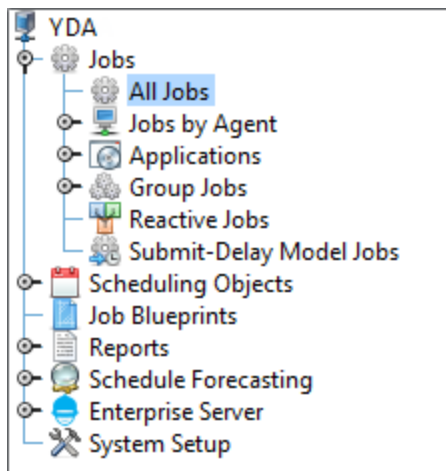
List View

The List view displays the detail of the selected option in the Tree view. For example, click All Jobs in the Tree view. The List view displays a list of all the jobs that have been created. Or, click the key next to Reports in the Tree view to display the Robot SCHEDULE report categories. When you click Schedule Reports in the Tree view, the List view displays the reports for the Schedule Reports category.

Name ▲	Description ▲
KMDSPAUDL	display auditlog
KMENDJOB	endjob abnormal
KMEVERY	my every job
KMEVRREACT	react to every job 1 time
KMFIRSTQTR	run first of the quarter
KMFISCAL	my fiscal job
KMFSTWEND	first full weekend
KMFTPFILE	ftp a file
KMHLDGRP	hold group members
KMJOBSETUP	

Quickview

The QuickView displays detailed information for the selected item in the List view. For example, if you click a job in the List view, the QuickView displays a summary of the job details. Or, if you click the Schedule Forecast report in the List view, the QuickView displays a brief summary of the report.

```
┌─ Job Properties ──────────────────────────────────────────────────────────┐
│                                                                            │
│  Job name:              KMFTPFILE          Job type:        Agent          │
│                                                                            │
│  Robot/SCHEDULE Job #:  000000000067       Schedule override:  None        │
│                                                                            │
│  Description:           ftp a file                                         │
│                                                                            │
│  Job Text:                                                                 │
│  ┌──────────────────────────────────────────────────────────────────────┐ │
│  │                                                                        │ │
│  │                                                                        │ │
│  │                                                                        │ │
│  │                                                                        │ │
│  │                                                                        │ │
│  └──────────────────────────────────────────────────────────────────────┘ │
│                                                                            │
└────────────────────────────────────────────────────────────────────────────┘
┌─ Last Completion History ─────────────────────────────────────────────────┐
│                                                                            │
│  Date completed:  05/05/2014   Job status:   Terminated                    │
│                                                                            │
│  Start time:      15:23:40     End time:     15:23:45                      │
│                                                                            │
│  Duration:        00:00:05                                                 │
│                                                                            │
└────────────────────────────────────────────────────────────────────────────┘
```

Explorer Toolbar

The Robot SCHEDULE Explorer toolbar allows you to

- Connect to and disconnect from systems.
- Refresh the information displayed.
- Launch the Job Creation Wizard.
- Use Robot GUIDE.
- Import Robot SCHEDULE objects.
- Display the Job Schedule List.
- Display the Schedule Activity Monitor (SAM).
- Display job completion history records.

- Display the job monitor event history records.
- Display the event monitor history records.
- View and print spooled files.
- Work with active jobs on the system to which you are connected.

Explorer Menus

The Explorer provides four menus that allow you to work with the Explorer and your system:

- Use the System menu to connect to a system and create system connection profiles.
- Use the View menu to change the appearance of the Explorer.
- Use the Tools menu to set system preferences such as turning sounds off and on, automatically opening the Schedule Activity Monitor (SAM) when you connect to a system, displaying tool tips, and checking automatically for software updates.
- Use the Help menu to display information about Robot SCHEDULE, for online help, to turn on logging (and specify the level of detail for the log), and to update your Robot SCHEDULE software.

Other Explorer Menus

Throughout the Robot SCHEDULE Explorer you can display other menus. To determine whether there is a menu on a particular window, or tab, select an object and right-click. If a menu displays, the active menu options are black; inactive menu options are disabled (grayed out).

System Menu
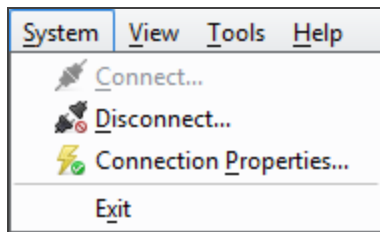
Use the System menu to:

- Connect to and disconnect from IBM i servers.
- Create, view, or edit system connection profiles.
- Exit the Robot SCHEDULE Explorer.

Connection Properties

Use the Connection Properties window to edit current and create new connection profiles for the system.
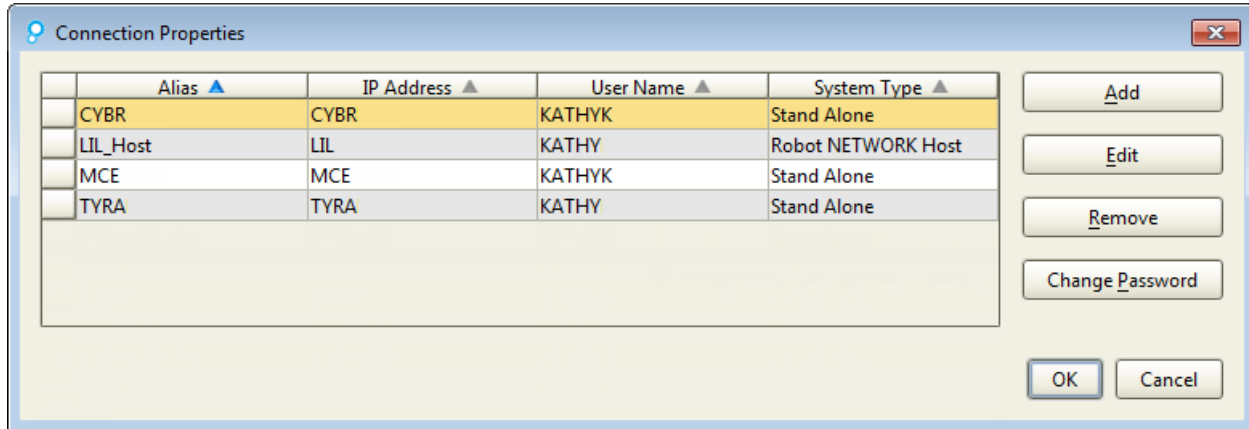
- Click **Add** to add a new connection profile. The Connection Properties dialog opens.
- Select a connection profile and click **Edit** to modify it. The Connection Properties dialog opens.
- Select one or more connection profiles and click **Remove** to remove them. You're asked to confirm the removal.
- Select a connection profile and click **Change Password** to change the current user's password on the IBM i system. When you change the password, it's changed on the IBM i system and also in the Connection Properties for Robot SCHEDULE.

Note: You can also accomplish the above functions by right-clicking a profile and selecting an option from the menu that opens.

Connection Properties Dialog

To open the Connection Properties window, click the **System** menu and select **Connection Properties**. Then, either add a new profile or edit an existing one.

Use the Connection Properties window to add or edit a connection profile for Robot SCHEDULE Explorer to an IBM i system that's running Robot SCHEDULE.

Robot SCHEDULE 12 User Guide
- 23 -

Complete the following fields:

- **Alias:** Enter the system's alias.
- **System Type:** If Robot SCHEDULE is a standalone installation on this system, select **Standalone**. If you also have the Robot NETWORK host installed on this system and you want to run Robot SCHEDULE Explorer in host mode. be sure to select **Robot NETWORK Host**.
- **IP Address:** Enter the **IP Address** for the system. Or, enter the system name if the IP address is unknown.
- **Port:** The default port number is displayed. If you selected Robot NETWORK host as the connection type, you can enter a different port number for the connection that's used by Robot NETWORK.
- **Login Confirmation:** Enter the **User Name** and **Password** for the system; enter the password again to confirm it. Click the **Verify** button to verify that the user name and password are valid on the system.
- **Advanced:** (For advanced users only.) Click the **Advanced** button if you're managing your ASP group from the GUI rather than from the user profile and you have an instance of the Robot products in *SYSBAS and/or an IASP. In the window that opens, you can identify the ASP group that you want to use for this connection profile.

Click **OK** to save your changes and return to the list of connection profiles.

Advanced Connection Properties

You can open the **Advanced Connection Properties** window from Connection Properties.

Use this window to identify the ASP group that you want to use for this connection profile.
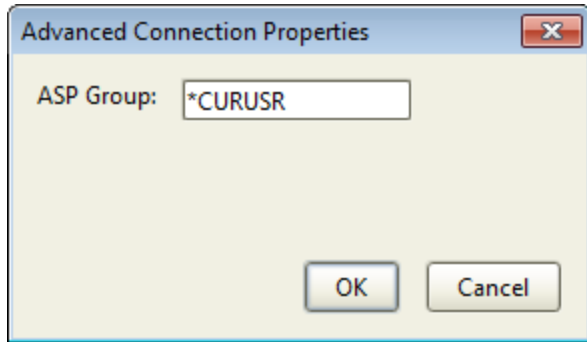
Enter the name of the **ASP Group** that you want to work with. The default is *CURUSR. Other acceptable values are *SYSBAS or the name of the independent ASP (IASP). **Note:** If you use the default value, *CURUSR, the ASP group that will be used for this connection profile is the one associated with the user you entered under Login Confirmation on the Connection Properties window.

Click **OK** to save your changes.

Removing Connection Profiles

To remove a connection profile, select it and click **Remove**. A dialog displays to verify the removal.
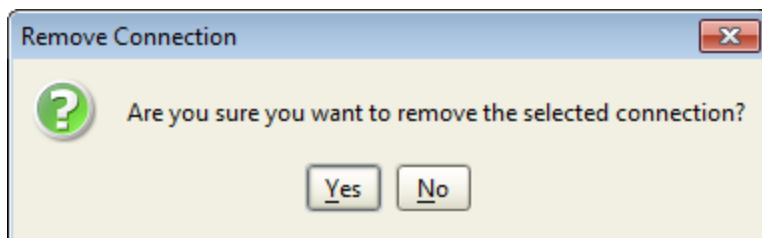
Notes:
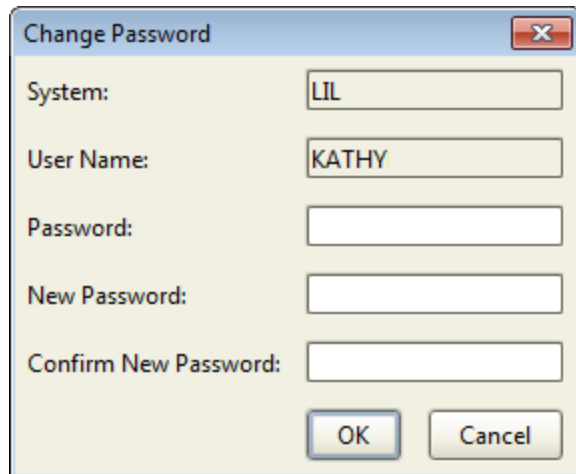
- Removing a connection profile only removes the connection for use by the Robot SCHEDULE Explorer.
- You cannot remove a connection profile for a host to which you're currently connected.

Changing a System Password

There are two ways to open the Change Password window:

- In the Tree view, right-click the system you want to work with and select **Change Password**.
- Click the **System** menu, and select **Connection Properties**. Select a system and click **Change Password**.

Use this window to change the IBM i password for the current user.

This window has the following fields:

- **System:** The name of the system you're currently logged in to.
- **User Name:** The user name that's currently logged into Robot SCHEDULE.
- **Password:** Enter your current password.
- **New Password:** Enter your new password.
- **Confirm New Password:** Re-enter your new password to verify it.

View Menu
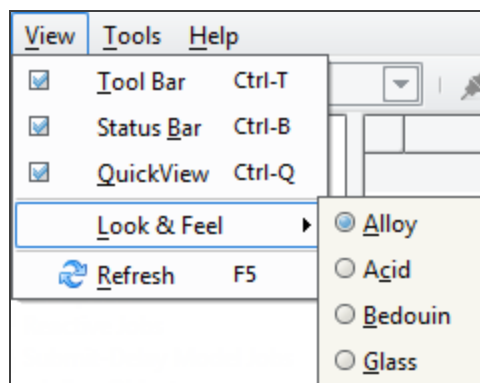
The View menu lets you change how the Robot SCHEDULE Explorer looks and the options that display. Using this menu, you can display or hide the Tool Bar, the Status Bar, and the QuickView, and you can change the look and feel of the Robot SCHEDULE Explorer window.

- Click **Tool Bar** to display or hide the Toolbar.
- Click **Status Bar** to display or hide the Status Bar.
- Click **QuickView** to display or hide the QuickView.

- Select **Look & Feel** to change how the Robot SCHEDULE Explorer window looks. Selecting a new Look & Feel changes the color and font scheme and how the buttons appear on the window. Robot SCHEDULE is shipped with a default Look & Feel of Alloy.
- Select **Refresh** to update the information displayed in the Tree view, the List view, and the QuickView.

Tools Menu
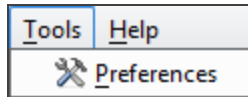
Use the Tools menu to control what Robot SCHEDULE does at startup time and while it's running. You can specify whether to play application sounds, display job schedule tool tips when you move the cursor over a tool, open the Schedule Activity Monitor (SAM) automatically, and check for Robot SCHEDULE software updates automatically. Robot SCHEDULE also allows you to specify the format used to display the date and time.

Robot SCHEDULE GUI Preferences
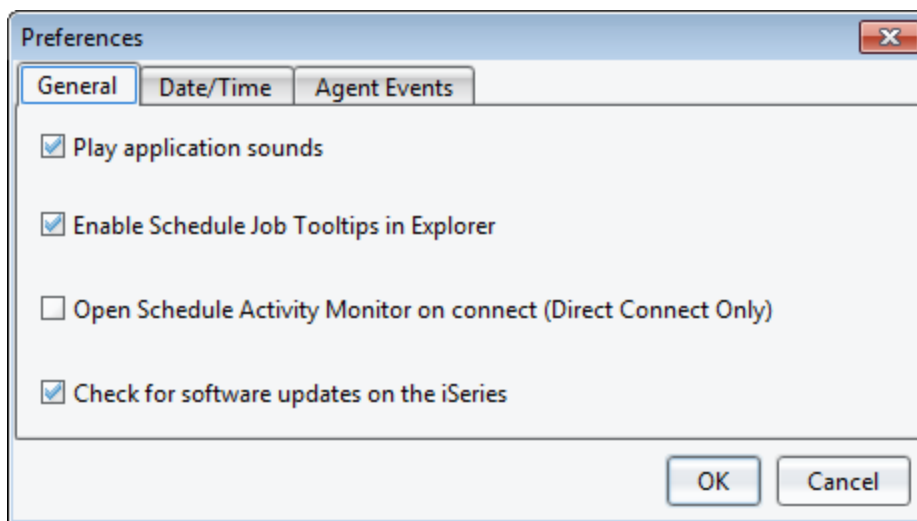
You use the Preferences panel to set up system sounds, software updates, and date/time preferences. If you have Robot SCHEDULE Enterprise installed, you can also set up agent event preferences from this panel.

General Tab

Use the General tab to set up general system behavior, such as controlling sound, enabling Schedule Job Tooltips, opening Schedule Activity Monitor when Robot SCHEDULE starts up, and automatically checking for Robot SCHEDULE updates on the IBM i.

Date/Time Tab

Use the Date/Time tab to select how you want the date and time to appear in Robot SCHEDULE. You can choose what order to set the day, month, and year; and what type of separator to use for the date and time.

Agent Events Tab

This tab is only available if you are running Robot SCHEDULE Enterprise. Use this tab to choose whether you want to automatically create forecast schedules when you create a new agent event monitor.

Help Menu
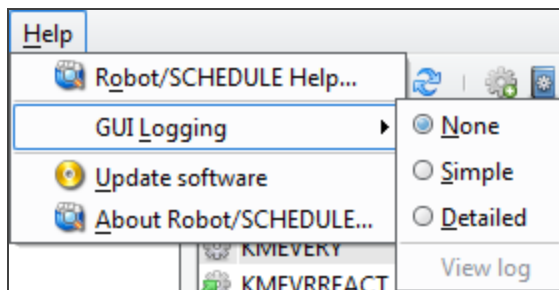
Use the Help menu to display Robot SCHEDULE online help. After you open the help, you can view the help by index, contents, or search the files for a specific topic. The Help menu also allows you to start GUI logging and display the About Robot SCHEDULE information.

- The Help menu displays Robot SCHEDULE online help.

- Select **GUI Logging** to write troubleshooting information to a log file on your system and specify the level of detail–None, Simple, Detailed. When you start Robot SCHEDULE, a dialog displays indicating the level of logging currently active.

  Note: You only need this information if requested by Robot Technical Support.

- Select **Update software** to have Robot SCHEDULE check to see if there is a more current version of Robot SCHEDULE Explorer software available. Robot SCHEDULE compares the version currently on the host to the one you are currently using.

  Note: You can have Robot SCHEDULE automatically check for later versions of Robot SCHEDULE Explorer software at startup time. You select this automatic update option (the default) using the Robot SCHEDULE Tools menu.

  Before you can load the latest Robot SCHEDULE Explorer software, you must close any other HelpSystems products that are currently running on the PC.

  - To load the latest version of Robot SCHEDULE Explorer and update your PC software, click **Yes** and follow the prompts that display.

  - To skip this process, click **No**.

- Select **About Robot SCHEDULE** to display technical details about Robot SCHEDULE.

    - Click the **Info** tab on the About Robot SCHEDULE window to see Robot SCHEDULE and PC system information. You can copy and paste the information into a file or the clipboard for troubleshooting and product support.

    - Click the **Release Notes** tab on the About Robot SCHEDULE window to display the Robot SCHEDULE source software agreements, as well as any last-minute information about the product.

Right-Click Menus

The Robot SCHEDULE Explorer and its toolbar contain additional menus that provide standard functions. To display a menu for a particular object, right-click the object. Active menu options display in black; inactive menu options are grayed out.
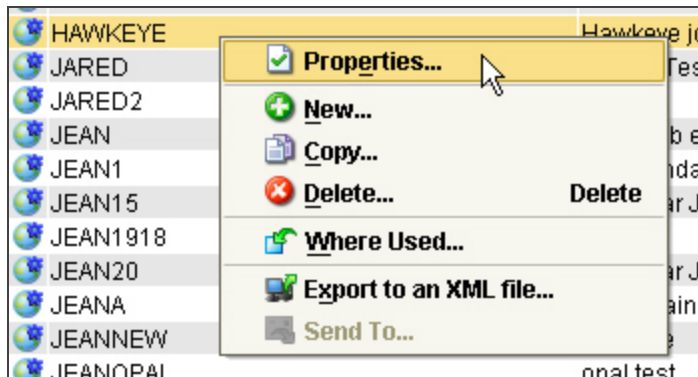
Creating and Deleting Objects

You can create new objects and delete existing objects directly from the Robot SCHEDULE Explorer.

To create a new object, select **New** from a menu. The Properties window for the object you are creating displays, allowing you to name the new object and specify its properties.

To delete an object, click the object to select it and select **Delete**. A confirmation window displays asking you to verify the deletion. The confirmation window also describes any other effect the deletion might have.

Renaming and Copying Objects

Use the menus to rename existing objects and copy a selected object and modify its properties.

To rename an object, select **Rename** from a menu. The Rename dialog displays allowing you to specify a new name for the object.

You can copy an existing object and then rename it and edit its properties. Select **Copy** from a menu to display the Properties window with a copy of the object. You can rename the new object and modify its information.

Printing Job and Job Text Information

The Explorer allows you to print job or job text information for any Robot SCHEDULE job.

To print job information, select the job and right-click to display the submenu. You can select from two print options for a job:

- Print Job prints the Job Record List report of the job. This report includes job setup, schedule, output, command, and last run information for the job.
- Print Job Text prints only the job's comments and notes in the Job Text report.

Each option allows you to specify a print queue and whether to schedule or submit the print job.

Saving Information to the Clipboard or a File

Many Robot SCHEDULE menus include the following options: Copy To Clipboard, Select All, and Save Selected. You can use these options to copy the contents of the active table, tab, listing, or area that you have selected to the clipboard or a text (.txt) file. You can then reuse this data with other applications, such as spreadsheets and text editors.

You can save some or all of the information displayed in a window. Highlight the portion you want to save, or right-click and click **Select All**. Select **Save Selected…** to save the contents to a file, or **Copy to Clipboard** to copy the selected data to the clipboard.

A dialog displays asking if you want to include the column header information.

If you save the selected data to a text file (.txt), a dialog displays allowing you to name the file and select the location where it will be saved.

Starting and Stopping Robot SCHEDULE

You can start or stop Robot SCHEDULE from the system control menu. The current status of Robot SCHEDULE displays in the lower-right corner of the Explorer.

Note: If Robot SCHEDULE is inactive or its status is unknown (because its monitor jobs or RBTSLEEPER have been ended), it cannot submit the jobs in your schedule.

1. To start or stop Robot SCHEDULE:
2. Right-click the system name at the top of the tree view.
3. Select **Start Robot SCHEDULE** or **Stop Robot SCHEDULE**.
4. A confirmation dialog displays asking you to confirm that you want to start or stop the product. Select **Yes** to confirm your request, or **No** to cancel it.

Filtering Data and Displays

In various parts of the Robot SCHEDULE Explorer you have the option to filter data and displays using the Data Filter Manager and standard filters supplied with Robot SCHEDULE or filters that you create. You can also sort information using column headings.

Data Filter Manager

The Data Filter Manager allows you to work with data filters for certain Robot SCHEDULE displays that can be filtered, such as the Status Center. You can use the Data Filter Manager to copy existing filters, to rename and edit filters, to create new filters from scratch, to set a particular filter as the default for a display, and to export/import filters to/from other locations.

1. To display the Data Filter Manager, click the data filter button   from any window that allows filtering.

2. When you select a filter from the list, the options you can use with that filter become active. You can edit or delete only the filters that you have created.
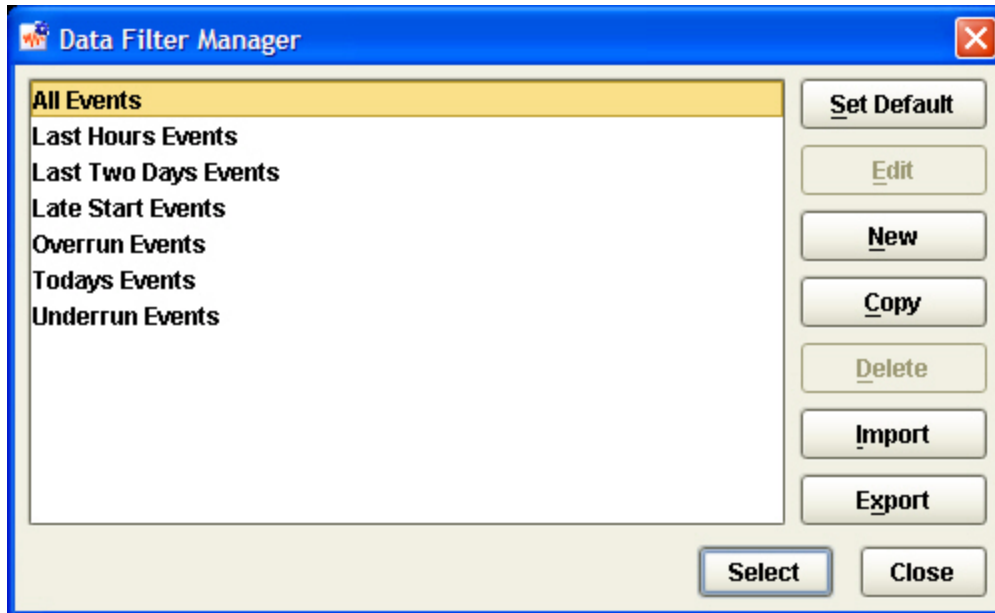
3. There are two ways to create a new data filter: Select a filter and click **Copy** to display a copy of the filter in the List Filter dialog that you can use as a template to create a new filter. Select **New** to display a blank List Filter dialog.

4. Name the filter and specify which conditions the new filter should match using the menu options (All or Any).

5. In the first column, click to display the drop-down and select the attribute you want to compare.

6. In the second column, select the comparison condition.

7. In the third column, enter a value to compare to the criteria you have selected; the value determines what is displayed in the list. You can enter a second or third restriction, as needed.

8. Click the **Clear** button to clear the List Filter window.

9. Click a minus (-) button to remove a conditional row; click a plus button (+) to add a conditional row.

10. Click **OK** when you are finished to return to the Data Filter Manager.

When you are finished, the filter appears in the Data Filter drop-down list for future use.

Sorting Information

If a column heading on a Robot SCHEDULE Explorer tab contains up and down arrows, you can use them to sort the information in the column based on the type of information.

When you click an arrow, the column displays with the information sorted based on the information and the type of arrow:

- The up arrow sorts from oldest to newest, least to greatest, or in alphabetical order (A-Z).
- The down arrow sorts from newest to oldest, greatest to least, or in reverse alphabetical order (Z-A).

Note: The column with the highlighted arrow is the column sorted.

Displaying Robot SCHEDULE Status

The Robot SCHEDULE status displays in the lower right corner of the Explorer window. You also can select **Show Robot SCHEDULE Status** from the System menu options to display a window showing the status.
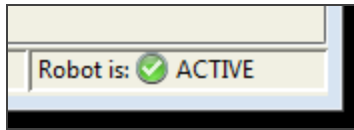
Robot SCHEDULE's status can be one of the following:

- Active: The Robot SCHEDULE monitor jobs have been started; Robot SCHEDULE can submit scheduled jobs
- Inactive: The monitor jobs have not been started; Robot SCHEDULE cannot submit scheduled jobs
- Unknown: Robot SCHEDULE is in the process of starting, or the monitor jobs or RBTSLEEPER were canceled. If the monitor jobs or RBTSLEEPER were canceled, the status remains unknown until Robot SCHEDULE is restarted.

Importing and Exporting Objects

Several types of import and export operations are available in Robot SCHEDULE:

- Importing from XML or exporting to XML.
- Exporting jobs from the Job Schedule List.
- Importing and exporting using RBTMRGLIB.
- Importing and exporting data filters.
- Exporting groups, reactive jobs, and applications.
- Exporting scheduling objects.

See the following sections for more information on the above import and export operations.

Importing From XML

To import an exported job or scheduling object:

1. Disconnect from the current system and connect to Robot SCHEDULE on another system.

2. Click the **Import** button on the Explorer toolbar and select the file you want to import.

   The Import Robot SCHEDULE Objects dialog box displays with a list of the objects to be imported. You can select which objects you want to import.

3. Click **OK** to start the import.

   The Import Results window displays the results of the import operation.

Notes:

If a scheduling object with the same name already exists on the system, the import function will not overwrite it. Instead, an error message displays, indicating that the object was not imported.

Jobs are imported even if a job with a duplicate name exists on the other system. A new job number is generated during the import. Scheduling objects that do not exist on the target system are created during import.

Exporting Jobs From the Job Schedule List

You also can export jobs from the Job Schedule List. Exporting from the Job Schedule List allows you to select multiple jobs for export.
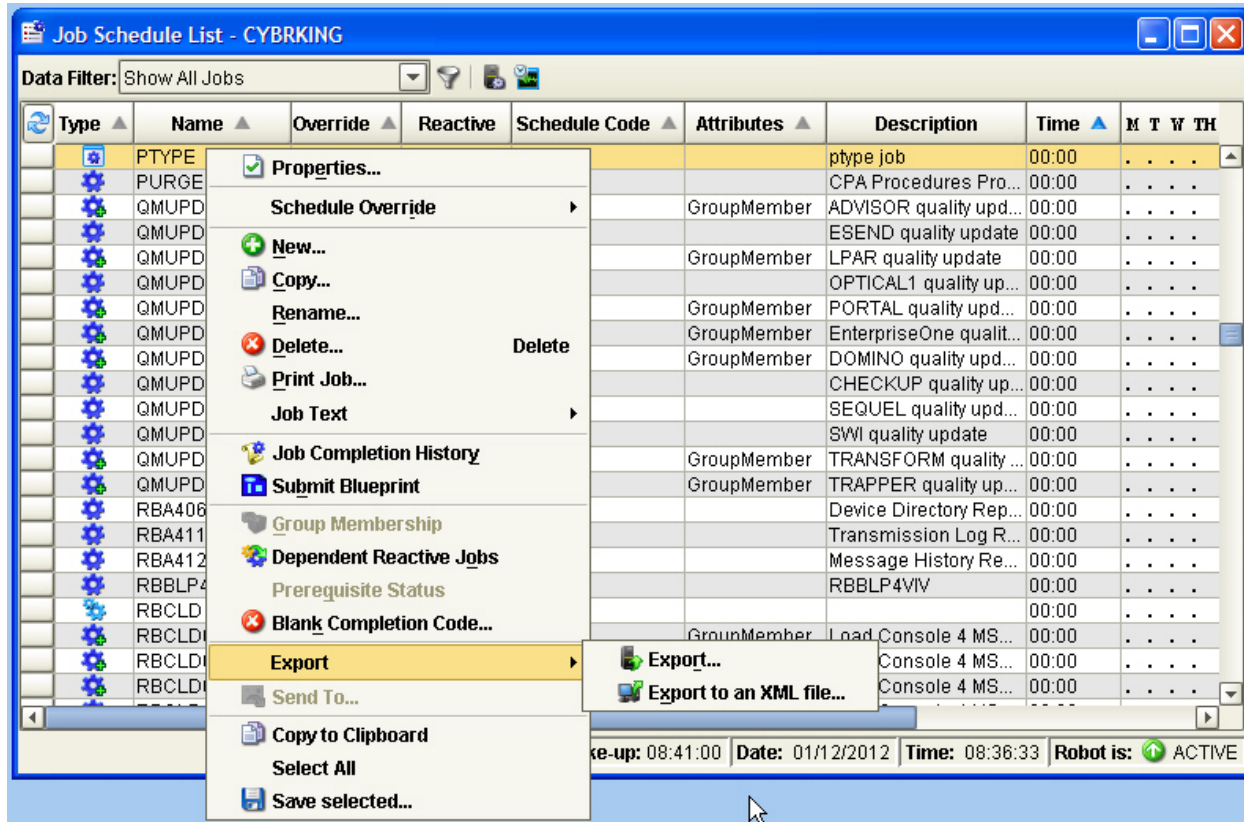
1. Select the jobs you want to export. You can select multiple individual jobs or a range of jobs. The jobs can be of any type, including group control jobs, group member jobs, reactive jobs, submit-delay jobs, and so on. Use the Ctrl key to select multiple jobs to export.

2. Right-click any of the selected jobs. Select **Export**, then **Export to an XML file**.

3. The total number of jobs being exported appears on the Export to XML dialog box. The total includes group member jobs (if the group control job was selected) and prerequisite jobs (if a reactive job was selected).

   If any reactive or group jobs are to be exported, you can decide whether or not to export all their prerequisite jobs and member jobs. Click the **...** button by Group Members and Prerequisite Jobs to open a window where you can remove any of those jobs from the export. If you remove a member or prerequisite job, it's associated objects will also be removed from the export.

4. Enter a file name for the XML file and click **OK**. The Select XML File window displays allowing you to specify a location for the XML file on your PC.

Exporting Jobs to XML

You can select a jobs, applications, or group jobs from the list view to export jobs to an XML file. You then can import the jobs on another system running Robot SCHEDULE.

To export jobs to XML:

1. Right-click the jobs, applications, or group jobs you want to export and select **Export to an XML file**.

   The Export to XML dialog displays the job and objects that will be exported.
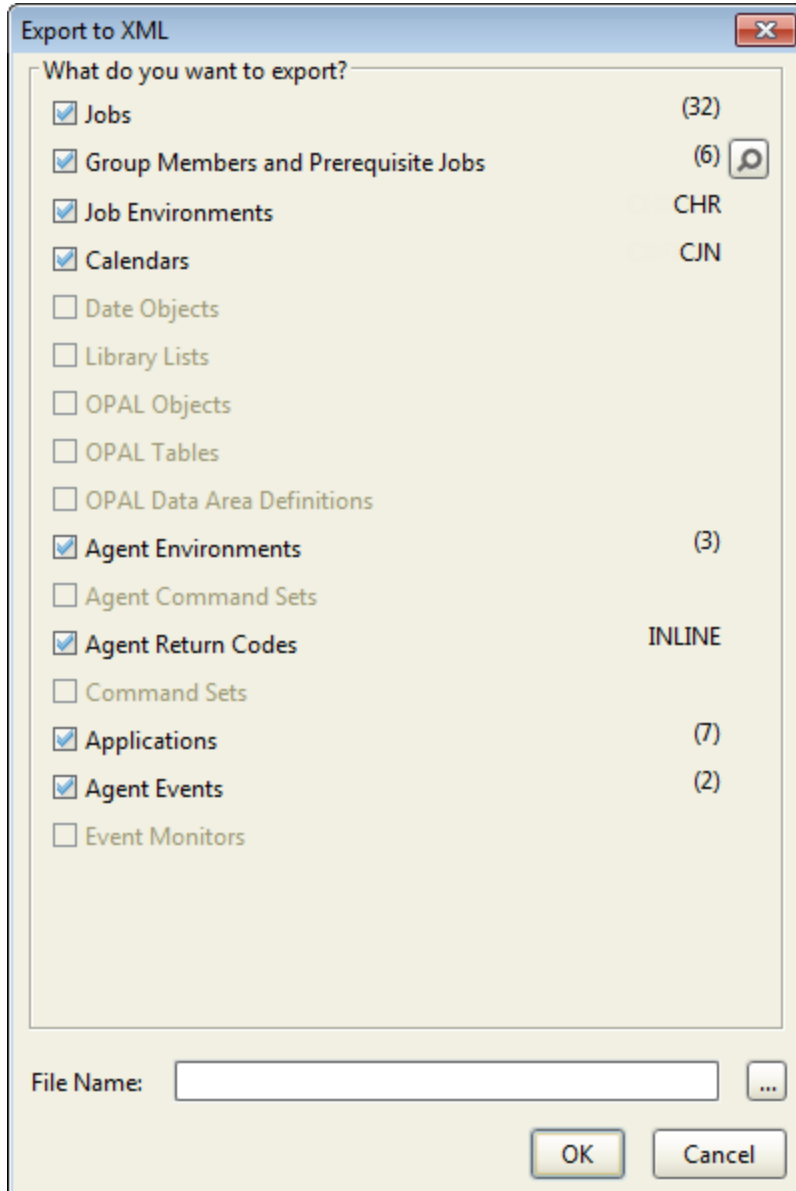
2. If there are scheduling objects attached to the job, their names display on the dialog box. Choose which scheduling objects to export with the job, if any.

   Notes:

   - If a scheduling object attached to the job has a common name that is used across systems (such the STANDARD calendar or environment), you can choose not to export it with the job.

- You can export only the scheduling objects by clearing the selection by Jobs and Group Members and Prerequisite Jobs.
- If any reactive or group jobs are to be exported, you can decide whether or not to export all their prerequisite jobs and member jobs. Click the Finder button by Group Members and Prerequisite Jobs to open a window where you can remove any of those jobs from the export. If you remove a member or prerequisite job, its associated objects will also be removed from the export.
- If you choose not to export the application with the job, the application must exist on both systems. Otherwise, the import will fail. Conversely, If you export the application name with the job, and the application does not exist on the other system, it will be created.

3. Enter a file name for the XML file and click **OK**. The Select XML File window displays allowing you to specify a location for the XML file on your PC.

4. Specify where you want to save the XML file.

5. Click **Save** to complete the export. A confirmation dialog displays to verify that the export completed successfully.

Importing and Exporting RBTMRGLIB Information

Exporting to RBTMRGLIB

You can use Robot SCHEDULE to export jobs and applications to the RBTMRGLIB library and move them to another system. Transfer the library to the other system and import the jobs into the Robot SCHEDULE database there. Export using RBTMRGLIB works differently from exporting to XML. And, you cannot move scheduling objects using RBTMRGLIB.

You can export jobs from the Job Schedule List in Robot SCHEDULE or by using the Robot SCHEDULE RBTMRG command. In either case, you can export jobs individually, by group, or by application. You can append the jobs to the records already in RBTMRGLIB, or clear RBTMRGLIB before copying the jobs. See the green screen version of the *Robot SCHEDULE User Guide* for complete information on using the RBTMRG command.

1. Select the jobs you want to export, right-click, and select **Export**, then **Export** (or **Export Group**, or **Export Application**). The Export window displays.

   Note: If Robot SCHEDULE won't be able to export all of the objects successfully, it displays a message in the Export window listing the items that won't export. If you have any objects listed, consider using the export to XML function instead.

2. Select if you want to clear all existing objects in RBTMRGLIB before you export the jobs.

3. Click **OK** to start the export. A message displays when the export completes successfully.

Importing From RBTMRGLIB

To import jobs, use the RBTMRG command to copy the records from RBTMRGLIB to the Robot SCHEDULE database. After importing from RBTMRGLIB, the jobs display in the Job Schedule List and in the Explorer. The copied jobs are identical to those on the original system, except for new job numbers. You can edit the copied jobs as needed for the new system.

Notes:

- If you export a reactive job, Robot SCHEDULE automatically exports its immediate prerequisite job. For example, suppose Job C is a reactive job with a single prerequisite, Job B. When you select to export Job C on the Job Schedule List, Job B also is exported. However, if Job B also happens to be a reactive job, Robot SCHEDULE will not export its prerequisites (unless you explicitly export Job B).

- Robot SCHEDULE does not export other items that are attached to jobs and affect how they run. These can include: library list objects, calendar objects, OPAL objects, environment objects, reserved command variables, and so on.

Importing and Exporting Data Filters

You can use the Data Filter Manager to import and export your data filters as XML files. This can be useful when you want to store a filter, or copy a filter to use on a different PC. You can export the filter to a location on your PC (or a network drive) and then use the Robot SCHEDULE Explorer on a different PC to import the filter from the location where you exported it.

Note: You only can import and export filters that you created using the same Data Filter Manager—Status Center or Packet.

You can use the Data Filter Manager dialog to export and import filters.

- To export a filter, select the filter, click **Export**, and specify the location using the Select export file dialog that displays.
- To import a filter, click **Import** and select the file to import using the Select Import file dialog that displays.

Exporting Jobs, Applications, and Scheduling Objects

You can export jobs, group jobs, applications, and scheduling objects. Simply select the items in the list, right-click and select **Export**. There are two options:

- **Export** (or **Export Group**, or **Export Application**) for exporting to RBTMRGLIB.
- **Export to an XML file** for exporting to an XML file.

Export to an XML file is the most versatile of the two options. It allows you to export jobs, applications, and group jobs from your system. You can also export scheduling objects, such as: calendars, command sets, date objects, event monitors, library lists, job environments, reserved command variables, and OPAL objects. You can then store these objects or import them to another system. This feature is useful for creating backups of applications, group jobs, and scheduling objects; testing scheduling objects; and copying scheduling objects across systems.

Note: For some objects, you will only see the **Export to an XML file** option.

Export Considerations

Keep the following in mind when you use the export to XML function:

- If you select a type of scheduling object (for example, calendars or date objects) from the Explorer Tree view, you can export all objects of that type.
- To export an individual job or scheduling object, select it from the List view.
- You can select multiple jobs from the List view or from the Job Schedule List (JSL) for export.
- When exported jobs and objects are imported to another system, they are added to the target system. No jobs or objects are replaced during import.
- If a job with the same name already exists on the target system, the imported job is given a new job number and added to the system. Jobs are allowed to have duplicate names.
- If you are importing a scheduling object and an object with the same name already exists on the system, the object is not imported. You must change the name of the object and re-export it with the new name.

- If you select to export a reactive job, all its prerequisite jobs are also selected to be exported. If the prerequisite jobs also have prerequisites, those jobs also are selected. To remove one or more of the prerequisite jobs from the export, click the Finder button by Group Member and Prerequisite Jobs in the Export to XML window.

- If you select to export a group job, all member jobs are also selected to be exported. To remove one or more of the member jobs from the export, click the Finder button by Group Members and Prerequisite Jobs (or by Member Jobs) in the Export to XML window.

  If the group name already exists on the target system, a new group name is generated when it is imported.

- If you select to export an application, all jobs with the same application name are exported.

- When you export a job, you have the option of exporting any scheduling objects associated with the job. You can select the objects (for example, a special calendar) that will be exported. If the objects associated with the job already exist on the other system, you do not need to export them.

  Additionally, it's possible to export the scheduling objects associated with a job without exporting the job itself! To do so, simply clear the check mark by the job in the Export to XML window.

- You cannot export the system setup.

Exporting Scheduling Objects

You can export scheduling objects to another system running Robot/SCHEDULE. You can select an object type from the Robot SCHEDULE Explorer Tree view to export all objects of that type, or select an individual object from the List view.

1. Right-click an object type in the Tree view to export all objects of the selected type or select a single object from the List view.

2. Select **Export to an XML file** to display the Export to XML window.
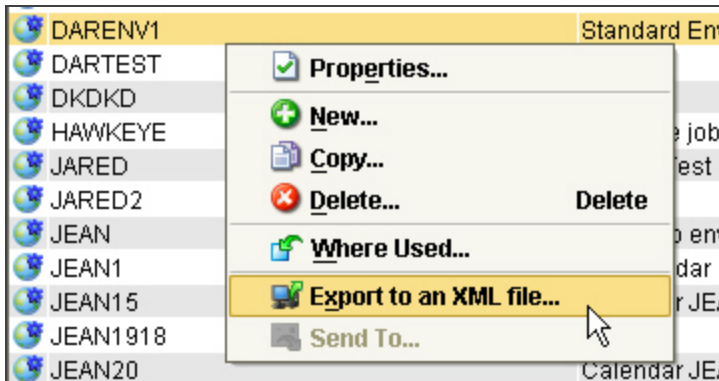
3. Enter a file name for the XML file and click **OK**. The Select XML File window displays allowing you to specify a location for the XML file on your PC.

Export Confirmation

Use the Export dialog to confirm the export operation and indicate whether the records should be added to the records already in RBTMRGLIB or should replace the records in RBTMRGLIB.

Working With Spooled Files

You can use the Robot SCHEDULE Explorer spooled file viewer to view, print, and delete spooled files on your system. You can work with all of the spooled files on the system, just the ones belonging to the user profile that is using the viewer, or create a custom filter to display certain spooled files.

To display the spooled file viewer, select a host, right-click, select the system name and select **Work With Spooled Files**.
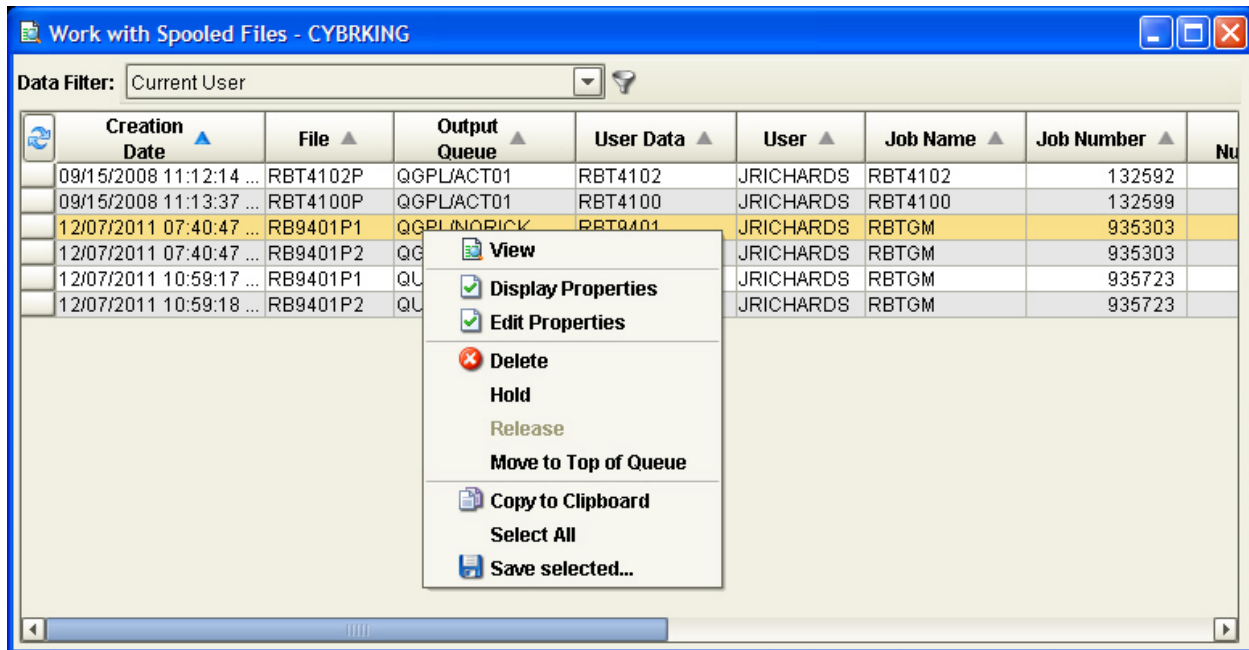
Initially, you can filter the display using the following options:

- All Spooled Files
- Current User (the default setting)

Click the Filter (funnel) button to view or create your own data filters using the Data Filter Manager for more information, see Filtering Data and Displays.

Right-click a file and select View to view the file and search for text strings. The View Spooled File window displays. This option is not available if you select multiple files.

Displaying and Editing Spooled File Properties

You can display and edit the properties of the spooled file you selected.

1. Select **Display Properties** to view the spooled file's properties. For details about these properties, refer to the appropriate IBM documentation. You can save the displayed property information to a file or the clipboard.
2. Select **Edit Properties** to edit the file's properties. Use the Spooled File Edit Properties dialog to change some of the properties of the spooled file you have selected.
3. After you have made your changes, click **OK**.

Deleting Spooled Files

Use the Delete option to delete one or more spooled files from the system.

1. Select the file or files you want to delete and click **Delete**. A confirmation dialog displays asking you to verify the deletion.
2. Click **Yes** to delete; **No** to cancel the deletion.

View Spooled File Window

Use the View Spooled File window to display the spooled file.
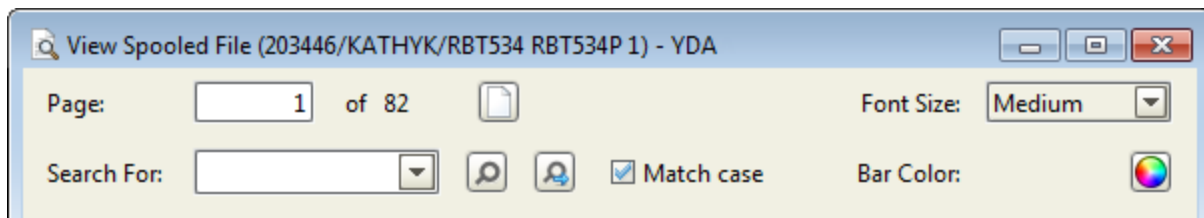
The View window allows you to modify the spooled file display using the following:

- **Page:** Enter a page number and click the Jump button to change the page displayed.
- **Search For:** Enter a text string to search for and click the Find Text button. Or, click the Search For drop-down and select a previously entered text string. The results of the search appear highlighted in the viewer. To repeat the search, click the Find Next Text button. Select the Match Case option to perform a case-sensitive text search.
- **Font Size:** Click the Font Size drop-down to change the size of the font used in the display.
- **Bar Color:** Click the Bar Color button to change the color of the bars that display in the spooled file. Changing the color can make it easier to locate items in a spooled file. The Bar Color window allows you to select a color for the spooled file from three palettes:
  - The Swatches palette allows you to select a color from a color palette. It also displays the recent colors selected.
  - The HSB and RGB palettes allow you to create your own colors and gradients manually.

View Disk Status Window

The View Disk Status window shows performance and status information about the disk units on the system you selected. This is the same as entering **WRKDSKSTS** from a command line in the green screen.

To open this window, right-click a system in the Tree view and click **View Disk Status**. If you're working in host mode, you can only view disk status for a node.

Unit	Type	Size (MB)	% Used	I/O Requ...	Request...	Read Req...	Write Req...	Read Data...	Write Data...	% Busy	ASP	Protection Type	Protection Status	Compression
1	6B22	139,816	88.2	17.1	10.6	6.3	10.9	19.0	5.8	1	1	None		No
4001	6B22	1,865	68.4	0.0	0.0	0.0	0.0	0.0	0.0	0	33	None		No

The table shows the following data:

- Unit: This is the same number used by the display disk configuration function of system service tools. If the disk unit identifier is 0, the disk unit is not configured.
- Type: The type of disk unit.
- Size (MB): The total amount of storage (in MB) that the unit can contain.
- % Used: The percentage of the disk that is currently allocated. If the unit is an independent ASP which is currently in a varied off state, this field may be blank.
- I/O requests: The average number of I/O requests for read and write operations that occurred per second during the elapsed time.
- Request size (KB): The average size of an I/O request in KB during the elapsed time.
- Read requests: The average number of requests per second to transfer data from the disk unit during the elapsed time.
- Write requests: The average number of requests per second to transfer data to the disk unit during the elapsed time.
- Read Data (KB): The average amount of data, in KB, transferred from the disk unit, per request, during the elapsed time.
- Write Data (KB): The average amount of data, in KB, transferred to the disk unit, per request, during the elapsed time.
- % Busy: The estimated percentage of time the disk unit is being used during the elapsed time. This estimate is based on the number of I/O requests, the amount of data transferred, and the performance characteristics of the type of disk unit. This field is blank if the performance characteristics of the disk unit are not available.
- ASP: The auxiliary storage pool identifier for the unit.
- Protection Type: This field shows whether the unit is under mirrored protection provided by the system software, and the type of protection.
- Protection Status: The protection status of the individual unit.
- Compression: Indicates whether or not the data on the unit is compressed.

View System Status Window

The View System Status window displays information about the system you selected.

To open this window, right-click a system in the Tree view and click **View System Status**. If you're working in host mode, you can only view system status for a node.

The following information is displayed:

Server Date/Time

- Displays the current date and time on the server.

CPU Status

- CPU Utilization %: Percentage of the system's processor currently being used.

Auxiliary Storage Status

- System ASP (MB): Amount of auxiliary storage, in MB, dedicated to memory pools.
- % System ASP Used: Percentage of total auxiliary storage being used.
- Total Auxiliary Storage (MB): Amount of auxiliary storage, in MB.

Jobs Status

- Jobs in System: Total number of jobs currently on the server.
- Batch Jobs Running: Number of batch jobs currently active on the system.

Users Status

- Currently Active Users: The number of interactive users who are currently active on the system.

Storage Pools

- System pool: System memory pool number.
- Pool size (MB): Size of the memory pool, in MB.
- Reserved size (KB): Amount of space reserved for the memory pool, in KB.
- Pool name: Name of the memory pool.
- Pool description: Description of the memory pool.

Automatic Updates

Whenever you connect to a system, Robot SCHEDULE checks the following:

- If you want to be notified of updates.
- If there is a newer version of Robot SCHEDULE on the server.
- If it's been at least five days since you were last prompted for an update.

If all these conditions are met, the Update available window displays. You can specify if you want to check for automatic updates on the Robot SCHEDULE Tools menu.

When the Update Available window displays, select if you want to download the latest version of Robot SCHEDULE and update your software. Click **Yes** and follow the prompts that display. To skip the download process, click **No**.

Note: You must close any other HelpSystems products that currently are running on the PC before downloading Robot SCHEDULE.

Job Monitor Event History

Job monitors allow you to monitor your job schedule for specific events: jobs that run too long, complete too quickly, or start later than their scheduled run time. You can specify the criteria for each monitored job at setup time. You also specify what Robot SCHEDULE should do if it identifies a job monitor event. Robot SCHEDULE can end a job or notify you by sending a message to the job's message queue; sending a text, email, or pager message via Robot ALERT; or sending a status to the Robot NETWORK Status Center.

When a monitored job reaches one or more of the criteria defined on the Job Monitors tab, Robot SCHEDULE takes the specified action and enters a record in the job monitor event log. You can display this log from the Robot SCHEDULE Explorer toolbar.

The Job Monitor Event Log displays the jobs for which job monitor events have occurred: jobs that ran too long (overruns), jobs that completed too quickly (underruns), and jobs that started later than their scheduled start time (late start). See Job Monitors for complete information on specifying job monitors.

Filtering the Job Monitor Event Log

You can filter the display to show a certain type of event, a certain time range for events, or all events using the data filter manager. The standard job monitor event data filters shipped with Robot SCHEDULE are shown below. In addition, you can create your own user-defined data filters.

- All Events
- Last Hour's Events
- Last Two Days' Events (default)
- Late Start Events
- Overrun Events
- Today's Events
- Underrun Events

Where Used

Use the Where Used window to display the jobs or job environments (if applicable) that use a scheduling object.

Object Finder

Use the Object Finder to locate an object, for example, an output queue for a report. When you change the filters on the Object Finder, click Refresh to see the most current system information. When you find the object you're looking for, highlight it and click **Select** at the bottom of the window.

Complete the following fields:

Library Filter

[...]

Select an object type.

Object Filter

Select ***ALL** to display all objects in the system. Select **LIBL** to display all objects in your library list.

Click **Refresh** to display the most current system information.

Library Finder

Use the Library Finder to select from a list of the libraries on your system.

Message Description Window

The Message Description window describes a message's attributes.

Message Text Tab

Shows the first and second level text for the message.

Field Data Tab

Shows the substitution variable fields defined for the message.

Replay Specifications Tab

Shows information about valid replies defined for the message.

Special Reply Values Tab

Shows the special reply values and replacement reply values defined for the message. A user can type a value, but other value is substituted and passed to the receiving program.

Message Attributes Tab

Shows the values (when defined) for severity, logging, level of message, alert, default program, default reply, dump, and CCSID parameters.

Message Details

Use the Message Details window to display details for the selected job log message.

Editing the Library List

You can use this window to edit the library list for the current session. This may be useful, for example, if you have a message set containing OPAL code that calls a program in a specific library. **Important:** When you edit a library list for a system, the change is in effect only during current session.

To open this window, right-click a system in the Tree view and select **Edit Library List** from the menu.

To edit the library list:

1. Type or select a different ASP Group, if necessary. **Note:** The ASP group you enter must contain this instance of Robot SCHEDULE.

2. Click **Add** to add a library to the library list. Type the library name in the blank line, or click the Finder button ( )

to select from a list of libraries.

3. To remove a library from the list, select the library and click **Remove**.

4. When you select a library, you can use the **Move Up** and **Move Down** buttons to change the library's position in the list.

5. Click **Import** to display the Job description Finder window. It lists the job descriptions within an ASP group, by library. Use this to find and import a library list that replaces the current one. **Note:** After you import a library list, you can always make changes to it by using the **Add**, **Remove**, **Move Up**, and **Move Down** buttons.

6. Click **OK**.

Product License Entry

The top of the Product License Entry window displays information about your system.

1. Enter your product license code in the License Code field.
2. Select **View 2** to paste a copied product license code in the License Code field.
3. Click the **Display License Agreement** button to display detailed license agreement information, which you can copy to the clipboard.

JOB CREATION

Overview of Creating Jobs

Robot SCHEDULE provides multiple ways to create jobs:

- The Job Properties window provides access to all the job fields. It lets you create or modify a job, enter a run schedule, and specify control options for the job. To create a new job using the Job Properties window, right-click **All Jobs** and select **New**.
- The Job Creation Wizard provides on-screen instructions for creating a job. If you are familiar with Robot SCHEDULE, use the Job Creation Wizard to create basic jobs quickly. After you create the job, you can select it from the Explorer and use the Job Properties window to specify unique job information or advanced scheduling options. All instructions for using the Job Creation Wizard display online as you set up your jobs.
- If you are an experienced green-screen user but are less familiar with using a graphical interface, use Robot GUIDE to help you create jobs. By design, using Robot GUIDE is similar to using the green screen version of Robot SCHEDULE. It walks you through the job creation process step-by-step, in much the same order.

You can start the Job Creation Wizard and Robot GUIDE from the Explorer toolbar.

After you create and save a job, it displays under one or more of the following job categories in the Robot SCHEDULE Explorer:

- All Jobs
- Jobs by Agent (for Robot SCHEDULE Enterprise users)
- Applications
- Group Jobs
- Reactive Jobs
- Submit-Delay Model Job

You can select the job and modify it, display it on the Job Schedule List, or view it in the Schedule Activity Monitor (SAM).

If you're using Robot SCHEDULE Enterprise and you to want run your job on an agent, without a password, there's additional setup to be done. See Agent Systems for details.

Overview of Reactivity

Robot SCHEDULE lets you schedule jobs that run only after certain prerequisite conditions occur. These jobs are called reactive jobs because they react to conditions. A prerequisite job can be a Robot SCHEDULE job, a batch job, a job on another system, or a job on a remote Skybot Scheduler server. Before the reactive job can start, the prerequisite job must return the specified status code. The status can be normal completion, abnormal termination, either normal completion or abnormal termination (this includes jobs that return a "W" completion status), submitted, running, delayed by OPAL, skipped by OPAL, or pending OPAL.

A reactive job can run only when its prerequisites are satisfied. However, a reactive job also can be limited by a run schedule. The options are:

- Specify prerequisites, but no run schedule: the job runs every time its prerequisites are met.

  When all prerequisites are met, the job runs, and the completion statuses on the prerequisite list are cleared.

- Specify prerequisites and run days or dates: the job runs only if it is scheduled for that day.

  When all prerequisites are met, Robot SCHEDULE checks whether the job is scheduled to run that day. If it is, the job runs. Robot SCHEDULE clears the completion statuses on the prerequisite list whether the job runs or not. Thus, the last of its prerequisites must happen on a run day or the job does not run.

- Specify prerequisites and a schedule with run days and times: the job runs at its next run day and time if its prerequisites are met.

  Each day and time that the job is scheduled to run, Robot SCHEDULE checks whether all prerequisites for the job are satisfied. If they are, the job runs. If they are not, Robot SCHEDULE sends a warning message that the job was scheduled to run, but dependencies were not met.

To schedule a job to run in reaction to prerequisites, complete the Scheduling and Reactivity tabs on the Job Properties window.

If you specify run times for a reactive job, you also must specify run days. You can specify more than one set of prerequisites for a reactive job. Use the OR logical operator to separate sets of prerequisites. Use the AND logical operator to link the prerequisites within a set. For example, suppose you are scheduling a reactive job that should run after job A completes abnormally or after jobs B and C or jobs B and E complete normally. You would enter a prerequisite list that looks like this:

Conjunction	Name	React to Status
	A	Abnormal termination
OR	B	Normal completion
AND	C	Normal completion
OR	B	Normal completion
AND	E	Normal completion

Like job B in the example, a job can appear more than once in the list if it belongs to more than one set of prerequisites.

Run Error Recovery Programs

When a job fails and Robot ALERT is installed, Robot SCHEDULE can send a pager message to notify you. But, you might want error recovery procedures run right away. A reactive job could execute error recovery procedures whenever certain jobs fail.

For example, you have a sales update job called SALUPD. You also schedule an error recovery job called RECOVER as a reactive job. In the prerequisite list for RECOVER, you would list the name of the sales update job, SALUPD, and a completion status of T for abnormal termination. Then, RECOVER will run whenever SALUPD fails.

You can run the same error recovery job when any of several jobs fails. For example, to run job RECOVER if job SALUPD, PAYUPD, or DBUPD fails, the prerequisite list for RECOVER would appear as follows:

Conjunction	Name	React to Status
	SALUPD	Abnormal termination
OR	PAYUPD	Abnormal termination
OR	DBUPD	Abnormal termination

The list of prerequisites can include batch job completions and other named events. The completion of a named event is signaled by a SNDRBTDTA command, a call to RBT661, or a status change sent from a remote Skybot Scheduler server.

Note: If a prerequisite job happens to run out of order, on a different day, or earlier in the day, it could affect how the reactive job executes.

Suppose a batch sales update job should run each evening immediately after all data entry operators have finished for the day. The operators could use a group profile that has an operator-only command processor program in its library list. When an operator signs off, the program executes a SNDRBTDTA command with the user name as the named event. Then, it uses the standard IBM signoff command. When Robot SCHEDULE receives the names of all operators in the list, it submits the sales update job.

If the prerequisite is a batch job, Robot SCHEDULE automatically records its status (submitted, running, skipped, delayed, pending, normal or abnormal completion).

- If the prerequisite is a Robot SCHEDULE job that runs on the same IBM i as the reactive job, Robot SCHEDULE updates the prerequisite site status automatically.
- If the prerequisite is a Robot SCHEDULE job that runs on another IBM i in the network, Robot NETWORK updates the prerequisite status automatically.
- If the prerequisite batch job is not submitted by Robot SCHEDULE, but the Robot SCHEDULE SBMJOB command has been installed, Robot SCHEDULE updates the prerequisite status automatically.
- If the prerequisite batch job is not submitted by Robot SCHEDULE, the prerequisite status must be updated by a SNDRBTDTA command or RBT661 call.

Cross-System Reactivity

If you have Robot SCHEDULE Enterprise, the enterprise job scheduler, you can schedule jobs on attached Windows, UNIX, and Linux servers. The server job can be a prerequisite to any other IBM i job in your enterprise. Normal Robot SCHEDULE job completion status information is created for each job.

For example, you can use Robot SCHEDULE to initiate a job that downloads the transactions from your Linux point-of-sale devices. When all of the jobs are complete, Robot SCHEDULE can run a IBM i job to summarize the transactions and transmit them to the home office.

Reactivity with Remote Systems

By specifying user jobs, you can schedule jobs or group jobs in Robot SCHEDULE that react to the status changes of jobs, job suites, or member jobs on a remote Skybot Scheduler server. See Using User Jobs as Prerequisites for

information on setting up the user jobs in Robot SCHEDULE. See the Skybot Scheduler "Remote Servers" documentation for information on setting up the reactivity on the Skybot Scheduler server.

Job Properties

The Job Properties window allows you to create new jobs and display and edit existing jobs. The window has multiple tabs, which allow you to define, schedule, and control the job. The tabs that appear depends on the type of job you select. In most cases, you will use only a few tabs to set up a job. For unique jobs, you may use most or all of the tabs.
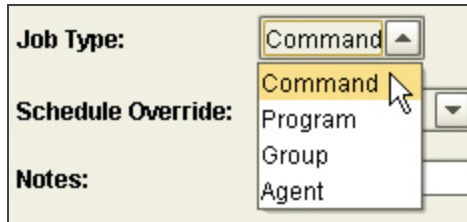
The Job Properties window uses the following tabs to help you define your jobs, depending on the type of job you select:

Tab	Properties
Initial Job Setup	Use the Initial Job Setup tab to select the job type, specify an optional application for the job, apply schedule override codes, and enter notes (or special instructions) related to the job. This is also where you specify LDA entry and job text information.
Scheduling	Use the Scheduling tab to select the scheduling method for the job. The scheduling method you choose determines if the job will run on a particular day of the week or month, run at a certain interval, run according to a date object, and so on. You can enter up to eight run times for the job.
Command Entry	If the job is a command-type job, the Command Entry tab allows you to add or edit the commands the job will run, edit and test the command variables, and more.
Group Members	If you're working with a group control job, the Group Members tab allows you to add jobs to the group and to change the order in which the members run.
Output	The Output tab allows you to define the output options for the job. Use this tab to specify the output queue, print text, number of copies, and job date for all print files produced by the job.
Control	The Control tab lets you define the job options for the job. You can change the job description, job queue, user profile, library list, environment, and more.
Reactivity	Use the Reactivity tab to schedule reactive jobs, which run only after certain prerequisite conditions occur. A prerequisite job can be a Robot SCHEDULE job, a batch job that runs outside of Robot SCHEDULE, or a job on another system. Use the Reactivity tab to add and edit prerequisite jobs, change the react-to status, and more.
Exception Scheduling	Use the Exception Scheduling tab to specify exceptions to the normal job schedule. You can specify whether or not the job should run on non-working days, specify a time range when the job can execute, make the job a Submit-Delay model job, apply an omit date object to the job's schedule, or use an OPAL object to determine when the job runs.

Tab	Properties
Job Monitors	Use the Job Monitors tab to monitor a job for specific events, such as taking too long to complete, completing too quickly, or starting after its scheduled run time. You can specify the actions Robot SCHEDULE should take if it detects one of the specified events. Use job monitors to help you avoid problems in your job schedule if any of these events occur.
Agent Environment *	Use the Agent Environment tab to set up environments on your agent system. For information on setting up shared environments, see the Agent Environments topic.
Agent Output *	Use the Agent Output tab to setup up how Robot SCHEDULE Enterprise handles these files.

* You must have Robot SCHEDULE Enterprise installed for these tabs to appear.

Using the Job Properties Window

The following buttons display at the bottom of the Job Properties window.
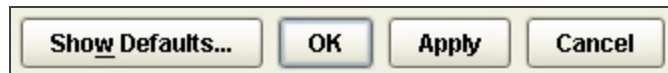
Show Defaults

Click this button to display environment defaults and job override values for various job attributes that display on the tabs on the Job Properties window.

OK

Click this button to save the changes to (and close) the Job Properties window.

Apply

Click this button to save the changes to the Job Properties window.

Cancel

Click this button to cancel the changes to (and close) the Job Properties window.

Initial Job Setup Tab

Use the Initial Job Setup tab on the Job Properties window to enter the job type, application (if any), schedule override code, and group control options (for group jobs only). The job number, assigned by Robot SCHEDULE, displays on this tab.

Option	Description
Job Type	Select a job type. A Command job runs on the IBM i. You can enter up to 999 commands to be executed by the job. When you select Command as the job type, the Command Entry tab on the Job Properties window is enabled. When you select another job type, this tab is disabled. A Program job calls a program and doesn't require parameters. A Group job is the control job for a group of jobs. When you select Group as the job type, Group Control and Group Processing options display on the Initial Job Setup tab. An Agent job runs on an agent system connected through Robot SCHEDULE Enterprise.*
Application	Enter the name of the application to be associated with the job (optional).
Job Number	This field is display only; it cannot be changed.
Schedule Override	Robot SCHEDULE lets you override the normal run schedule for a job as needed. Enter a schedule override code to override the run schedule for the job temporarily.
Notes	Enter job notes (up to 56 characters).
Group Name	This field only displays when Group is selected in the Job Type field. Enter a name for the group.
Group Control Options	These fields only display when Group is selected in the Job Type field. Use group control options for all jobs in group: Select this option to have every job in the group use the control options and group members. Use group control start date as the start date for all jobs in his group: Select this option when you need all the member jobs to have the same start date as the group control. For example: If the group starts on one day and runs past midnight, this option gives all members the same job date. Special considerations: If the group has members on remote systems, this option does not affect those members.
Group Processing Options	These fields only display when Group is selected in the Job Type field. Submit all jobs immediately: Select if the group is an immediate group. All jobs in the group are submitted at the same time, one immediately after another, without regard to abnormal job terminations. Submit jobs one at a time, stop if one job fails: Select if the group is a dependent group. If so, each job in the group is submitted only after the preceding job in the sequence has completed normally. If a job terminates abnormally, Robot SCHEDULE stops processing the group. You then can restart the group at any job in the sequence using the Start now with this Member option from the Job Schedule List menu.
Agent Information	This field only displays when Agent is selected in the Job Type field. Agent: Click the prompt button (...) to select an agent system for this job to run on. The Description field is filled in automatically when an agent system has been selected. When you select Agent as the job type, the Agent Output and Agent Environment tabs appear. **Note:** You must have Robot SCHEDULE Enterprise installed for these options to appear.

Option	Description
LDA Entry	Click the **LDA Entry** button to display the Local Data Entry Editor window. Use this window to enter LDA information for Command, Program, and Agent jobs. **Notes:** Every IBM i job (except group jobs) has a local data area (LDA) in which information can be passed between programs in the job. The programs can read their parameter values from the local data area. To schedule those programs in Robot SCHEDULE, you need to store the LDA values with the Robot SCHEDULE job. Robot SCHEDULE can store LDA values in a record. When it submits the job, Robot SCHEDULE copies the record to the jobs local data area.
Job Text	Click the **Job Text** button to display the Job Text Editor window. Use this window to document the job. You can enter run instructions, details on what the job does, alternative schedule instructions, or any other details about the job.

Scheduling Tab

Use the Scheduling tab to enter the scheduling method, as well as the days and times you want the job to run. The scheduling method you select determines what displays and how you enter run dates and times.

Note: We recommend that you do NOT schedule jobs between 23:55 and 00:05 because Robot SCHEDULE performs certain housekeeping tasks for itself around midnight.

Scheduling Methods

Select a scheduling method from the options below. The "Select days to submit this job" options change depending on the method you select.

Weekly or Monthly

Select the Weekly or Monthly option to run a job at the same time every day or every week.

- Select Weekly or Monthly, then select the days of the week or the weeks of the month on which you want the job to run.
- Enter the times you want the job to run.

INDAY - Daily Interval

To run the job once a day at regular day intervals, select INDAY – Daily Interval. Each job run date is calculated by adding the day interval to the previous run date. You enter a start date, the number of days between job runs, and the day type (work days, nonworking days, or calendar). The job runs only once on each date at the first run time you enter. Any additional run times are ignored.

- Start Date: Select the start date for the job. Each subsequent run date is calculated and then stored in this field.
- Run Every: Enter the number of days to add to the last run date to determine the next run time. You can enter up to 999 days.
- Type of Day: Select the type of day to be added to the last run date. Whether a day is a work day or not is determined by the calendar for the job.
- Limit to selected days: You can limit the job to run only on selected days. Select the day of the week and the interval for the job run.

EVERY - Timed Interval

To run a job at regular time intervals, select EVERY – Timed Interval. This is the best scheduling option to use for jobs that accumulate statistics, check if communication lines are down, or change journal receivers. You can limit the hours during which the job runs by entering a time range on the Exception Scheduling tab. Warning: If you don't enter a time range to limit the job, Robot SCHEDULE submits the job at regular time intervals all day long, which could affect system performance.

- Select the days of the week or the weeks of the month on which you want the job to run. Note: If you don't select a day, the system selects every day.
- Enter the number of minutes between runs. You can enter any value between 5 and 1429.

DATE - Date Object

Choose the DATE – Date Object scheduling method to run a job only on certain dates specified in a run-type date object. A Date Object must already exist or you must create it before you can select it on the Scheduling tab. See Scheduling Objects for complete information on creating Date Objects.

Note: This option allows you to add a date object that contains run dates only. An omit date object can be selected on the Exception Scheduling tab of the Job Properties window.

- Enter an existing date object name or click the Finder button to select one from a list of defined date objects.
- Enter the times you want the job to run.

DAYNO - Days of the Month

Select DAYNO – Days of the Month to run a job on the same day number each month or run a job the same number of days before the start of the next month. For example, to run a job on the 5th of each month, enter 5 as the job's day number. To run the job on the last day of each month, enter a negative 1. With either approach, the job runs only once on the scheduled day at the first time specified.

You can enter up to four day numbers (positive, negative, or any combination) for the job. You also must choose one of four day types: workdays, non-workdays, fiscal days, or calendar days. Robot SCHEDULE uses the calendar specified for the job on the Control tab of the Job Properties window. Calendar days use traditional month-ends; if you specify fiscal days, the calendar must specify fiscal month-ends. If the DAYNO value is greater than the number of day in a month (for example, day number 31 does not occur in all months), Robot SCHEDULE does not run the job that month.

- Enter the days of the month on which you want the job to run. You can enter up to four day numbers on which the job is to run each month. Permitted values are 1 to 45 for positive numbers and -45 to -1 for negative numbers. A

negative number indicates the number of days from the end of the month. Thus, -1 specifies the last day of the month, -2 is the second to the last day of the month, and so on.

● Select the type of day on which to run the job.

Note: If you select Calendar, both work and nonworking days are counted. If you select Fiscal, make sure the job's calendar has fiscal dates selected. If you select Work or Non-working, the calendar that the job uses affects how days are counted. For example, some calendars may have 5 work days in each week, while others have 6.

● Enter the time you want the job to run.

Selecting Times to Submit a Job

Enter the times you want the job to run.

You can enter up to eight times a day when Robot SCHEDULE is to submit the job. Enter the times in 24-hour clock format with no separating characters. For example, enter 15 minutes after midnight as 15; enter 3:30 a.m. as 330; enter 4 p.m. as 1600; and enter 11:50 p.m. as 2350.

Command Entry Tab

Use the Command Entry tab to define the commands in a Robot SCHEDULE command job. A Robot SCHEDULE job can execute just about any kind of command, even a command-within-a-command. Just create a command job and enter the commands Robot SCHEDULE is to execute.

Robot SCHEDULE allows you to run up to 999 commands in one command job. All commands under the same Robot SCHEDULE job name are executed at the same invocation level, so all file overrides work.

See also:
Command Entry Guidelines
Command Entry Methods
Reserved Command Variables
Handling Failed Commands
Built-In Functions

Testing Commands

You can test your CL commands with variables before you make them into a Robot SCHEDULE job. To do so, display the Command Variable window, select each command you want to test, and click the **Test** button.

Changing Command Parameters

You can change parameters on a Robot SCHEDULE command by inserting variables into the parameters. A command parameter is made up of a parameter keyword and its value. Instead of the parameter value, you can specify a Robot SCHEDULE reserved command variable or command variable.

Robot SCHEDULE substitutes values for the reserved variables or command variables before it executes the commands.

Commands and Job Logs

Every command executed by a Robot SCHEDULE job is written to the job log after a value is substituted for each variable. Thus, the job log shows every command, exactly as it was executed. You can display the job log, if it is available, from the Job Completion History window.

Command Entry Guidelines

Entering CL commands for Robot SCHEDULE jobs is very similar to entering commands on the IBM Command Entry panel:

- Enter one command on a line.
- All commands you enter or change are syntax-checked.
- You can display a command prompt window to fill in parameter values.
- You can copy any command that has already been entered in Robot SCHEDULE so you only need to enter a command once. Or, you can use a command set, which allows multiple jobs to use the same commands and allow you to update the commands, when necessary, only once for all the jobs that use them.
- You can specify what to do if the command fails.
- You can modify the library list that will be used by the job at run time.

Follow these rules when entering Robot SCHEDULE commands:

- Every command must be able to run in both batch and Exec settings. (The command syntax diagram for the command must have both a B and an Exec in the command entry code.) CL variables and conditional commands are not allowed.

- Enter one command on a line. If a command is longer than a line on the Command Entry tab, use the arrows on the command line to display the entire command, up to 3,000 characters long. Do not use the + continuation symbol at the end of command lines. You will get an error message if you do.

- If you want the job to continue if the command fails, specify this on the Command Entry tab.

- Use the Add Nested Job button on the Command Entry tab to add a nested job to a Robot SCHEDULE command. A Robot SCHEDULE job can execute the commands of another Robot SCHEDULE job.

- Robot SCHEDULE command variables should be numbered consecutively throughout the job, starting with 1; do not restart numbering at each command. If the same value is to be inserted more than one place in the job, use the same number (such as @1) in each place the value is to be used. When entering values to be substituted for the Robot SCHEDULE command variables, separate the values with semicolons (the ; symbol).

  List the values in the order corresponding to the variable numbers. Robot SCHEDULE substitutes the first value for each @1, the second value for each @2, and so forth.

- To code commands to run jobs in S/36 mode, you must use the STRS36PRC command to call a procedure. For example:

  STRS36PRC PRC(CHKPRNT)

Command Entry Methods

There are multiple ways to add commands to your Robot SCHEDULE job.

Be sure to read Command Entry Guidelines before entering your commands.

Manually Typing the Command

If you know the syntax you need for a job, you can click in the command line and type it manually.

Using Commands from Other Jobs

You can select a command from another Robot SCHEDULE job for this job to run.

1. Click the Command Finder button to display the Command Finder window. The window lists all the commands defined to Robot SCHEDULE jobs on your system.
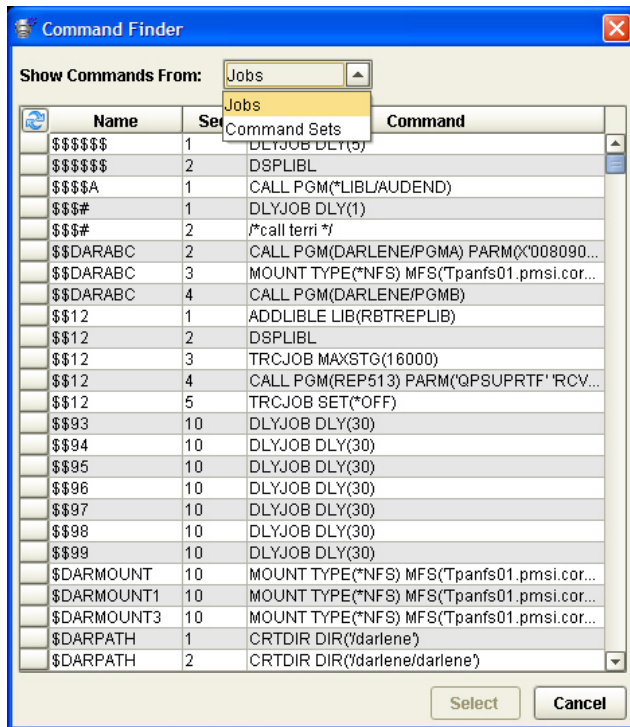
2. If you select Command Sets, the window lists the command sets you have defined.

3. Select the command or command set you want the job to run to enter the command on the command entry line on the Command Entry tab.

Using Command Sets

You can select a command set for this job to run. See Command Sets for more information.

Using System Commands

You can quickly add common system commands to your job.

1. To select from a list of system commands, click the Prompt button [...] to display the Command Finder.
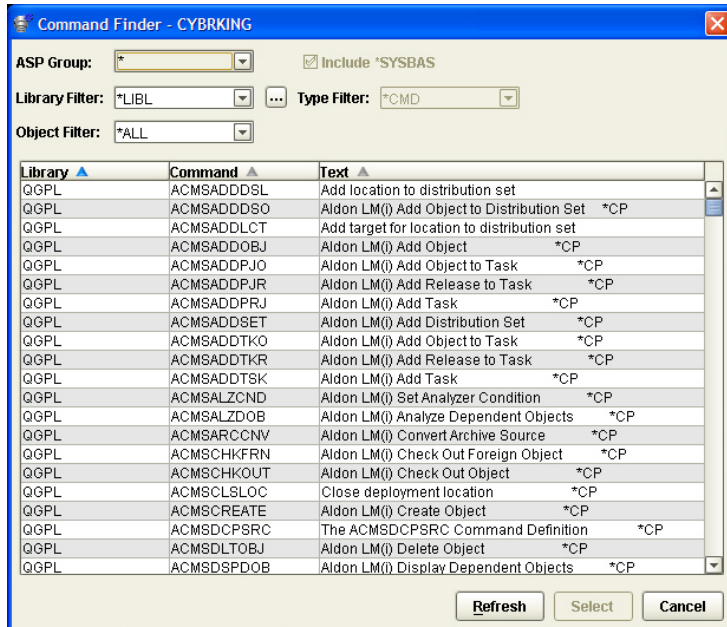
Note: If you enter a command on the line, clicking the Prompt button displays the command prompt window:

2. Select the command you want the job to run. The prompt window for the command displays.
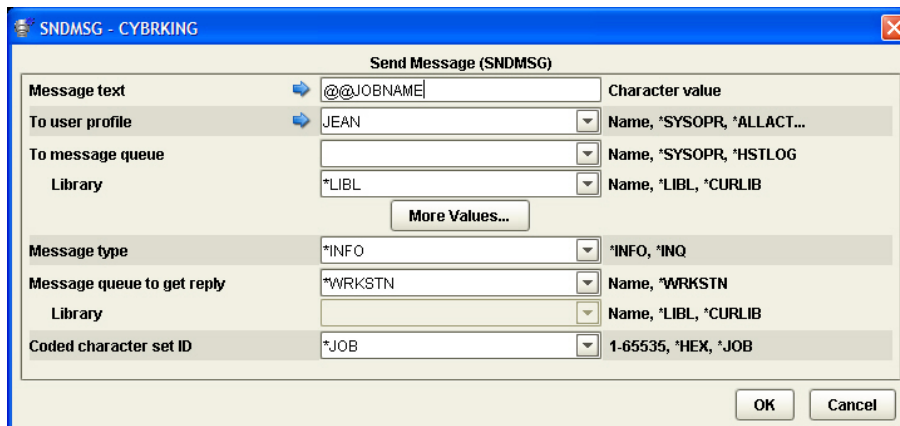
3. Complete the command prompt window with the parameter values. Click **OK** to save the command and enter it on the command line on the Command Entry tab.

Adding Reserved Command Variables

You can quickly add reserved command variables to your job command line.

1. Click the RCV button 🔵 to select a reserved command variable for the command.
2. Click **Edit Command Variables** to edit the command's variables. The Command Variables window allows you to specify values for the variables, change the order of the variables, and test new variables.
3. Click **OK** to return to the Command Entry tab.

Merging Other Job Commands With Your Job
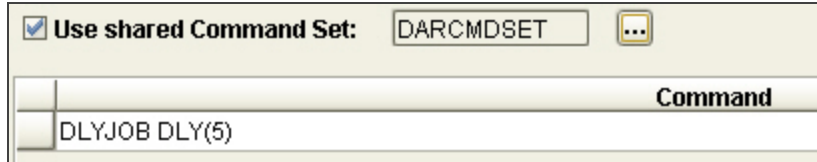
You can add commands from another Robot SCHEDULE job to your job. This other job is a nested job for the current job. You select the job that contains the commands you want to run and when the job runs, the commands from the nested job are run as if you had coded them in the current job.

Note: Any Robot SCHEDULE command variables are substituted before the Robot SCHEDULE commands are run by the job.

1. Click the **Add Nested Job** button to include the commands from another Robot SCHEDULE job. A list of jobs displays.
2. Select the job that contains the commands you want this job to run.

Using Shared Command Sets

You can use the Command Entry tab to select a shared command set—a command or group of commands that can be used by multiple jobs. A shared command set provides an advantage when you need to update a command; you can update it in one place and not for every job that uses the command.

See Command Sets for complete information on setting up a command set.

Notes:

- You can create and modify shared command sets only in the Robot SCHEDULE GUI.
- Shared command sets must be defined before you can select them for a job.

To use a shared command set:

1. Select **Use shared Command Set** to specify a command set for the job.
2. Click the Finder button to select from a list of defined command sets.
3. Select the command set you want the job to run. The name and commands for the selected command set display on the Command Entry tab.

Using Reserved Command Variables

When you enter a reserved command variable into a Robot SCHEDULE command, Robot SCHEDULE substitutes a global value for the variable before it executes the command. For example, the reserved command variable @@DATE substitutes the current system date. The following command uses @@DATE to pass the current system date to a program:

CALL PGM(QGPL/EMP407) PARM(@@DATE)

You can substitute reserved command variables into any spot in the command, as long as you use correct syntax. When substituted, reserved variables truncate the trailing blanks.

You can display a list of the reserved command variables under the Scheduling Objects category in the Explorer Tree view. Every reserved command variable is available to all Robot SCHEDULE jobs. Reserved command variables can be used with any command, such as CHGDTAARA to modify the LDA.

Robot SCHEDULE provides several predefined reserved command variables; you can also define your own. You can define a new reserved command variable that returns a constant value or inserts a value returned by a program. For more information on reserved command variables, see Scheduling Objects.

Command Variables

Every Robot SCHEDULE command variable begins with the @ character. The @ is followed by a number identifying the variable. For example, the following command contains two Robot SCHEDULE command variables:

CPYF FROMFILE(@1) TOFILE(@2)

You can enter values on the Command Variables window. Or, you can have the RBTBCHUPD command substitute values for the Robot SCHEDULE command variables (see the RBTBCHUPD Command section in the *Robot SCHEDULE User Guide* for the IBM i.

Suppose an RBTBCHUPD command substitutes the values PAYVEND and PAYHIST in the job record. When Robot SCHEDULE executes the command, it will look like this:

CPYF FROMFILE(PAYVEND) TOFILE(PAYHIST)

You can make the change either temporary, for just one run, or permanent to apply to all runs of this Robot SCHEDULE job. For more information, see the RBTBCHUPD section of the *Robot SCHEDULE User Guide* for the IBM i.

Command Variables Window

Use the Command Variables window to edit the command or add new variables. Click the **Add** button to add the value for the command variables. Click the **Move Up** and **Move Down** buttons to change the order of the variables. Click the **Test** button to check new variables.

Testing Command Variables

Use the Test Command Variables window to test new command variables.

Handling Failed Commands

After you have entered the commands for a job, you can specify what you want Robot SCHEDULE to do if the command fails with an informational-type error that does not require a reply message. By default, Robot SCHEDULE cancels the job if a command fails. You can specify that the job should continue to run. You also can modify the order in which the commands run or remove them from the job.

Use the On Error column to specify what Robot SCHEDULE should do if the command fails. You can select from the following:

- Cancel: Cancels the job.
- Ignore: Ignores the failed command; continues running the job.

Group Members Tab

Use the Group Members tab to add, edit, or remove members from a group of jobs.

Note: This tab only displays when Group is selected in the Job Type field on the Initial Job Setup tab.

The Group Members tab lets you choose jobs to add to the group. If you want to create new jobs to add to the group, set them up and then return to the Group Members tab. You can select any type of job, except another group control job, as a group member. If an individual job has a schedule, it is overridden by the group schedule when it runs as part of the group. Control options for individual jobs also are overridden if you selected that Group Control option.

- Click the **Add** button to add a Robot SCHEDULE job to the group.
- Click the **Add Remote Job** button to add a Robot SCHEDULE job on a remote system to the group. The Select a System window displays a list of systems visible to your system, as defined in Robot NETWORK. Select the system to display the Select a Job window on the remote system. Select the remote job you want to add to the group.
- Select a group member and click the **Edit** button to define schedule exceptions for the group member. The Group Member Exceptions window displays.
- Use the **Move Up** and **Move Down** buttons to change the order in which jobs run in the group.
- Click the **Remove** button to remove jobs from the group.

Output Tab

If the job you are scheduling produces print files, Robot SCHEDULE lets you specify output options for the job. In many cases, the only information you need to fill out is on the Output tab. On this tab, you can change the output queue, print text, number of copies, and job date for all print files produced by the job. If the job has an override print file command that is assigned to a specific output queue, the value you enter on this tab will be overridden.

Note: If you are setting up a Submit-Delay model job, you can enter *SBM for the output queue to have the output queue picked up from the submitted job rather than copied from the model job. See the Exception Scheduling tab for more information about Submit-Delay model jobs.

See also:
Printer Output Control
Job Date Calculator

Printer Output Control

Output Queue: Click the Finder button to select an output queue or select one of the following output control options for the job's output:

- *RBTDFT: Use the output queue specified by the job's environment. You enter the environment name on the Control tab.
- *JOBD: Use the output queue specified by the job description. You enter the job description on the Control tab.
- *USRPRF: Use the output queue specified by the user profile. You enter the user profile on the Control tab.
- *CURRENT: If Robot SCHEDULE is running the job, the output queue is the same as the job that submits the new job. If the DO schedule override code is used, the output queue is the specified by the user profile that was active when the DO was applied.
- *DEV: See the help for the IBM SBMJOB command before you use this option.

Print Text: Enter up to 30 characters to be printed at the bottom of the separator page of each report.

Number of Copies: Select the number of copies of each print file to be printed. The default is *JOBD, which uses the number of copies specified in the job description.

Output Priority: Select the output queue priority, 1 to 9, for the print files from this job. The default is *JOBD, which uses the priority specified in the job description.

Note: At job submission, the operating system verifies that the user profile used to submit the job has sufficient scheduling priority. If it does not, the profile's Highest Priority Scheduling value is used.

Job Date Calculator

Normally, the job date is the system date when the job was submitted. Robot SCHEDULE lets you change the job date so that it differs from the system date. You can change it to a specific date or have Robot SCHEDULE calculate the job date from the current date. To take advantage of this feature, your high-level language program must be coded to use the job date instead of the system date. For example, the RPG reserved word UDATE retrieves the job date. Before using this feature, you should check with your programmers.

Changing the date makes it easy to do monthly closings days after the actual end of the month. It also makes it easy to give a certain date to a report, no matter when the report job is run. Changing the job date does not affect the system date or the job date of any other job. You also can use the job date for output purposes if your job (programs) use the JOBDATE field.

Start With Date Type: Select a Date Type. The options on the window change depending on which Date Type you select. See the following table to help you determine how to complete the fields for the Date Type you select.

Date Type	Description	Example
System Date	In the Days to Add field, enter the number of days before or after the system date you want to use as the job date. Use the Calculated Job Date field to verify when the job will run based on what you have entered.	Today is September 16. If you enter 3, the job date will be September 19. If you enter -3, the job date will be September 13.
Job Description Date	Input is not allowed.	The date from the job description is used.
Current Month Day Number	Enter the day number in the current month that you want the job date to equal.	If today is September 21 and you enter 16, the job date will be September 16.
Previous Month Day Number	Enter the day number in the previous month you want the job date to equal.	If today is September 21 and you enter 16, the job date will be August 16.
Last Day of Current Month	Input is not allowed.	If today is September 21, the job date will be September 30.
Last Day of Previous Month	Input is not allowed.	If today is September 21, the job date will be August 31.
Prerequisite Job's Start Date	Input is not allowed.	If this is a reactive job, it will use the start date of the prerequisite job. If today is September 21 and the prerequisite job began on September 20, the job date for this job will be September 20.
Use Specified Date	Enter the job date you want to use in system date format.	If today is September 21, and you enter September 25, the job date will be September 25.

Days to Add: Add days to the calculation. This will change the calculated job date.

Report Distribution

Robot SCHEDULE Report Distribution ensures the right number of reports get to the right people on the right days, automatically.

When you schedule a report job on Robot SCHEDULE, you can specify how, when, and to whom reports are to be distributed. When the report job completes, Robot SCHEDULE processes the print files produced by the job. You can change print attributes, attach banner pages, and distribute the right number of spooled files to the right output queues for that day. For large reports that require can take longer to process (such as month-end reports), you can submit a separate report distribution job to a different job queue.

1. To use report distribution, select **Yes** from the Use Report Distribution section of the Output tab.
2. Click the **Setup** button. The Report Distribution window displays.
3. Specify whether to bundle the report by Print File or Report Recipient.
4. Select the Submit to Job Queue option if you want to submit a report distribution job to a job queue. Enter the name of the queue or use the prompt button to use the Job Queue Finder window.

   Note: Specifying a different job queue allows large reports or your night processing to finish sooner.

In the Print Files section, the *ALL entry is the default for all print files. If a print file does not have its own entry, Robot SCHEDULE uses the recipient list, print attributes, and banner page for the *ALL print file entry. If you delete the *ALL entry, it deletes all entries. You must then re-create the *ALL entry before you can add individual print file entries.

To define a new print file or copy a print file from another job, right-click Print Files:

● To define a new print file, right-click Print Files and select **Add Print File**. The Print File Properties window displays, on which you enter the name and description of the print file and any print attribute changes for that file.

See Print File Properties for complete information.

● Select **Remove All** to remove all print files for the job.

● To copy a print file already defined for another job, right-click Print Files and select Print File Finder. The Select a Print File window displays, which lists every print file defined in Robot SCHEDULE.

To work with the *ALL entry or another print file already defined for the job, right-click the print file entry:

● Select **Properties** to display or edit a print file's properties. See Print File Properties for complete information.

● Select **Add Recipient** to add a recipient for the print file. See Adding Report Recipients for more information.

● Select **Add Banner Page** to add a banner page to the report for the print file. See Adding Banner Pages for more information.

● Select **Copy** to copy the print file. The Print File Properties window displays allowing you to give the print file a new name and change its properties as necessary.

● Select **Remove** to remove a print file from the list.

● Select **Report Recipient Finder** to display a list of recipients from which you can select and add to the print file. See Adding Report Recipients for more information.

Adding Report Recipients

The Report Distribution window shows a recipient list for the selected print file entry. Enter a default recipient list for the *ALL entry. Enter recipient lists for individual print files only if their recipient lists should differ from the default. For example, suppose a job produces three print files, RPT1, RPT2, and RPT3. If Tom, Dick, and Harry are on the *ALL recipient list and Tom, Dick and Jerry are on the RPT3 recipient list, Tom and Dick will receive all three reports, Harry will receive RPT1 and RPT2, and Jerry will receive only RPT3.

Each recipient is identified by name, department, and location. Every recipient entry must specify a destination (output queue or user ID and system address). A recipient can receive multiple copies of the print file, but all copies for a recipient are sent to the same output queue.

● To see the recipient list for a print file entry, click the key next to the print file to open it. To see the default recipient list, select the *ALL print file entry.

● To add a recipient to a print file, right-click the print file and select Add Recipient. Use the Report Recipient Properties window to define the recipient information. The Report Recipient Properties window displays.

Report Recipient Properties

Complete the Report Recipient Properties window for each person who is to receive the report. Do this for documentation purposes, even if you do not change the job specifications at this time. You can enter distribution instructions for each recipient. You also can print the recipient list at the beginning of the report.

● Enter the name, department, and location information for each recipient.

● Select the days of the week and the weeks of the month the recipient should get the report. For example, if you select Monday and Every Week, the recipient gets the report every Monday that the job runs. If you select Monday and First week of month, the recipient receives the report only on the first Monday of each month. If you select Monday and Fifth week of month, the recipient receives the report only if there is a fifth Monday in the month. The week numbers in a month are deter- mined from the calendar used by the job.

Notes:

  ● If a job date is specified on the Output tab, this field uses the job date instead of the system date.

  ● To ensure that the recipient gets the report every time the job runs, select every day of the week.

● Enter the destination for the recipient's copies. Specify an output queue and library on the current system. Click

the **Prompt** button to select an output queue. Or, specify a user ID and system address when distributing to another system in your network. Press the **Prompt** button to select a system for the report distribution. If you do not specify a destination, the report copies cannot be distributed.

● Enter the number of copies to be printed for the recipient.

Print File Properties

Use the Print File Properties window to define or edit the print attributes for the *ALL print file, a specific print file, or a recipient. You do not have to enter a value for every print attribute. Enter only the attributes that differ from the general level; the other attributes are carried forward to the more specific levels.

To change print file properties for…	Display the Print File Properties window for the…
All reports produced by the job.	*ALL print file (right-click *ALL and select Properties).
All copies of one print file.	Print file (right-click the print file and select Properties).
All copies for one recipient.	Recipient (right-click the recipient and select Print File, then Properties.

To set up file print properties:

1. Right-click a print file and select **Properties** to enter or change the print file attributes.
2. To change the print file attributes for a recipient, double-click **Print File Properties**.

The Print File Properties window inherits the print file attributes from the *ALL print file. You can modify the values as needed. Use the following field descriptions as a guide.

● Print file name: Enter a name for the print file. If you are defining a new print file, you can enter a name for the print file. You cannot change the name for an existing print file.

● Description: Enter a description for the print file.

● Print text: Enter up to 30 characters to be printed on the separator page of the duplicated spooled files. The original spool file print text is retained and printed at the bottom of each page of the report.

● Output queue: Enter the output queue and library to which the spooled files are sent; leave this field blank if the report is to be distributed on another system only. Click the Finder button to select from a list of output queues.

● Other System Distribution: To send report copies to other systems in the network, enter a user ID and the system address. A copy of the print file is sent to the other system; the specified number of copies are printed from the default print queue for the user ID. Robot SCHEDULE cannot determine if the specified user ID is valid on the other system. If the user ID is invalid, the report copies are not distributed to the other system.

● Copies: Enter the number of copies to be printed (1 to 255).

● User data: Enter up to 10 characters that identify the spooled file.

● Page length: Enter the page length (print lines per page; 1 to 255).

● Form type: Enter the form type identifier of the forms on which the report should print. Enter * STD for the standard form type for the system.

● Page width: Enter the page width (characters per printed line; 1 to 378).

● Hold spooled file: Select Yes if the spooled files should be held on the output queue until the files are released. Not Set means an option has not been entered so the parameter will be the same as the original spooled file.

● Overflow line: Enter the maximum lines to be printed on a page (1 to 255). Printing then continues on the next page.

● Save spooled file: Select Yes if the spooled files should be kept on the output queue until the files are deleted. Not Set means an option has not been entered so the parameter will be the same as the original spooled file.

● Characters per inch: Enter the horizontal print density in characters per (CPI). Click to select the from a drop-down list. Not Set means an option has not been entered so the parameter will be the same as the original spooled file.

- Output priority: Enter the priority (1 through 9) of the spooled file in the output queue. Enter *JOB if it should be the same as that of the job that created the spooled file.
- Save undistributed: Select one of the following for Save undistributed (print files):
    - Not set: An option has not been entered so the parameter will be the same as the original spooled file.
    - Yes: Leave the original spooled file on the output queue only if it is not distributed. If it is distributed, it is deleted.
    - No: Delete the original spooled file from the output queue.
    - Original: Leave the original spooled file on the output queue.
    - Hold Original: Leave the original spooled file in Held status on the output queue. For example, if the job is run on a Tuesday, but the distribution instructions indicate that no one is to receive the report on a Tuesday, the report is not distributed. Or, if no destination is specified for the report copies, that is, no output queue or network system address is specified, the report is not distributed. If the spooled file is not deleted, it remains on the output queue specified on the Output Options tab of the Job Properties window.
- Lines per inch: Enter the vertical print density in lines per inch (LPI). Click to select the LPI from a drop-down list.

Adding Banner Pages

You can set up a banner page for the *ALL print file, a specific print file, or a recipient. To modify an existing banner page, right-click the banner page on the Report Distribution window and select **Properties**.

To add a banner page for…	Display the Banner Page window for the…
All reports produced by the job	*ALL print file (right-click *ALL and select Add Banner Page)
All copies of one print file	Print file (right-click the print file and select Add Banner Page)
All copies for one recipient	Recipient (right-click the recipient and select Add Banner Page)

To set up a banner page:

1. Select the print file or recipient for which you want to create a banner page.
2. Right-click and select **Add Banner Page** to display the Banner Page window.
3. Use the **Title Lines** boxes to enter up to three 15-character lines to be printed inside a box on the first page. The default title for a print file entry lists the job name and print file name; the default title for a recipient entry lists the recipient name, department, and location.
4. Use the **Instruction Lines** box to enter up to 500 characters to be printed below the box on the first page.
5. You can select to print the recipient list for the print file as the second page of the report. The recipient list shows all recipients of the report with their departments and locations as entered on the Report Recipient Properties window.
6. Click **OK** to save your banner page.

Print File Finder

Use the Select a Print File window to locate a print file to use for Report Distribution.

Job Environment Overrides

Use the Job Environment Overrides window to display and compare job environment defaults and override values.

Environment Name

Name of the environment.

Job Attribute

The job attribute.

Attribute	Description
Accounting Code	The default account code to which statistics for this environment should be assigned (if you are using Robot CPA or the job accounting journal to record job statistics).
Auto Tune Pool Size	The default size (in K) of the memory pool in which each job using this environment runs (if Robot AUTOTUNE, the automatic IBM i performance tuning and monitoring system, is used). This value is used to set a standard for the amount of system resources the average job that uses this environment should use.
Calendar Name	The name of the default calendar this environment uses when determining working, nonworking, and fiscal month-end days. Note: Robot SCHEDULE allows you to create as many calendars as you need. And, you can change them as often as needed. See Scheduling Objects for more information.
Current Library	The library to be used as the default current library for this environment.
iASP Group	The default initial ASP group. *JOBD indicates this environment uses the initial ASP group specified in the job description. *NONE indicates there isn't an initial ASP group specified for this environment.
Job Description	The default job description and library.
Job Queue	The default job queue and library. *JOBD indicates this environment uses the job queue specified in the job description.
Library List Name	The default library list. *JOBD indicates this environment uses the library list specified in the job description. Note: The Robot SCHEDULE library list management system lets you enter a list of libraries under a single name. See Scheduling Objects for more information.
Message Queue	The message queue and library that should receive the message returned by SBMJOB each time a job completes. These are IBM completion messages, not Robot SCHEDULE messages. *NONE indicates messages aren't returned for this environment.
Message Reply	The default message reply to be used for this environment when a Robot SCHEDULE job issues a terminal error message requiring a reply. *DFT indicates this environment uses a default message reply, which usually cancels the job. This option is used to run jobs unattended. *RQD indicates this environment does not enter a message reply; the operator must reply to the message. *JOBD indicates this environment uses the message reply option in the job description. SYSRPYL indicates this environment checks the system reply list for the appropriate reply. This option is used to tailor replies to messages (refer to your IBM manuals for details).
Output Queue	The default output queue and library used for reports produced by jobs. *JOBD indicates this environment uses the output queue specified in the job description.
Pager Name	The default pager to which Robot SCHEDULE jobs using this environment should send a pager message if they end abnormally (if Robot ALERT, the system event notification software, is used).
User Profile	The default user profile under which jobs using the environment run. *JOBD indicates this environment uses the user profile specified by the USER parameter in the job description.

Environment Default

The default value for this environment.

Job Override Value

Control option for the job that overrides the environment default.

Control Tab

Use the Control tab to enter the job submission and job control options. Robot SCHEDULE lets you define default values for the job control options by setting up job environments. This allows you to create any number of jobs that use identical job options. The Control tab gives you detailed, job-by-job control of the job options.

See also:
Job Submission Options
Job Control Options

Job Submission Options

Complete the following fields to set up job submission information.

Job Description

Enter the job description for the job. The job description must be for a batch job. Click the Finder button to display a list of job descriptions. You also can enter one of the following:

- *RBTDFT: Uses the job description listed in the Environment for this job.
- *USRPRF: Uses the job description on the user profile attached for this job.
- *SBM: If this is a submit-delay model job and you want the job description to be picked up from the submitted job rather than copied from the model job.

Job Queue

Enter the job queue to which Robot SCHEDULE should submit this job. Click the Finder button to display a list of job queues. You also can enter one of the following:

- *JOBD Uses the job queue specified in the job description.
- *RBTDFT Uses the job queue listed in the Environment for this job.
- *SBMIf this is a submit-delay model job and you want the job queue to be picked up from the submitted job rather than copied from the model job.

Message Queue

Enter the message queue that should receive the message returned by SBMJOB when the job completes. This is the IBM completion message; it is not a Robot SCHEDULE message. Click the Finder button to display a list of message queues. You can select one of the following:

- *NONE: You do not want the message returned.
- *RBTDFT: Use the value specified in the Environment for this job.
- *USRPRF: Use the message queue attached to the user profile for this job.

Library List

Robot SCHEDULE Library List Objects let you enter a list of libraries under a library list name. If you have defined library list names, enter the name of the library list to be used by the job. Before it runs the job, Robot SCHEDULE sets the library list for the job to the libraries in the list. Click the Finder button to display the library list objects. You also can select one of the following:

- *JOBD: Use the library list specified in the job description.
- *RBTDFT: Use the library list specified in the Environment for the job.

Message Reply

Select a message reply option. This tells Robot SCHEDULE what to do if an error message that requires a reply is issued for the job. You can select from the following:

- *RBTDFT: Use the message reply value specified in the Environment for the job. **Note:** This is the default selection.
- *DFT: Use the default message reply, which usually cancels the job. Use this option if you want the job to run unattended.
- *RQD: The operator must reply to the message. Use this option if tapes must be mounted or if nothing else should run if this job halts with an error message.
- *SYSRPYL: Check the system reply list for the appropriate reply. **Note:** We do not recommend the *SYSRPYL option. Instead, use Robot CONSOLE, our message, resource, and log management system, for sophisticated unattended message handling.
- *JOBD: Use the message reply option in the job description.

User Profile

Enter the user profile under which the job should run (you must be authorized to the profile). You also can select *RBTDFT or *JOBD. The user profile must have authority to all objects this job uses for processing, but it cannot be QSECOFR, RBTUSER, or RBTADMIN. Robot SCHEDULE allows a user profile whose authority is less than the one attached to the job to copy a job. If you want to prevent users from doing this, or from changing profiles, restrict them using Robot SCHEDULE security. See Robot SCHEDULE Security for more information.

Job Priority

Select the priority (1-9) to be given the job on the job queue. If no priority is specified, the job description's job priority is used.

Note: The highest priority you can enter is determined by the Highest Priority Scheduling field on your user profile. At job submission, the operating system verifies that the submitting user profile has sufficient scheduling priority. If not, the job user's Highest Priority Scheduling value is used.

Job Switches

Enter any job switch settings required by the job.

Current Library

Enter the library to be used as the current library for the job. The value you enter is substituted when the job actually runs.

- Specify *CRTDFT if you do not want to designate a current library.
- Specify *RBTDFT to use the current library listed in the job's environment.

Accounting Code

If you use Robot CPA or the job accounting journal to record job statistics, enter the account code to which the statistics for this job should be assigned.

Initial ASP Group

Specify the ASP Group in which you want the job to run. You can specify the name of an ASP group or select *RBTDFT or *JOBD.

Job Control Options

Complete the following fields to set up job control information.

Robot ALERT Device

If Robot ALERT is installed, enter the name of the device or broadcast list to which a message should be sent if the job ends abnormally. Specify ***RBTDFT** to use the device from the job's environment. Specify ***NONE** if you don't want to send a message.

Historical Runs

Enter the number of runs to be maintained in job completion history. Job completion history also is used to determine the average run time for this job. The average run time is used when forecasting the effect of this job on the run schedule (see Schedule Forecasting.

Robot SCHEDULE also uses the value specified in this field when performing an automatic purge of completion history (see System Setup).

Calendar

Enter the name of the calendar the job should follow when determining working and non-working days, and fiscal month-ends. Click the Finder button to display a list of available calendars. Select ***RBTDFT** to use the calendar from the job's Environment.

Robot AUTOTUNE Pool Size

If you use Robot AUTOTUNE, our performance tuning and monitoring software, enter the size (in K) of the memory pool in which the job should run. You can enter up to 11 digits. Use this value to control the amount of system resources this job can use and thus, how fast the job runs.

Note: This value does not default to the value in the Environment for the job.

Environment

Enter the name of the Environment for the job.

Note: You must set up your environments before you can select one on this window.

Maximum Run Duration

The maximum run duration allows you to tell Robot SCHEDULE what to do when a job runs for too long. Use this option when you have an application that might go into a loop and need to be canceled, or when your schedule is tight. You can have Robot SCHEDULE end the job or continue running it. If it continues running, Robot SCHEDULE can send a warning status record and a pager message. Then, if a job is taking an unusually long time to run, you will receive a warning and can take corrective action to adjust the schedule.

Note: You also can use job monitors to specify the action Robot SCHEDULE should take if a job runs too long. See Job Monitors, later in this section, for more information on defining job monitors.

Maximum Run Action

When the job has run for the number of minutes specified in the Maximum Run Duration field, Robot SCHEDULE takes the specified action. Select from the following actions:

- Warning Status: Allow the job to continue running. Robot SCHEDULE sends a warning message to the specified message queue and creates a warning status record.

- Warn & Page: Allow the job to continue running. Robot SCHEDULE sends a warning message to the specified message queue, creates a warning status record, and if you use Robot ALERT, sends a message to the specified device.

- End the Job: Cancel the job when it reaches the maximum run duration. Before selecting this option, consider the possible problems that could result from canceling the job before it has finished processing. If you select this option, another job is submitted to batch to end it.

Reactivity Tab

A reactive job can run whenever its prerequisites complete, only when limited instances of its prerequisites complete, or on scheduled days and times. Just follow these steps.

To limit the reactive job runs to selected instances of a prerequisite job, select a job and click **Edit** to display the Edit Prerequisite Job window. Select the Special Instance tab. See Special Instances, later in this section, for more information about special instances.

Use the Reactivity tab to set up and edit reactive jobs. Read Overview of Reactivity for more information about reactive jobs.

- Click the **Add Robot Job** button to add a Robot SCHEDULE job as a prerequisite to the current job. The Add Robot Job window displays.
- Click the **Add Remote Job** button to add a job on a remote system as a prerequisite job. The Select a System window displays a list of systems visible to your system, as defined in Robot NETWORK. Select the system from which you want to add the remote prerequisite job. The Add Robot Job window on the remote system displays; select the job you want to add.
- Click the **Add User Job** button to add a user job as a prerequisite to the current job. The Add User Job window displays.
- Click the **Add Agent Event** button (Robot SCHEDULE Enterprise only) to add an agent event as a prerequisite to the current job. The Add Agent Event window displays.
- Click the **Add Event** button to add an event as a prerequisite to the current job. The Add Event window displays.
- Select a job and click the **Edit** button to display the Edit Prerequisite Job window. You can change the job's conjunction, react on status, and keep options, or manage Special Instances.
- Right-click a job and select **Prerequisite Cross Reference** to list the reactive jobs that are dependent on the job.
- Use the **Move Up** and **Move Down** buttons to change the order in which the prerequisite jobs run.
- To remove a job from the list of prerequisites, select the job and click the **Remove** button.

See also:
Overview of Reactivity
Using Robot SCHEDULE Jobs as Prerequisites
Changing the Completion Status
Entering Conditions Returned by User Jobs
Editing Prerequisite Jobs

Scheduling Tab

You can still use the Scheduling tab to set up other run times for the reactive job, or to limit the job to only run in reaction to a prerequisite job.

- To limit the reactive job to certain run times, enter one or more run times. **Note:** If you specify run times, you must also specify the run days or dates.
- To limit the reactive job runs to selected instances of a prerequisite, do not enter a schedule.
- To limit the reactive job to certain days, enter a schedule here or select the INDAY, DATE, or DAYNO options.
- To limit the reactive job runs to selected instances of a prerequisite, do not use the DATE, INDAY, or DAYNO options.

Using Robot SCHEDULE Jobs as Prerequisites

Do the following to add a Robot SCHEDULE job to the prerequisite list:

1. Click **Add Robot Job**. The Add Robot Job window displays, listing all the Robot SCHEDULE jobs on the system.

2. Select the job you want to add to the prerequisite list.

3. For the Conjunction field, select **AND** to connect prerequisites in a set; select **OR** to separate prerequisite sets.

4. Enter the completion status that must be returned before the prerequisite is considered satisfied.

5. Use the Keep option with reactive jobs that run on scheduled days and times and have more than one prerequisite.

   Select **Yes** to keep the completion status for the selected prerequisite until a status for each prerequisite has been received and used. If the reactive job does not run because a prerequisite did not finish on time, the statuses for jobs using the keep status option are retained. On the next scheduled run day that all prerequisite statuses exist, the statuses are cleared after Robot SCHEDULE determines whether to run the job.

   Select **No** to clear the completion status for the selected prerequisite.

6. Click **OK** to add the job to the prerequisite list and return to the Reactivity tab.

If your system is part of network, you also can select Robot SCHEDULE jobs from other systems in the net- work as prerequisite jobs. Click **Add Remote Job** to select a system from a list of systems in the network. The Add Robot Job window for the selected system displays, allowing you to select a job from the remote system to add to the list of prerequisites.

Using User Jobs as Prerequisites

All prerequisite conditions (other than the completion of Robot SCHEDULE jobs) must be entered as user job prerequisites. A user job prerequisite is identified by a name and a status. You can enter, as a user job prerequisite, the name of a batch job that is not submitted by Robot SCHEDULE or the status change sent from the remote Skybot Scheduler server.

If the Robot SCHEDULE SBMJOB command is installed, you do not need to change the job; its completion status is returned automatically to the prerequisite list. The completion of all other user job prerequisites must be signaled by a SNDRBTDTA command, a RBT661 program call, or a status change sent from the remote Skybot Scheduler server. All of these return a name and a completion code (normal or abnormal). When you enter the prerequisite in the list, you enter the name and code that should be returned. (A job could return more than one name and code at different points in its processing.)

1. Click **Add User Job**. The Add User Job window displays. Use the Add User Job window to enter the prerequisite conditions that allow a reactive job to run. Click a job from the list to select it. Complete the following fields:
   - Job Name and Description: Enter the name and description of the prerequisite. If the prerequisite is a batch job completion, the name must be the job name. Otherwise, the name must be the name returned by SNDRBTDTA, RBT661, or the remote Skybot server.
   - Conjunction: Select **AND** to connect prerequisites in a set. Select **OR** to separate prerequisite sets.
   - React on Status: Select a completion status that must be returned before the prerequisite is considered satisfied.
   - System: If the prerequisite occurs on another system in Robot NETWORK, enter the system name. Click the Finder button to display a list of systems in the network. If the prerequisite occurs on a remote Skybot Scheduler server, you do not need to enter a system.
   - Keep: Use this option with reactive jobs that run on scheduled days and times and have more than one prerequisite. Select **Yes** to keep the completion status for the selected prerequisite until a status for each prerequisite has been received and used. If the reactive job does not run because a prerequisite did not finish on time, the statuses for jobs using the keep status option are retained. On the next scheduled run day that all prerequisite statuses exist, the statuses are cleared after Robot SCHEDULE determines whether to run the job. Select **No** to clear the completion status for the selected prerequisite.
2. Click **OK** to return to the Reactive tab. The user job you added and its reaction options display on the tab.

Using Event Monitors as Prerequisites

You can use the Reactivity tab in the Job Properties window to set up an event as a prerequisite to a job.

See more about Event Monitors.

1. Click **Add Event** to select an event monitor to use as a prerequisite. The Add Event Monitor window displays.
2. Click an event monitor to select it.
3. Set the conjunction, react on status, and keep options.
4. Click **OK** to select the event monitor and return to the Job Properties window.
5. You can set advanced scheduling options for prerequisite events. Right-click an event monitor and select **Edit** to modify the prerequisite properties and set special instances.
6. Click **Special Instance** to set up a particular day or time during which the job can react. See Setting Up Special Instances for more information.
7. Select the instances of the prerequisite event to react.
8. To react only to runs of the prerequisite event that start during a specific time range, enter the range.
9. Click **OK** to return to the Job Properties Window.

Using Agent Event Monitors as Prerequisites

If you have Robot SCHEDULE Enterprise installed, you can use the Reactivity tab in the Job Properties window to set up an agent event as a prerequisite to another job.

See more about Agent Event Monitors.

1. Click **Add Agent Event** to select an agent event to use as a prerequisite. The Add Agent Event window displays.
2. Click an event to select it.
3. Set the conjunction, react on status, and keep options.
4. Click **OK** to select the event and return to the Job Properties window.
5. You can set advanced scheduling options for prerequisite jobs. Right-click an event agent and select **Edit** to modify the prerequisite properties and set special instances.
6. Click **Special Instance** to set up a particular day or time during which the job can react. See Setting Up Special Instances for more information.
7. Select the instances of the prerequisite job to react.
8. To react only to runs of the prerequisite event that start during a specific time range, enter the range.
9. Click **OK** to return to the Job Properties Window.

Manually Sending Agent Event Information

Occasionally, you need to simulate an event being sent. This simulation generates an Agent Event History record and initiates reactivity for all jobs that use the agent event as a prerequisite. All jobs that meet the defined prerequisites are started.

You can insert a prerequisite status for a single specific agent event prerequisite from the Job Properties window in the Explorer, or use the SNDEVTDATA command on the IBM i to simulate an event occurring.

From the Reactivity tab, right-click the prerequisite job, point to **Insert Status**, and select an option:

- **B Blank Status** Robot SCHEDULE clears the status automatically each time the reactive job could run, unless you use the Keep option.
- *** Event Occurred** Robot SCHEDULE simulates the event occurring.

Changing the Completion Status

The Actual Status field shows the last status of the job. This field must match the code in the React to Status field before the reactive job will run. If necessary, you can change the completion status of a job manually so that the reactive job will run. The Insert Status option displays the valid statuses from which you can select.

To change the actual completion status of a prerequisite job manually, right-click the job, select Insert Status, and select one of the following status codes:

- B Blank Status (Robot SCHEDULE clears the status automatically each time the reactive job could run, unless you use the Keep option)
- C Insert C (Normal completion)
- D Insert D (Delay). Use this status only with jobs that have OPAL objects
- K Insert K (Skip). Use this status only with jobs that have OPAL objects
- P Insert P (Pending). Use this status only with jobs that have OPAL objects
- R Insert R (Running)
- S Insert S (Submitted to queue)
- T Insert T (Abnormal Terminate)

These codes affect only the prerequisite list; they do not update the Robot SCHEDULE completion history or weekly completion log.

Entering Conditions Returned by User Jobs

All other prerequisite conditions (other than the completion of Robot SCHEDULE jobs) must be entered as user job prerequisites. A user job prerequisite is identified by a name and a status. You can enter the name of a batch job that is not submitted by Robot SCHEDULE as a user job prerequisite. You can also enter status changes for jobs on a remote Skybot Scheduler server as a user job prerequisite.

If the Robot SCHEDULE SBMJOB command is installed, you do not need to change the job; its completion status is returned automatically to the prerequisite list. The completion of all other user job prerequisites must be signaled by a SNDRBTDTA command, a RBT661 program call, or a status change sent from the remote Skybot Scheduler server. All of these return a name and a completion code (normal or abnormal). When you enter the prerequisite in the list, you enter the name and code that should be returned. (A job could return more than one name and code at different points in its processing.)

1. Click **Add User Job** to enter a user job as a prerequisite.
2. Enter the name and description of the prerequisite job. If the prerequisite is a batch job completion, the name must be the job name. Otherwise, the name must be the name returned by SNDRBTDTA, RBT661, or the remote Skybot server.
3. Select **AND** to connect prerequisites in a set; select **OR** to separate prerequisite sets.
4. Select the completion status that must be returned before the reactive job runs.
5. If the prerequisite occurs on another system in Robot NETWORK, enter the system name. Click the Finder button to select from a list of systems in the network. If the prerequisite occurs on a remote Skybot Scheduler server, you do not need to enter a system.
6. Select **Yes** to keep the completion status for the selected prerequisite until a status for each prerequisite has been received and used. Select **No** to clear the completion status for the selected prerequisite.

Editing Prerequisite Jobs

Use the Edit Prerequisite Job window to edit the job information or specify special instances of the prerequisite job to trigger the reactive job.

Special Date Object

Use the Special Date Object Properties window to select run dates from the available (highlighted) dates. You cannot select a date that is not defined for the date object.

Click a date that is highlighted to include it in the Special Date Object. An oval displays on the dates you select.

Click the **Clear All Special Dates** button to the special dates.

Note: This does not clear the dates defined for the date object.

Exception Scheduling Tab

Use the Exception Scheduling tab to create exceptions to the job's regular schedule.

Complete the following fields:

Run on non-working days

Indicate what Robot SCHEDULE should do if the job is scheduled to run on a non working day:

- Yes: Run the job on a non-working day.
- No: Do not run the job on a non-working day.
- Run After: Run the job on the following work day.
- Run Before: Run the job on the preceding work day.

Submit job in time range

Enter a time range in which the job can start running. If the job's run time is outside the specified time range, the job is not submitted. If the job is submitted within the specified time range, but is delayed until its run time is outside the time range, the job will not run and a warning message indicates that the time range was exceeded.

Notes:

- If you are using the EVERY option and want the job to run all day, enter 00:01 and 23:59. This is the maximum time range.
- If the job is reactive, the prerequisites must finish within the specified time range for the reactive job to run.

Submit-Delay model job

If this is a Submit-Delay model job, select a comparison option for jobs. Select **No** if this is not a Submit-Delay model job. See Submit-Delay Model Jobs for more information.

Don't run on dates listed in Date Object

Enter the name of an omit date object that contains the dates the job should NOT run.

Note: You cannot use this option with the DATE advanced scheduling option (specified on the Scheduling tab). See Date Objects for complete information.

Execute schedule instructions in OPAL Object

Enter the name of an OPAL object that should be run with this job. Click the Prompt button to select from a list of OPAL objects. See the OPAL Reference Guide for complete information on using OPAL with Robot SCHEDULE.

See also:
Submit-Delay Model Jobs
Creating Submit-Delay Jobs

Submit-Delay Model Jobs

Set up a Submit-Delay model job when you want jobs that meet certain criteria to be captured and run later. Submit-Delay model jobs must meet two requirements:

- They must be command-type jobs.
- They can have a run schedule entered on the Scheduling tab; they can be defined as reactive jobs on the Reactivity tab; or they can be submitted immediately based on an end-user job match specified on the Exception Scheduling tab.

You must have selected to use Submit-Delay on the General System Defaults window during System Setup.

A Submit-Delay model job is a special job that never runs. The model job provides the following attributes to the jobs it captures:

- A run schedule
- Report distribution
- A list of prerequisites (if the model job is a reactive job)
- Library list
- All other attributes not specifically mentioned below

The model job is also the storehouse for the accumulated job completion history for the jobs it captures. This history is used for schedule forecasting.

Restrictions: A model job cannot:

- Be a member of a group
- Use the EVERY Advanced Scheduling option
- Be a prerequisite for a reactive job
- Be used with OPAL

Three job attributes can be copied from either the model job or from the jobs it captures. They are Output Queue, Job Description, and Job Queue.

Delayed-Submit Jobs

The jobs submitted by users that are captured by the model job are called delayed-submit jobs, and they are temporary jobs. When delayed-submit jobs complete successfully, Robot SCHEDULE automatically deletes them. If a job ends abnormally, it stays on the job schedule list. You will want to fix these jobs so that they can be run successfully either immediately or at a later time.

The delayed-submit jobs always retain the following attributes:

- LDA
- Message Reply Value
- Output Priority
- Command String
- PrintText
- Job Queue Priority
- User Profile

Submit-Delay Job Commands

You can view the delayed-submit job's command string from the Job Schedule List for the temporary job. However, you cannot use reserved command variables in the submit-delay job's command line.

If the Submit-Delay Model job has commands, the commands on the delayed-submit job are executed after the model job's commands.

Capturing User Jobs

In some instances when you use the submit-delay job feature, the Capture User Job (RBTCAPTURE) command displays and indicates why the SBMJOB command was replaced with RBTCAPTURE. The RBTCAPTURE command displays when you prompt the original SBMJOB or RBTSBMJOB command for the job. Whenever the RBTCAPTURE command displays, you must press Enter so your job runs.

The RBTCAPTURE command displays the command captured and the following information that describes how it was captured.

- Run command—Indicates whether Robot SCHEDULE will run the job (SBMJOB or RBTSBMJOB) when you press Enter.
- Learn mode—Indicates whether learn mode has captured the job into Robot SCHEDULE.
- Submit delay—Indicates whether the submit-delay feature has captured the job into Robot SCHEDULE.
- Robot REPLAY—Indicates whether the job completion history and Robot REPLAY information will be created.
- RBTSBMJOB—Indicates whether the job completion history can be created and reactive jobs can receive user-prerequisite job status.

Creating Submit-Delay Jobs

Specifying a Submit-Delay Model Job

When you make a job a Submit-Delay model job, you can specify the comparison values to be used for the match to the model job.

If you make the job a Submit-Delay model job, user jobs are checked for a match against the job name of the model job. If you want the job to be a Submit-Delay model job, specify the comparison values to be used for the match to the model job.

Comparison Value	Description
No	Not a Submit-Delay model job.
Job and any User	Match the job name when it is submitted by any user.
Command and any User	Match the command when it is submitted by any user.
Program and any User	Match the program name when it is submitted by any user.
Job and any User/Group	Match the job name, but only when it is submitted by the specified user or group profile.
Command and any User/Group	Match the command, but only when it is submitted by the specified user or group profile.
Program and any User/Group	Match the program name, but only when it is submitted by the specified user or group profile.

Setting Up a Submit-Delay Model Job

If you don't have a dedicated IBM i for use by your programmers, you might set up a Submit-Delay job that will find all the compile jobs as they are submitted and delay them to run in the off-hours. This will prevent long compiles from interfering with interactive users during the day. You also can capture these jobs and allow them to run immediately instead of delaying them.

Note: If you want to set up Submit-Delay model jobs, make sure that Use SCHEDULE's submit-delay jobs is selected on the General System Defaults window (see System Setup).

1. On the Initial Job Setup tab, set up a command-type job. Name the job the command you want to capture.

2. Click the Scheduling tab and enter a run schedule for the model job. Or, leave the model job with no schedule, so the end-user jobs run immediately.

3. Display the Exception Scheduling tab. Make this a Submit-Delay model job by selecting a valid code in the Submit-Delay model job field.

4. If you want to use the output queue specified by the submitted job, go to the Output tab. Enter *SBM in the Output Queue field to capture this information from the submitted job.

5. If you want to use the job description and job queue specified by the submitted job, go to the Control tab. Enter *SBM in the Job Description and the Job Queue fields to capture this information from the submitted job.

    When a programmer submits a command job that matches the Submit-Delay job criteria, the Submit-Delay model job captures it and creates a temporary job that is scheduled to run at the time specified on the model job. The temporary job appears on the Job Schedule List below the model job.

Job Monitors

Job monitors allow you to monitor your job schedule for specific events, such as jobs that run too long, complete too quickly, or start later than their scheduled run time. You can specify the criteria for each job at setup time. You also specify what Robot SCHEDULE should do if it identifies a job monitor event. Robot SCHEDULE can end a job or notify you by sending a message to the job's message queue; sending a text, email, or pager message via Robot ALERT; or sending a status to the Robot NETWORK Status Center.

When a monitored job reaches one or more of the criteria defined on the Job Monitors tab, Robot SCHEDULE takes the specified action and enters a record in the job monitor event log. You can display this log from the Robot SCHEDULE Explorer toolbar.

The Job Monitor Events Report lists all monitored events that have occurred on the system.

You can specify whether to purge the job monitor log automatically, and how many job monitor events to retain in the log, on the General System Defaults window.

See also:
   Job Monitors Tab

Job Monitor Considerations

Keep the following considerations in mind when specifying job monitors:

- You can define job monitors for any Command- or Program-type job. You cannot define job monitors for Group control jobs. However, a job that has a job monitor specified can be a member of a group. The job monitor works the same when the job is run as a group member as when the job is run according to its independent schedule.

- The Maximum duration field allows you to specify an action to take if a job runs longer than the specified time.

Except for Group-type jobs, you can specify both job monitor and maximum run time controls. The two features function completely independently of one another.

- You can enter job monitor values even when no monitoring is selected. For example, you can specify job overrun maximum duration values even if job overrun monitoring is not selected. This allows you to disable a monitor, and then re-enable it later, without losing the job monitor settings.

- The Late Start monitor uses the *INTERNAL forecast to identify jobs that start later than their scheduled run time. If you add a job for which you want to specify a Late Start job monitor, the job must be included in a build of the *INTERNAL forecast before it can be monitored. See Schedule Forecasting for more information on the *INTERNAL forecast.

- The range of values allowed for monitor settings that define a duration (Job Overrun - Maximum Duration and Late Start - Later than scheduled by) is 00:01 to 23:59 (one minute through 23 hours 59 minutes).

- If you select to send a warning to a Robot ALERT device, a device name must be specified on the job or in the job environment. If no device name is specified, you cannot select this option.

  Note: If the specified device is removed after the job monitor is set up, the job monitor is not changed.

- Deleting a job also deletes all job monitor events associated with that job.

- You cannot enter job monitor values if the job is a reactive job with dependencies of Skip (K) or Delay (D).

Job Monitors Tab

Use the Job Monitors tab to set the Job Overrun, Job Underrun, and Late Start options for the job. These options are independent of one another: you can use one, two, or all, three. Robot SCHEDULE includes these options to help you identify job schedule problems quickly.

The job monitors allow you to specify if Robot SCHEDULE should end the job, or notify you in three ways: send a message to the job's message queue; send a text, email, or pager message to the Robot ALERT device specified for the job (if Robot ALERT is installed on your system); and send a status to the Robot NETWORK Status Center (if Robot NETWORK is installed on your system). If you don't select to send a warning, Robot SCHEDULE writes the event to the job completion history and the job monitor events log.

Job Overrun Monitor

The Job Overrun job monitor allows you to specify what actions Robot SCHEDULE should take if a job runs longer than it should. You can specify either a maximum time (in hours and minutes) the job should take to complete or a time by which the job should finish. You can enter values even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Job Overrun.

- Select **Detect Job Overrun** to monitor a job based on if it completes too late.

- Select **Maximum Duration** to monitor a job based on how long it takes to complete. Then, enter the maximum time (in hours and minutes) the job can take to complete.

- Select **Must complete by** to monitor a job based on a time by which the job should finish. Then, enter the time by which the job should have completed.

  Notes:

  - Must complete by is not valid if the job is an EVERY-type job.

  - If you enter a Must complete by time, the time must be a valid time. For jobs that run over midnight, enter

the complete by time as an early morning time. For example, if the job starts at 23:30, enter the complete by time as 1:15. If the job doesn't complete by 1:15 a.m., a job monitor event will occur.

- Specify the actions Robot SCHEDULE should take if the job does not complete in the time allowed. If you do not specify an option, an event will be logged in the job history and in the job monitor events log.

  You can select both **Send a warning to** and **End the Job**. If you select to send a warning, you can select any combination, but must select at least one, of the following: Job's Message Queue, Robot ALERT Device, or Robot NETWORK. If you don't select to send a warning, Robot SCHEDULE writes the event to the job completion history and the job monitor events log. Robot SCHEDULE can end the job only if it has been submitted and is on a job queue or running.

Job Underrun Monitor

The Job Underrun job monitor allows you to specify what actions Robot SCHEDULE should take if a job completes too quickly. You can specify a minimum run time for the job. You can enter a value even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Job Underrun.

- Select Detect Job Underrun to monitor a job based on if it completes too soon.

- Enter the minimum time (in hours and minutes) the job should run before completing.

  Note: You must enter a minimum duration if you select job underrun monitoring.

- Specify where Robot SCHEDULE should send a warning if the job completes faster than the time specified. If you do not specify an option, an event will be logged in the job history and in the job monitor events log.

  You can select any combination, but must select at least one, of the following: Job's Message Queue, Robot ALERT Device, or Robot NETWORK. If you don't select to send a warning, Robot SCHEDULE writes the event to the job completion history and the job monitor events log.

Late Start Monitor

The Late Start job monitor allows you to specify what actions Robot SCHEDULE should take if a job starts later than its scheduled run time. You can enter either the maximum amount of time (in hours and minutes) after its scheduled run time that the job can start or the latest time by which the job must start. You can enter values even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Late Start.

- Select **Detect Late Start** to monitor a job based on whether it starts later than its schedule run time.

- Select Later than scheduled by and enter the maximum time (in hours and minutes) after its scheduled run time that the job can start.

- Select Must start by to monitor a job based on a time by which the job should start. Then, enter the time by which the job should have started.

  Notes:

  - Must start by is not valid if the job is an EVERY-type job.

  - If you enter a Must start by time, the time must be a valid time.

  - If there are multiple run times for the job, the monitor uses only the first time.

- Specify the actions Robot SCHEDULE should take if the job does not start within the time specified. If you do not specify an option, an event will be logged in the job history and in the job monitor events log.

- You can select both Send a warning to and End the Job. If you select to send a warning, you can select any combination, but must select at least one, of the following: Job's Message Queue, Robot ALERT Device, or

Robot NETWORK. If you don't select to send a warning, Robot SCHEDULE writes the event to the job completion history and the job monitor events log. Robot SCHEDULE can end the job only if it has been submitted and is on a job queue or running.

Note: The job must be included in the internal forecast (*INTERNAL) for the Late Start monitor action to be recognized.

Agent Environment Tab

The Agent Environment tab lets you associate an agent job with an agent environment. You can set a private environment that only this job uses, share an agent environment with other jobs, or merge a shared environment with overridden and/or additional private settings from this job.

Setting up a Private Environment

A private agent environment is used only for the agent job you are creating editing.

1. Select **Private** for the Environment Type.

2. Select the **Authentication Type** from the drop-down list. The default selection is "Username and Password."

   To allow this job to run without a password, select "Run as Agent's User" (for Windows, then skip steps 3 and 4) or "setuid" (for UNIX and Linux, then skip step 3). For details on how to set up the system so that jobs can run without a password, see that section in Agent Systems.

3. Click the prompt button (...) to set the name of the **User** that will run this job on the agent system.

4. Enter the password.

5. Click the prompt button (...) to set the working path on the agent system.

6. When an agent job executes, there is a local IBM i job that is associated with the simultaneous remote agent process. The IBM i job could be ended by another process while the agent commands are still running. Set the action to take when the IBM i job is terminated:

   - Continue process on remote agent, Robot SCHEDULE job terminates: The job still runs, but regardless of how it completes, it's terminated.
   - End command shell on remote agent, Robot SCHEDULE job terminates: A matching job is running somewhere else.

7. Select **Add** to add an environment variable or select **Properties** to edit the properties of a selected variable. The Agent Environment Variable Properties window displays. Enter the name and value of the environment variable. Click **OK** to accept changes.

Setting up a Shared Agent Environment

A shared agent environment allows you to use a predefined agent environment with your agent job.

1. Select **Shared** as Environment Type. Certain options are grayed out when Shared is selected.

2. Click the Finder button to select a predefined environment to use with your agent job.

The environment variables from the shared environment are displayed. **Note:** You cannot edit these variables. If you need to use different variables, you must use a private or merged environment.

Setting up a Merged Agent Environment

A merged agent environment allows you to combine a predefined environment with private variable settings. You can override a shared value by modifying the properties of a variable.

1. Select **Merged Environments** as Environment Type. Certain options are grayed out when Merged Environments is selected

2. Select the **Authentication Type** from the drop-down list. The default selection is "Username and Password".

   To allow this job to run without a password, select "Run as Agent's User" (for Windows, then skip steps 3 and 4) or "setuid" (for UNIX and Linux, then skip step 3). For details on how to set up the system so that jobs can run without a password, see that section in Agent Systems.

3. Click the prompt button (...) to select a predefined environment to use with your agent job.

4. Set the user name, password, and working path. When you select Merged Environments, the text boxes become drop-down lists. Your selection will be the default user and working path for the merged environment.

5. Set the action to take when the IBM i job is terminated. When you merge environments, you can choose to use the shared environment setting.

Environment Variables

When you select Merged Environments, both the private and shared variables appear in the Environment Variables table. When a private and a shared value are specified for the same variable name, the private value is used.

Select **Add** to add an environment variable or select **Properties** to edit the properties of a selected variable. The Agent Environment Variable Properties window displays. You cannot edit the shared value. To edit the shared value, you must edit the shared environment.

Setting Up Agent Output

Agent jobs that complete normally on the agent system may generate files that should be returned to the Enterprise Server for additional processing, reporting, archiving, or other distribution. These files can be copied to the host and placed in spooled files associated with the Enterprise Server's agent processing job or stored in the IFS to be viewed later.

1. Select Copy "sysout" and "syserr" logs to host to copy job logs to a spooled file on the IBM i.

   Note: If this option is not checked, and an agent job is terminated, the log files are still copied to the spooled file.

2. Select Copy "sysout" and "syserr" logs to AGENTLOG_(jobname)_(timestamp).LOG to copy job logs to a text file in an IFS directory.

3. Enter an IFS directory or click the Prompt (...) button to select an IFS directory to copy the job log files to.

Occasionally, files with the same name are copied to the Enterprise server. Use the Copy Agent Files window to tell Robot SCHEDULE Enterprise how to handle these files.

1. Select **Copy the following files from the agent to the server** to copy files from the agent system to the Enterprise server.

2. Click **Add** to add agent files for copying or select **Properties** to edit the properties of a selected agent file. The Copy Agent Files window displays.

3. Enter the directory path to a file or a set of files to be copied. Click the Prompt (...) button to browse for a directory.

The file path and name may be case-sensitive, depending on the remote operating system. You can use an asterisk (*) as a generic character to copy one or more files.

4. Select Copy to Spooled File and enter a valid spooled file name to copy the agent files to a spooled file on the agent system.

    Note: Using non-textual data files creates spooled files with non-displayable data. Also, textual data files may not match the available lines and columns widths for the spooled files generated. Standard spooled files are 132 columns by 68 lines.

5. Select **Copy to IFS directory** and enter a valid directory path to copy the agent files to an IFS directory. Click the Prompt (...) button to select an IFS directory.

6. Choose how Robot SCHEDULE Enterprise handles copying files that already exist in the target location. The following options are available:

    - Fail when duplicate files exist: If the file already exists, terminate the job to stop dependent jobs and notify any appropriate party.

    - Replace existing IFS Files: Replace existing files without warning or notification.

    - Append incremental counter when duplicates exist: If a duplicate file exists, appends a counter to the file name with the first available value being used. Deleted counter values are reused out of sequence. For example, if the file being copied is named RBT1234, and another file named RBT1234 is copied, the second instance has a number appended to the file name. Each time this happens, the next sequential number is added to the file name.

    - Always append timestamp to file name: Always appends a timestamp, using the the format CCCYYMMDD_HHMMSS.

7. If the file to copy is a specific file name, that file must be copied. When the file to copy is a generic name, one or more files that match the generic name must be copied. When you set the "Require successful copy of one or more Agent files" flag, failure to copy marked files cause the job to end with a "Terminated" status.

8. Click the Prompt button (...) to select a valid Robot ALERT device to send the agent files to. This option requires Robot ALERT on your Enterprise server.

    Note: Messages sent by Robot ALERT are queued and processed by a separate Robot ALERT job. So, the IFS files must exist until the Robot ALERT process sends the message with the attachment. Delete the IFS files only after Robot ALERT sends them.

Group Member Exceptions

Use the Group Member Exceptions window to select an omit date object (that contains exception or "don't run" dates) or an OPAL object for the group member.

Do Not Run Dates

Enter a date object name. Using a date object can give you the ability to skip a given date for just one member of the group. The rest of the members run as usual.

OPAL Object Name

Enter the name of an OPAL object. Using an OPAL object can be an easy way to skip a given day of the week for just one member of the group. The rest of the group will still run.

Group Control Jobs

Robot SCHEDULE lets you group several jobs together under the control of a group control job. The group control job contains the run schedule for the group; it also can contain the control options for all jobs in the group. By entering these values only once, you save time and avoid errors.

Groups are very flexible. When you are running a job as a member of the group, you can use exception scheduling options to create exceptions to the schedule on the group member record. For example, you can attach a date object to the member that indicates dates the member should NOT run. The group continues just as if the member were no longer part of the group. In addition, you can attach OPAL objects that can skip or delay a job unless conditions are just right.

If you have Robot SCHEDULE on a remote IBM i, group members can reside on those systems. The capability to include group members on remote systems allows you to have a master Robot SCHEDULE that controls the running of remote Robot SCHEDULE jobs. If you have Robot SCHEDULE Enterprise, you can do the same thing with your Windows, UNIX, and Linux servers. Jobs that run on your servers can be part of a group. In fact, you could create a group control job that controls nothing but server jobs.

The group control job shows a status of running until all members of the group, including members on remote systems, end. If all the jobs in the group complete normally, the group control job shows a status of C on the Group Completion History window. If any member ends abnormally, the group control job shows a status of T.

Tip: We recommend that you limit the number of jobs in a group to 99 or fewer. If you have a larger number of jobs that you logically group together, you can set them up in multiple groups so that one group control job reacts to the completion of another. Since the group control job does not have a status of C until the last member finishes normally, it makes it easy to have another group control job react to the completion of the first. In addition, you can change which jobs are members of a group without affecting the group that reacts to it.

See also:
> Group Control Options
> Adding Jobs to Groups
> Group Member Exceptions
> Using Override Codes with Group Jobs
> Group Membership

Dependent Groups

You can create two different types of groups. The most common type of group is a dependent group. You might create a dependent group to control the execution of procedures. You can easily enter procedures such as monthly, quarterly, and annual closings as dependent group jobs.

By scheduling these procedures as group jobs, you can document their submission options, programs, and processing sequence. And, you can enter job text to further document each job. Finally, Robot SCHEDULE lets you print this documentation in presentable form.

Robot SCHEDULE runs the procedure exactly as you have instructed, and you have the benefit of crash protection.

A dependent group provides crash protection because Robot SCHEDULE stops processing the group if any job in the group fails. Robot SCHEDULE does not submit the next job in the group until the previous job has completed successfully. Each job in the group is dependent on the jobs before it.

For example, if a program in your group of monthly closing procedures fails, Robot SCHEDULE can stop processing the group and notify you. You can then fix the problem and restart the group at any job in the group. To do so, you just select the schedule override code Start now with this Member for the job. Robot SCHEDULE resumes processing the group at the selected job.

Independent Groups

Robot SCHEDULE also lets you create a second type of group, called an independent group, because Robot SCHEDULE submits all jobs in the group at the same time. The jobs in the group are not dependent on each other. In this case, each job runs without regard to the completion status of other jobs in the group.

Creating Group Jobs

Use the Initial Job Setup tab of the Job Properties window to set up group jobs. The Group Control and Group Processing options display on the Initial Job Setup tab only when the job is a Group job type. Robot SCHEDULE lets you group several jobs together under the control of a group control job. The Group control job contains the run schedule for the entire group; it also can contain the control options for all jobs in the group. By entering these values once, you save time and avoid errors.

Group Control Options

Select **Use group control options for all jobs in group** to have every job in the group use the control options and output options specified for the group control job (see the exceptions below). If you do not select this option, each job will use its individual options.

Note: If the group has members on remote systems, this option does not affect those members.

Exceptions:

- If you select this option and specify Prerequisite job's start date in the Start With Date Type field on the Output tab, this option is not passed to the members in the group.
- If you select this option, also select the Use group control start date as the start date for all jobs in this group, AND have specified a Job Date Calculator option on the Output tab, the Job Date Calculator option is not used for the job start date for the members. The group control start date is used as the start date for all members.
- If you select this option, you cannot select a Use Report Distribution option on the Output tab for the group control job.

Select **Use group control start date as the start date for all jobs in this group** to use the group control job's start date as the job date for all group members. For example, if the group starts on one day and runs past midnight, this option gives all members the same job date.

Date objects use the date that this option determines.

Do not select this option if you want the job date to reflect the actual system date when the job runs.

Note: If the group has members on remote systems, this option does not affect those members.

Group Processing

Select Submit all jobs immediately to submit all jobs in a group at the same time, one immediately after another without regard to any abnormal job terminations.

Select Submit jobs one at a time, stopping if one fails to submit each job in the group only after the preceding job in the sequence has completed normally. If a job terminates abnormally, Robot SCHEDULE stops processing the group. You then can restart the group at any job in the sequence.

Adding Jobs to Groups

After you create the group control job and select your group control options, select the Group Members tab to add jobs to the group. You can add jobs from the local system or from a remote system. If you need to create new jobs to add to the group, set them up and then return to this window. You can add any type of job as a group member, except another group control job, or submit-delay or submit-immediate jobs.

Note: If an individual job has a schedule, it is overridden by the group schedule when it runs as part of the group. Control options for individual jobs also are overridden if you selected that Group Control option.

1. From the Group Members tab, click **Add** to add a job as a group member. The Select a Job window displays a list of Robot SCHEDULE jobs defined on the current system.
2. Select the job you want to add and click **Select**. The job you select displays in the group member list.

Adding Remote Jobs

If your system is part of a network using Robot NETWORK, you can add a job on a remote system as part of a group. The job on the remote system runs as part of the group when the group runs.

1. From the Group Members tab, click **Add Remote Job**. The Select a System window displays a list of systems in your network.
2. Select the system to display the Select a Job window on the remote system.
3. Select the job you want to add and click **Select**. The job you select displays in the group member list.

Controlling Job Order

Use the Move Up and Move Down buttons to change the order in which the jobs run in the group.

Group Member Exceptions

You can associate omit-type date objects and OPAL procedures with group members. Both omit-type date objects and OPAL procedures allow you to create exceptions to the group schedule for individual group members.

1. Select a job and click **Edit** to display the Group Member Exceptions window.

2. Enter the name of an omit date object. Using a date object allows you to skip a given date for just one member of the group. The rest of the members will run as usual. For more information about Date Objects, see Date Objects.

3. Enter the name of an OPAL Object. Using an OPAL object can be an easy way to skip a given day of the week for just one member of the group. The rest of the group will still run.

   Note: If you're using an OPAL object that delays the job, the group will not proceed until the OPAL-delayed job completes.

   For more information about OPAL, see OPAL Objects.

Using Override Codes with Group Jobs

You can apply schedule override codes to group control jobs or to individual group members. A list of the group control jobs display under the Group Jobs option in the Tree view.

Applying Override Code to a Group Control Job

From the tree view, right-click a group control job to select an override option for a group. You can select one of the following schedule override codes for the group control job:

- Do Job Now: Run the group immediately.
- Hold: Hold this group; Robot SCHEDULE holds the entire group.
- Omit Next Time: Omit this group on the group's next scheduled run time.
- Run Next Time: Run this group on the group's next scheduled run time.
- Remove Override: Remove the override code from this group.

Applying Override Code to a Group Member

You can apply schedule override codes to individual jobs that are members of a group. A job can have both an individual run schedule and be a member of one or more groups. Select the group control job in the Tree view to display its members in the List view. You then can apply the override code to the member job for the selected group.

Select a group control job to display its members in the List view.

You can use the following schedule override codes on individual group members:

- Do Job Now: Run the job immediately as a standalone job, not as a member of the group.
- Hold: Hold this job; Robot SCHEDULE skips this job each time it runs the group as if it were not part of the group.
- Omit Next Time: Omit this job the next time the group runs.
- Run Next Time: Run this job the next time the group runs.
- Remove Override: Remove any schedule override code on this job.
- Start now with this Member: Restart group processing at this job. This code works only for dependent groups; that is, if group processing stops when a job in the group fails.

Group Membership

The Groups to Which This Job Belongs window displays the group or groups to which a job belongs. Right-click a job in the list to apply an override code to the job or to display all the members of a group.

Job Creation Wizard

Use the job creation Wizard to quickly create Robot SCHEDULE jobs. Use the onscreen prompts to complete the fields on each window. Click the **Next** button to display the next window.

On the last panel of the Wizard, you can check the box to open the Job Properties window, where you can fine-tune the job's configuration.

Robot GUIDE

Robot GUIDE helps you set up and schedule jobs in Robot SCHEDULE. It is designed to create jobs much like using the Robot SCHEDULE green screen interface. If you're new to using a graphical user interface, but are familiar with Robot SCHEDULE, Robot GUIDE makes the transition quick and easy.

The following is a list of the Robot GUIDE windows (in the order you'll see them):

- Basic Job Information
- Group Job Options
- Command Set Information
- Advanced Scheduling Options
- Job Exception Options
- Reactive Prerequisites
- Job Output Options
- Job Control Options
- Job Monitor Options
- Confirm Job Creation

On the last panel of Robot GUIDE, you can check the box to open the Job Properties window, where you can fine-tune the job's configuration.

Basic Job Information

Use the Basic Job Information window of Robot GUIDE to enter basic job information and times and days the job will run. First, decide on a job type: command, program, or group job. A command job runs one or more commands. A program job calls a program and doesn't require parameters. A group job is the control job for a group of jobs.

Complete the following fields:

- Job Type: Select Command, Program, or Group. Command is the default. **Note:** Depending on the type of job you are creating, Robot GUIDE displays different windows and fields.

- Group Name: Enter a name for the group job. **Note:** Use this field only when creating a Group job.

- Job Name: Enter a name for the job. For Program jobs, enter the name of the program.

- Description: Enter a description of the job.

- Notes: Enter detailed information about the job.

- Application: Enter the name of an application to be associated with the job (optional).

- Run Times: Enter the times of day the job will run.

- Run Days: Select the days of the week the job will run. For each day of the week, select the weeks the job will run.

LDA Entry Button

Click the **LDA Entry** button to enter LDA information for the job. **Notes:** Every IBM i job has a local data area (LDA) in which information can be passed between programs in the job. The programs can read their parameter values from the local data area. To schedule those programs in Robot SCHEDULE, you need to store the LDA values with the Robot SCHEDULE job. Robot SCHEDULE can store LDA values in a record. When it submits the job, Robot SCHEDULE copies the record to the jobs local data area.

Text Entry

Click the **Text Entry** button to document the job. You can enter run instructions, details on what the job does, alternative schedule instructions, or any other details about the job.

Group Job Options

A group job is the control job for a group of jobs. When you select Group as the job type and enter a Group Name on the Basic Job Information window in Robot GUIDE, the next two windows allow you to define the group control job and also define the options for the jobs in the group.

Use the Select Group Job Options and Select Group Job Members windows of Robot GUIDE to enter the group information for the job you're creating.

Select Group Job Options

Use the Select Group Job Options window to specify how the group members are submitted and to specify the job control and output options used for the members.

- Select **Use group control options for all jobs in the group** to have every job in the group use the control options and output options specified for the group control job (see the exceptions below). If you do not select this option, each job will use its individual options.

  Note: If the group has members on remote systems, this option does not affect those members.

  Exceptions:

  - If you select this option and specify Prerequisite job's start date in the Start With Date Type field on the Output tab, this option is not passed to the members in the group.

  - If you select this option, also select the Use group control start date as the start date for all jobs in this group, AND have specified a Job Date Calculator option on the Output tab, the Job Date Calculator option is not used for the job start date for the members. The group control start date is used as the start date for all members.

  - If you select this option, you cannot select a Use Report Distribution option on the Output tab for the group control job.

- Select **Use group control start date as the start date for all jobs in this group** to use the group control job's start date as the job date for all group members. For example, if the group starts on one day and runs past midnight, this option gives all members the same job date. Date objects use the date that this option determines. Do not select this option if you want the job date to reflect the actual system date when the job runs.

  Note: If the group has members on remote systems, this option does not affect those members.

- Select **Submit jobs one at a time, stop if one job fails** to submit each job in the group only after the preceding job in the sequence has completed normally. If a job terminates abnormally, Robot SCHEDULE stops processing the group. You then can restart the group at any job in the sequence.

- Select **Submit all jobs immediately** to submit all jobs in a group at the same time, one immediately after another without regard to any abnormal job terminations.

Select Group Job Members

The Select Group Job Members window lets you choose jobs to add to the group. If you want to create new jobs to add to the group, set them up and then return to this step. You can select any type of job, except another group control job or a submit-delay model job, as a group member. If an individual job has a schedule, it is overridden by the group schedule when it runs as part of the group. Control options for individual jobs also are overridden if you selected that Group Control option.

- To add a job to the group, click **Add** to display the Select a Job window.
- To add a job on a remote system to the group, click **Add Remote Job** to display the Select a System window. After you select a system, you'll see the Select a Job window.
- Select the job you want to add to the group and click **Select** to return to Robot GUIDE.
- To edit the job exceptions, select the job and click **Edit**. Make your changes and click **OK**.
- To delete a job from the group, select the job and click **Remove**.

Command Set Information

If the job type is Command, you must enter one or more commands to be executed by the job. Use the Command Set Information window of Robot GUIDE to enter the commands for the job. You also can specify if the job will run a shared command set (a group of commands that can be used by more than one job).

- Check **Use shared Command Set** if you want the job to run a command set. Then, click the Finder button to select from a list of defined command sets. **Note:** If you select this option, all buttons on the window are disabled.

- Click the **Add** button to add a blank command line on which you can enter a command.

- Click the Command Finder button to select a command from another Robot SCHEDULE job or specify a command set for this job to run.

- Click the @ button to select a Reserved Command Variable for the command.

- Click the Finder button to display the Command Finder window. Use the window to select from a list of system commands. When the prompt window for the command displays, enter the parameter values for the job. Click **OK** to save the command and enter it on the command line on the Command Set Information window.

- Click the **Add Nested Job** button to include the commands from another Robot SCHEDULE job. A list of jobs displays, from which you can select the job that contains the commands you want this job to run.

- Use the On Error column to specify what Robot SCHEDULE should do if the command fails with an informational-type error that does not require a message to be answered. You can select from the following:

  - **Cancel** Cancels the job.

  - **Ignore** Ignores the failed command; continues running the job.

- You can change the order in which the job runs a command. Select a command and click either **Move Up** or **Move Down**. The first command listed runs first; the second command runs next, and so on. To delete a command from the job, select the command you want to delete and click **Remove**.

Entering Advanced Scheduling Options

Use the Advanced Scheduling Options window of Robot GUIDE when the standard job scheduling options don't meet the job's scheduling requirements. Robot SCHEDULE has five different scheduling options that allow you to specify exactly when your job should run.

- Select **NONE** if you choose not to use advanced scheduling options for the job.

- Select the **INDAY** scheduling option to run the job once a day at regular day intervals. Each job run date is calculated by adding a day increment to the previous run date. The job runs only once on each date at the first run time specified on the Basic Job Information window. Any additional run times are ignored.

  Enter the number of days (up to 999) to add to the last run date to determine the next run date. For example, if the start date is April 9 and the increment is 4 calendar days, the job would run on April 9, April 13, April 17, and so on.

  Select the type of day to be added to the last run date. Whether a day is a work day or not is determined from the calendar for the job.

- Select the **EVERY** scheduling option to run a job at regular time intervals. Robot SCHEDULE determines the days on which the job runs from the schedule specified on the Basic Job Information window. You can limit the hours during which the job runs by entering a time range on the Job Exception Options window.

  Note: If you don't enter a time range, Robot SCHEDULE submits the job at regular time intervals all day long, which could affect system performance.

  Enter the run interval (from 5 to 1429 minutes).

- Select the **REACT** scheduling option if you want the job to run only after prerequisite jobs have run. You can use the REACT option with all advanced scheduling options, except EVERY.

- Use the **DATE** scheduling option to run a job only on specific dates. You select a date object that contains the dates on which you want the job to run. Robot SCHEDULE submits the job on those days at the run times specified on the Basic Job Information window.

  Click the Finder button to select from a list of date objects on the system. **Note:** You can use a single date object with many jobs.

- Select the **DAYNO** scheduling option to run a job on the nth day of the month or n days before the start of the next month. The job runs only once each day.

  Enter the days of the month on which you want the job to run. You can enter up to four day numbers on which the job is to run each month. Permitted values are 1 to 45 for positive numbers and -45 to -1 for negative numbers. A negative number indicates the number of days form the end of the month. Thus, -1 specified the last day of the month, -2 is the second to the last day of the month, and so on.

  Select the type of day on which to run the job.

  Note: If you select Calendar, both work and nonworking days are counted. If you select Fiscal, make sure the job's calendar has fiscal dates selected. If you select Work or Non-working, the calendar that the job uses affects how days are counted. Robot SCHEDULE uses the calendar specified for the job on the Job Control Options window.

Job Exception Options

Use the Job Exception Options window of Robot GUIDE to create exceptions to the job's regular schedule.

- Indicate what Robot SCHEDULE should do if the job is scheduled to run on a non working day.

  - Yes: Run the job on a non-working day.

  - No: Do not run the job on a non-working day.

  - Run After: Run the job on the following work day.

  - Run Before: Run the job on the preceding work day.

- Enter a time range in which the job can start running. The time range applies to the job start execution time; it does not apply to the job submission time unless the EVERY scheduling option is selected.

  Notes:

  - If you are using the EVERY option and want the job to run all day, enter 00:01 and 23:59. This is the maximum time range.

  - If the job is reactive, the prerequisites must finish within this time range for the reactive job to run.

- If this is a Submit-Delay model job, select a comparison option for jobs. Select **No** if this is not a Submit-Delay model job. If you make the job a Submit-Delay Model Job, user jobs are checked for a match against the job name of the model job. If you want the job to be a submit-delay model job, specify the comparison values to be used for the match to the model job.

- Enter the name of an omit-type date object that contains the dates the job should NOT run. Click the finder button to display a list of date objects on the system. Note: You cannot use this option with the DATE advanced scheduling option.

- Enter the name of an OPAL object that should be run with this job. Click the Finder button to display a list of OPAL objects on the system. You can use an OPAL object to create exceptions to the job's run schedule based on the conditions at the time the job is submitted or starts execution.

  See the *OPAL Reference Guide* for complete information on using OPAL with Robot SCHEDULE.

Reactive Prerequisites

Use the Reactive Prerequisites window of Robot GUIDE to create reactivity.

- Click the **Add Robot Job** button to add a Robot SCHEDULE job as a prerequisite to the current job. The Add Robot Job window displays.
- Click the **Add Remote Job** button to add a job on a remote system as a prerequisite job. The Select a System window displays a list of systems visible to your system, as defined in Robot NETWORK. Select the system from which you want to add the remote prerequisite job. The Add Robot Job window on the remote system displays; select the job you want to add.
- Click the **Add User Job** button to add a user job as a prerequisite to the current job. The Add User Job window displays.
- Click the **Add Agent Event** button (Robot SCHEDULE Enterprise only) to add an agent event as a prerequisite to the current job. The Add Agent Event window displays.
- Click the **Add Event** button to add an event as a prerequisite to the current job. The Add Event window displays.
- Select a job and click the **Edit** button to display the Edit Prerequisite Job window. You can change the job's conjunction, react on status, and keep options, or manage Special Instances.
- Right-click a job and select **Prerequisite Cross Reference** to list the reactive jobs that are dependent on the job.

- Use the **Move Up** and **Move Down** buttons to change the order in which the prerequisite jobs run.
- To remove a job from the list of prerequisites, select the job and click the **Remove** button.

Job Output Options

If the job you are scheduling produces spooled files, use the Job Output Options window of Robot GUIDE to change the output options for the job.

- Click the Finder button to select an output queue or select one of the following output control options for the job's output:

    - *RBTDFT: Use the output queue specified by the job's environment. You enter the environment name on the Control tab.

    - *JOBD: Use the output queue specified by the job description. You enter the job description on the Control tab.

    - *USRPRF: Use the output queue specified by the user profile. You enter the user profile on the Control tab.

    - *CURRENT: If Robot SCHEDULE is running the job, the output queue is the same as the job that submits the new job. If the DO schedule override code is used, the output queue is the specified by the user profile that was active when the DO was applied.

    - *DEV: See the help for the IBM SBMJOB command before you use this option.

- Enter up to 30 characters to be printed at the bottom of the separator page of each report.

- Select the number of copies of each print file to be printed. The default is *JOBD, which uses the number of copies specified in the job description.

- Select the output queue priority, 1 to 9, for the print files from this job. The default is *JOBD, which uses the priority specified in the job description.

    Note: At job submission, the operating system verifies that the user profile used to submit the job has sufficient scheduling priority. If it does not, the profile's Highest Priority Scheduling value is used.

- Select a date type.

    Note: The options on the window change depending on which date type you select.

- Select **Yes** to use Robot SCHEDULE report distribution. Select No if you do not want to use Robot SCHEDULE report distribution.

    Click the **Setup** button to display the Report Distribution window. Use the window to specify the distribution options for your print files.

    Select **Robot REPORTS** to use Robot REPORTS for the job's output. Enter a Report Set Name or click the Finder button to select from a list of Report Sets.

    You can enter a different job queue and library for submitting the distribution job. If you enter a different job queue, it generally will allow your night processing to finish more quickly. Enter the job queue or click the Finder button to select from a list of job queues.

Job Control Options

Use the Job Control Options window of Robot GUIDE to enter the job submission and job control options. Robot SCHEDULE lets you define default values for the job control options by setting up job environments. This allows you to create any number of jobs that use identical job options.

This window gives you detailed, job-by-job control of the job options. The Environment field (under Job Control) defaults to Robot SCHEDULE's STANDARD environment. If you specify *RBTDFT for a control option value, the actual value is retrieved from the environment named in the Environment field. If you later change the values in the named environment, the control option value for this job changes automatically.

Job Submission

- Enter the job description for the job. The job description must be for a batch job. Click the Finder button to display a list of job descriptions. You also can select one of the following:

    - *RBTDFT: Uses the job description listed in the Environment for this job.

    - *USRPRF: Uses the job description on the user profile attached for this job.

    - *SBM: If this is a submit-delay model job and you want the job description to be picked up from the submitted job rather than copied from the model job.

- Enter the job queue to which Robot SCHEDULE should submit this job. Click the Finder button to display a list of job queues. You also can select one of the following:

    - *JOBD: Uses the job queue specified in the job description.

    - *RBTDFT: Uses the job queue listed in the Environment for this job.

    - *SBM: If this is a submit-delay model job and you want the job queue to be picked up from the submitted job rather than copied from the model job.

- Enter the message queue that should receive the message returned by SBMJOB when the job completes. This is the IBM completion message; it is not a Robot SCHEDULE message. Click the Finder button to display a list of authorized message queues. You can select one of the following:

    - *NONE: You do not want the message returned.

    - *RBTDFT: Use the value specified in the Environment for this job.

    - *USRPRF: Use the message queue attached to the user profile for this job.

- If you have defined library list names, enter the name of the library list to be used by the job. Before it runs the job, Robot SCHEDULE sets the library list for the job to the libraries in the list. Click the Finder button to display the library list objects. You also can select one of the following:

    - *JOBD: Use the library list specified in the job description.

    - *RBTDFT: Use the library list specified in the Environment for the job.

- Select a message reply option. This tells Robot SCHEDULE what to do if a job sends a terminal error message that requires a reply. You can select from the following:

    - *RBTDFT: Use the message reply value specified in the Environment for the job. **Note:** This is the default selection.

    - *DFT: Use the default message reply, which usually cancels the job. Use this option if you want the job to run unattended.

- *RQD: The operator must reply to the message. Use this option if tapes must be mounted or if nothing else should run if this job halts with an error message.

- *SYSRPYL: Check the system reply list for the appropriate reply. **Note:** We do not recommend the *SYSRPYL option. Instead, use Robot CONSOLE, our message, resource, and log management system, for sophisticated unattended message handling.

- *JOBD: Use the message reply option in the job description.

- Enter the user profile under which the job should run (you must be authorized to the profile). You also can select *RBTDFT or *JOBD. The user profile must have authority to all objects this job uses for processing, but it cannot be QSECOFR, RBTUSER, or RBTADMIN. Robot SCHEDULE allows a user profile whose authority is less than the one attached to the job to copy a job. If you want to pre- vent users from doing this, or from changing profiles, restrict them using Robot SCHEDULE security.

- Select the priority (1-9) to be given the job on the job queue. If no priority is specified, the job description's job priority is used.

  Note: The highest priority you can enter is determined by the Highest Priority Scheduling field on your user profile. At job submission, the operating system verifies that the submitting user profile has sufficient scheduling priority. If not, the job user's Highest Priority Scheduling value is used.

- Enter any job switch settings required by the job.

- Enter the library to be used as the current library for the job. The value you enter is substituted when the job actually runs.

  - Specify *CRTDFT if you do not want to designate a current library.

  - Specify *RBTDFT to use the current library listed in the job's environment.

- If you use Robot CPA or the job accounting journal to record job statistics, enter the account code to which the statistics for this job should be assigned.

- Specify the ASP Group in which you want the job to run. The default in the Standard environment is *NONE. You can specify the name of an ASP group or select *RBTDFT or *JOBD.

Job Control

- If Robot ALERT is installed, enter the name of the device or broadcast list to which a message should be sent if the job ends. Specify ***RBTDFT** to use the device from the job's environment. Specify ***NONE** if you don't want to send a message.

- Enter the number of runs to be maintained in job completion history. Job completion history also is used to determine the average run time for this job. The average run time is used when forecasting the effect of this job on the run schedule (see Schedule Forecasting).

  Robot SCHEDULE also uses the value specified in this field when performing an automatic purge of completion history (see System Setup).

- Enter the name of the calendar the job should follow when determining working and non-working days, and fiscal month-ends. Click the Finder button to display a list of available calendars. Select ***RBTDFT** to use the calendar from the job's Environment.

- If you use Robot AUTOTUNE, our performance tuning and monitoring software, enter the size (in K) of the memory pool in which the job should run. You can enter up to 11 digits. Use this value to control the amount of system resources this job can use and thus, how fast the job runs. Note: This value does not default to the value in the Environment for the job.

- Enter the name of the Environment for the job.

Note: You must set up your environments before you can select one on this window.

● If it is essential that the action specified in Maximum Run Action field is taken after a fixed amount of run time, enter that time limit. The time limit can be from 1 to 1439 minutes. Zero (0) minutes indicates there is no time limit.

● When the job has run for the number of minutes specified in the Maximum Run Duration field, Robot SCHEDULE takes the specified action. Select from the following actions:

   ● Warning Status: Allow the job to continue running. Robot SCHEDULE sends a warning message to the specified message queue and creates a warning status record.

   ● Warn & Page: Allow the job to continue running. Robot SCHEDULE sends a warning message to the specified message queue, creates a warning status record, and if you use Robot ALERT, sends message to the specified device.

   ● End the Job: Cancel the job when it reaches the maximum run duration. Before selecting this option, consider the possible problems that could result from cancelling the job before it has finished processing. If you select this option, another job is submitted to batch to end it.

Job Monitor Options

Use the Job Monitor Options window of Robot GUIDE to set the Job Overrun, Job Underrun, and Late Start options for the job. These options are independent of one another: you can use one, two, or all, three. Robot SCHEDULE includes these options to help you identify job schedule problems quickly.

The job monitors allow you to specify if Robot SCHEDULE should end the job, or notify you in three ways: send a message to the job's message queue; send a text, email, or pager message to the Robot ALERT device specified for the job (if Robot ALERT is installed on your system); and send a status to the Robot NETWORK Status Center (if Robot NETWORK is installed on your system).

● Select **Detect Job Overrun** to monitor a job if it runs longer than a maximum run time or completes later than a specified time of day.

● Select **Detect Job Underrun** to monitor the job if it completes in less time than a specified minimum run time.

● Select **Detect Job Late Start** to monitor the job if it starts later than its scheduled run time by the amount of time you specify, or starts later than a specified time of day.

If you selected any Job Monitors, clicking **Next** displays options windows for each of the job monitors (described below). Otherwise, clicking **Next** takes you to the Confirm Job Creation window.

Job Overrun Monitor Options

The Job Overrun Monitor Options window allows you to specify what actions Robot SCHEDULE should take if a job runs longer than it should. You can specify either a maximum time (in hours and minutes) the job should take to complete or a time by which the job should finish. You can enter values even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Job Overrun.

● Select **Maximum duration** to monitor a job based on how long it takes to complete. Then, enter the maximum time (in hours and minutes) the job can take to complete.

● Select **Must complete by** to monitor a job based on a time by which the job should finish. Then, enter the time by which the job should have completed.

   Notes:

- Must complete by is not valid if the job is an EVERY-type job.

- If you enter a Must complete by time, the time must be a valid time. For jobs that run over midnight, enter the Must complete by time as an early morning time. For example, if the job starts at 23:30, enter the complete by time as 1:15. If the job doesn't complete by 1:15 a.m., a job monitor event will occur.

- Specify the actions Robot SCHEDULE should take if the job does not complete in the time allowed. If you do not specify an option, an event will be logged in the job history and in the Job Monitor Events Log.

  You can select both Send a warning to and End the Job. If you select to send a warning, you can select any combination, but must select at least one, of the following: Job's Message Queue, Robot ALERT Device, or Robot NETWORK. Robot SCHEDULE can end the job only if it has been submitted and is on a job queue or running.

Job Underrun Monitor Options

The Job Underrun Monitor Options window allows you to specify what actions Robot SCHEDULE should take if a job completes too quickly. You can specify a minimum run time for the job. You can enter a value even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Job Underrun.

- Enter the minimum time (in hours and minutes) the job should run before completing.

  Note: You must enter a minimum duration if you select job underrun monitoring.

- Specify where Robot SCHEDULE should send a warning if the job completes faster than the time specified. If you do not specify an option, an event will be logged in the job history and in the Job Monitor Events Log.

- You can select any combination, but must select at least one, of the following:

  - Job's Message Queue

  - Robot ALERT Device

  - Robot NETWORK

Late Start Job Monitor Options

The Late Start Job Monitor Options window allows you to specify what actions Robot SCHEDULE should take if a job starts later than its scheduled run time. You can enter either the maximum amount of time (in hours and minutes) after its scheduled run time that the job can start or the latest time by which the job must start. You can enter values even if you have not selected the job monitor. Job monitoring will not take place until you select Detect Late Start.

- Select Later than scheduled by and enter the maximum time (in hours and minutes) after its scheduled run time that the job can start.

- Select Must start by to monitor a job based on a time by which the job should start. Then, enter the time by which the job should have started.

  Notes:

  - Must start by is not valid if the job is an EVERY- type job.

  - If you enter a Must start by time, the time must be a valid time.

  - If there are multiple run times for the job, the monitor uses only the first time.

- Specify the actions Robot SCHEDULE should take if the job does not start within the time specified. If you do not specify an option, an event will be logged in the job history and in the Job Monitor Events Log.

- You can select both Send a warning to and End the Job. If you select to send a warning, you can select any

combination, but must select at least one, of the following: Job's Message Queue, Robot ALERT Device, or Robot NETWORK. Robot SCHEDULE can end the job only if it has been submitted and is on a job queue or running.

Note: The job must be included in the internal forecast (*INTERNAL) for the Late Start monitor action to be recognized.

Confirm Job Creation Window

The Confirm Job Creation window of Robot GUIDE displays after you have finished setting up your job. Use it to review the job information and ensure the job is set up the way you want it to run. If you want to make changes, click **Back** until the window you want to change displays. When you are satisfied with the job setup, click **Save** to save the new job. The Job Creation Complete window then displays, allowing you to view the job's properties and fine-tune its configuration, if necessary.

- Click **Back** to edit the job before saving it.
- Click **Cancel** to exit Robot GUIDE without saving the job.
- Click **Save** to save the job and display the Job Creation Complete window.
- From the Job Creation Complete window, you can select to display the job's properties after exiting Robot GUIDE.
- Click **Finish** to end Robot GUIDE.

Application Properties

Use the Application Properties window to enter an application name with a description that will be associated with jobs in Robot SCHEDULE. Use the Job Properties window to set the job's schedule and work with other job options.
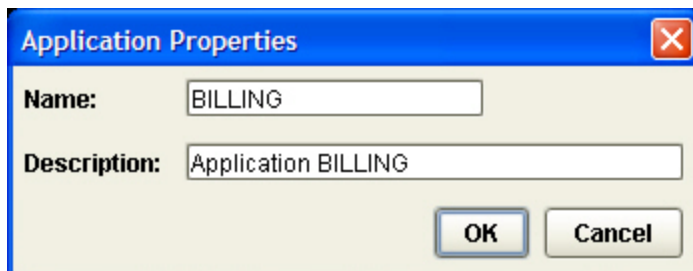
Dependent Reactive Jobs

The Dependent REACT Jobs window displays the dependent reactive jobs for the job listed in the Prerequisite Job Name Field.

- Prerequisite Job Name: The name of the prerequisite job.
- Reactive Job Name: The name of the reactive job that has the job in its prerequisite list.
- System: The system the prerequisite job runs on.
- React To Status: The completion status the job must return to satisfy the condition.

JOB MANAGEMENT

Managing Jobs

The Robot SCHEDULE Explorer offers multiple ways to work with your existing jobs.

See also:
Clearing Completion Codes
Working With Active Jobs
Running Missed Jobs
Schedule Override Codes

Clearing Completion Codes

Clearing Completion Codes for a Job

If you need to rerun a job that Robot SCHEDULE ran today, you should clear its completion code first. You can use the Job Schedule List to clear the completion code for a job.

1. Right-click the job and select **Blank Completion Code** from the options menu.
2. Use the Clear Completion Codes window to select the days for which you want to clear the completion codes.
3. To run the job again, right-click it select the **Do Job Now** override code to run the job immediately or the **Run Next Time** override code to run the job at its next run time.

Clearing Completion Codes for Prerequisite Jobs

Use the Job Schedule List to clear the completion status of a prerequisite job for a reactive job.

1. Right-click the reactive job and select **Prerequisite Status**.
2. Select the prerequisite job and select **Insert Status**.

3. Select **B Blank Status** to clear the Actual Status for the prerequisite job.

Clearing Completion Codes for All Jobs

Robot SCHEDULE records the completion of each job in its weekly job completion log. It clears its weekly log automatically as its first action each Monday morning (just after midnight). You also can clear all completion codes for all jobs for the current week by selecting Clear Completion Codes from the Explorer Tree view.

Notes:

* The Clear Completion Codes option does not clear the job completion history, job logs, or reactive job completion codes.
* You can clear one or more completion codes for an individual job by selecting the job in the List view or from the Job Schedule List. See The Job Schedule List, later in this User Guide, for more information on clearing a completion code for an individual job.

To clear all completion codes for all jobs for the current week,

1. Right-click the system name.
2. Select **Clear Completion Codes**.
3. A confirmation window displays asking you to confirm that you want to clear the completion codes. Select **Yes** to clear all job completion codes; select **No** to cancel the request.

Work With Active Jobs Window

The Work with Active Jobs window contains information about all of the jobs currently active in your IBM i server. To display the Work with Active Jobs window, select a system, right-click, select **Server**, and select **Work with Active Jobs**.

Job Attributes

Use the Job Attributes window to display detailed Status Attribute, Definition Attribute, Run Attribute, and Library List information for a job. Use this information for troubleshooting when job problems occur.

To display a job's attributes, select a job, right-click and select **Job Attributes**. The Display Job Attributes window displays information about the job's attributes organized by status, definition, run, and library list. (For specific information about the information displayed, refer to the appropriate IBM documentation.)

Ending Jobs

If you have the proper authority, you can end any job from the Work with Active Jobs window. To end a job, right-click and select **End Job**. The End Job dialog appears.

Select **Yes** when the confirmation dialog displays. Check the Use *IMMED when ending check box to end the job immediately (this is the default setting). If you do not select Use IMMED when ending, the job is ended in a controlled manner (*CNTRLD).

Note: Your IBM i user profile authority determines which functions you can perform on the system. The Robot NETWORK Explorer does not override this authority.

Holding and Releasing Jobs

You can hold or release jobs and their associated spooled files using the Work with Active Jobs window. When you hold or release a job, the window refreshes and the job's new status displays.

Note: If the job is currently held, the Hold Job option is unavailable (greyed out); conversely, if the job is active, the Release Job option is unavailable (greyed out).

1. Select **Hold Job** to hold the job or Release Job to release it. If you select to hold a job, a confirmation dialog displays to verify your choice.
2. Select **Yes** on the confirmation dialog to hold the selected job. You also can select to hold all of the spooled files associated with the job (this is the default setting).

Job QHST Log

Use the Display Job QHST Log option to display the contents of the message history queue (QHST) log for the selected job.

1. Select **Display Job QHST Log** from the menu to display the History Log window. The log shows the contents of the job log associated with the job message history.
2. You can save some or all of the messages displayed to a file or the clipboard.
3. You can display details about a message in the QHST message history log. Select a message, right-click to display the menu, and select **Message details** (this option is unavailable if you have selected multiple messages).
4. You can save some or all of the message detail to a file or the clipboard.

Job Log

Use the Display Job Log option to display the contents of the job log for the job you have selected.

1. Select **Display Job Log** from the menu to display the contents of the job log associated with the job.
2. You can save some or all of the job log to a file or the clipboard.
3. Select a message, right-click to display the menu, and select **Message details** to display details.
4. You can save some or all of the message detail to a file or the clipboard.

Running Missed Jobs

Jobs that would have run while the system was shut down are called missed jobs. Robot SCHEDULE lets you run any jobs that were missed. You can run all jobs missed since a specific time or choose specific jobs to run.

Note: Robot SCHEDULE also can run missed jobs automatically. Each time Robot SCHEDULE starts, it can check for jobs missed since midnight. Select **Run Autowork at Startup of SCHEDULE** on the General System Defaults window. Or, you can insert a call to program AUTOWORK in your startup program; Robot SCHEDULE must be running before you call AUTOWORK.

To run missed jobs:

1. Right-click the system name.

2. Select **Run Missed Jobs**. The Run Missed Jobs window displays:
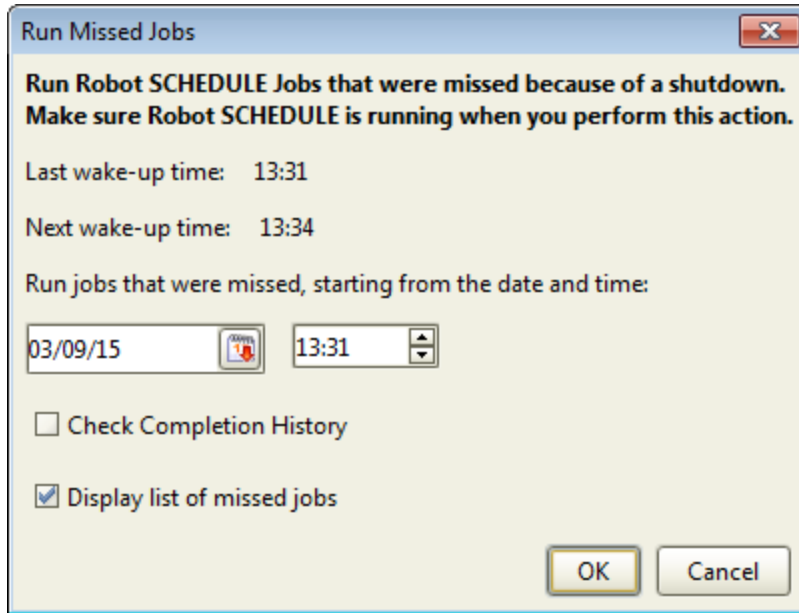
3. Enter the date and time at which you want Robot SCHEDULE to start checking for missed jobs.

- Today's Date: If you enter today's date, Robot SCHEDULE looks for jobs scheduled from the time you chose to the current time.

- Earlier Dates: If you enter an earlier date, Robot SCHEDULE looks for jobs scheduled from the time you chose until midnight of that date. Then it stops. If you need to check for missed jobs on more than one date, enter each date separately. **Note:** If you enter a date prior to the current week, be sure to select **Check Completion History** in step 4 so it will check completion history to see whether jobs have run. (Job completion codes are reset on Sunday evening at midnight.)

- Multiple Runs: If a job was scheduled to run more than one time on the date you specified, Robot SCHEDULE runs each missed job only once even if it has missed more than one run time. If a multiple-run job has completed once successfully on the date, it is not listed as "missed."

4. Select **Check Completion History** to check for a job's completion status. If an entry is found for the date you specified, it will not be considered "missed."

   Note: This parameter relies on completion history to perform an accurate check. Purged history records can make a job appear to have been "missed" when it actually ran.

5. Select **Display list of missed jobs** to display the Jobs Missed Finder window.

   Use the Jobs Missed Finder to display all scheduled jobs that were missed when Robot SCHEDULE was shut down. You can select specific jobs from the list to submit or click the Submit All Missed Jobs button to submit all jobs listed.
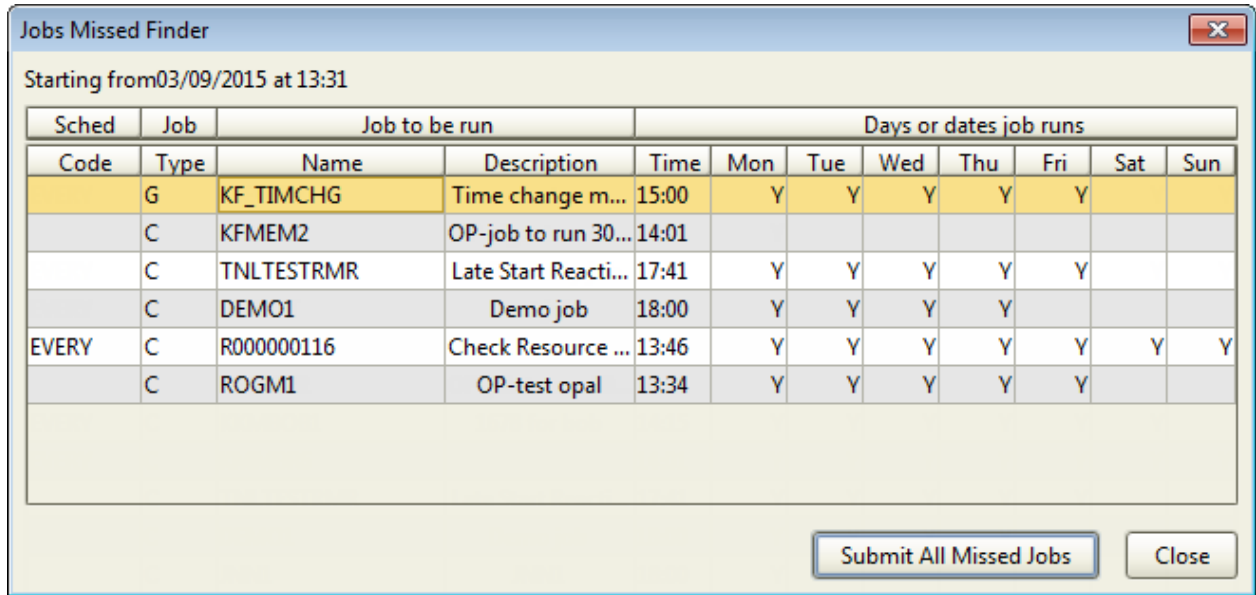
6. Select the jobs you want to run.

7. Select **Submit All Missed Jobs** to submit the selected jobs.

Schedule Override Codes

Robot SCHEDULE lets you override the normal run schedule for a job as needed. You can do this from the Job Schedule List and in several other windows in the product.

Note: Because the Job Schedule List displays all jobs, this section discusses all the schedule override codes available in Robot SCHEDULE. The override codes available on other setup windows vary depending on the type of job being displayed and are discussed in the appropriate section of this User Guide.

To specify a schedule override code, just select the code from the options available on the window. The code overrules the run schedule for the job temporarily, but does not change it permanently.

Do Job Now Override Code

The Do Job Now override code allows you to run most jobs immediately, even if the Robot SCHEDULE monitors are not active. The exceptions are group control jobs, Submit-Delay model jobs, and jobs that use the REACT scheduling option. If you select the Do Job Now option for a group control job, the Robot SCHEDULE monitors must be active for the jobs to run. This option is not allowed for Submit-Delay model jobs. If you select the Do Job Now option for a REACT job, the job runs, but any reactive jobs won't run until the Robot SCHEDULE monitors are active.

When you select the Do Job Now option for a job, all exception scheduling options are ignored. This includes the OPAL object, if the job has one. A window displays on which you confirm or cancel the request.

After the job run completes, the job completion history is updated. If it is scheduled to run only once in a day, the job is not run again the same day unless you blank out its completion code (its normal schedule resumes the next day).

If the Robot SCHEDULE monitors are active and the job is a Group Control Job, the Do Job Now option causes Robot SCHEDULE to submit the group. If you select the option for a Group Control Job, all job options, including exception

scheduling options (even OPAL), process normally. If you want to start a dependent group with a specific member and continue through the rest of the group, use the Start Now with this Member option, described on the next page.

Note: If the job has its own LDA record, selecting Do Job Now will submit the job and the LDA record. If there is no LDA record for the job, the Do Job Now override code submits the job with the LDA from your interactive job.

Special Override Options

The Do Job Now override code also allows you to specify special override options that let you run most jobs immediately, even if the Robot SCHEDULE monitors are not active. The exceptions are group control jobs and Submit-Delay model jobs. The Robot SCHEDULE monitors must be active to enter a special override option on a group control job. You cannot enter a special override option on a Submit-Delay model job.

All exception scheduling options are ignored, including an OPAL object if a job has one, if you do not select the Do with OPAL option.

You can choose the following special override options:

- DO with OPAL—Runs before- or after- OPAL for the selected job
- DO without reactivity—Runs the job and prevents reactivity
- DO and set to run at scheduled time—If the job is scheduled to run only once on the day that the special override option is selected, the job runs immediately and at the scheduled time.

After the job completes, the job completion history is updated.

Notes:

- If you select the Do Job Now override code and then, later in the same day, select the DO and set to run at scheduled time special override option, the job's completion is not cleared because the job ran earlier in the day.
- If you select the DO and set to run at scheduled time special override option on an OPAL delay job, the job may not clear the completion code. OPAL delay jobs are temporary jobs and are created separately from the original job.

Other Override Codes

Hold

Select the Hold override code to keep the job from running. The job will not run until after you remove the override.

Hold Application

Select the Hold Application override code to hold all jobs belonging to the same application as this job. A window appears with the name of the application; you then can confirm or cancel the request.

Omit Next Time

Select the Omit Next Time override code to keep the job from running at its next scheduled time. After that time has passed, Robot SCHEDULE removes the Omit Next Time override code and the normal schedule resumes.

Note: The Omit Next Time override code acts like a normal completion. If you have a reactive job waiting for a completion code of C from the job you are overriding, the Omit Next Time override code will kick off the reactive job.

Run Next Time

Select the Run Next Time override code to run the job at its next run time. The job will run at the next run time, regardless of any other scheduling options, such as Daily/Weekly, Advanced Scheduling, or Exception Scheduling. For example, if a job is scheduled to run at 9:00 and 11:00 Monday through Friday and you enter the Run Next Time override code at 15:00 on Friday, the job will run at 9:00 on Saturday.

If the job was put on hold before you selected the Run Next Time override code, it is put back on hold after the job run completes. If the job was not on hold, it returns to its normal run schedule.

Remove Override

Select the Remove Override code to remove any schedule override code on the job.

Release Application

Enter the Release Application override code to release all jobs belonging to the same application as this job. A window displays asking you to confirm or cancel the request.

Start Now With This Member

Select the Start Now with this Member override code option to start the group at this job, rather than re-running the entire group.

Job Setup Window

Use the Robot SCHEDULE Job Setup window to schedule jobs in Robot SCHEDULE.

Complete the following fields:

Name
Enter a name for the job.

Description
Enter a description for the job.

Run Times
Enter the run times for the job.

Run Days
Click the downward arrow for each day you want the job to run and then select the week of the month (or every week) on which you want the job to run.

Job Attributes

Use the Job Attributes window to display detailed Status Attribute, Definition Attribute, Run Attribute, and Library List information for a job. Use this information for troubleshooting when job problems occur.

- The Status Attributes tab displays information on the job's current status, including the user profile that ran the job, its start time, type, and other job information.
- The Definition Attributes tab displays job definition information.
- The Library Lists tab displays the library lists used for the job.
- The Run Attributes tab displays job run information.

Job Log Viewer

Use the Job Log window to display the system messages associated with a selected job.

Copy Applications

Use the Copy Application window to enter a new name for a copied application.

JOB SCHEDULE LIST

Job Schedule List

The Job Schedule List (JSL) summarizes the Robot SCHEDULE job schedule. Using this list you can schedule new jobs and manage the existing job schedule. You can sort the list using a variety of job criteria, including group control jobs, group member jobs, groups with members, held jobs, jobs with override codes, reactive jobs, or all jobs.

The Robot SCHEDULE Explorer displays the data in the JSL in a series of columns that describe the jobs. This information can include the type of job, the job name, override codes, attributes, reactive codes, schedule codes, description, time the job ran, associated application, and associated group name.
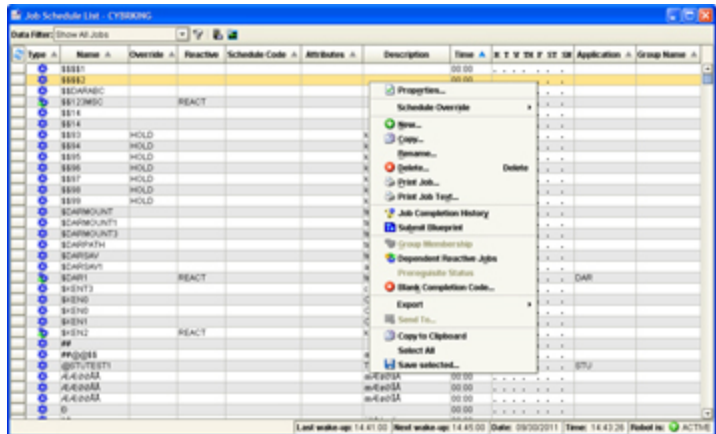
You can arrange the Job Schedule List columns in any order by clicking the column heading and dragging it to a new position. You also can sort columns that display a sort symbol, in ascending or descending order, by clicking the column heading.

Host Mode

In host mode, the Product Master Job Schedule List displays a list of the jobs defined in the Product Master on the host system. You can Use the Product Master Job Schedule List to define new jobs, view job information, modify current job settings, send jobs to other systems in the network, or delete jobs from node systems. You can select a single job or multiple jobs to send or delete.

See also:
Filtering the Job Schedule List View
Column Descriptions

JSL Menu
Schedule Override Codes
Robot SCHEDULE Details and Status

Filtering the Job Schedule List View

You can filter the Job Schedule List to limit the jobs shown using the data filter manager. The standard job schedule list data filters shipped with Robot SCHEDULE are shown below. In addition, you can create your own data filters.

- Group Control Jobs
- Group Member Jobs
- Groups with Members
- Held Jobs
- Jobs with Override Codes
- Reactive Jobs
- Show All Jobs (default)
- Submit-Delay Jobs
- Agent jobs (if you have Robot SCHEDULE Enterprise installed)

Job Schedule List Column Descriptions

Job Type

The Type column of the Job Schedule List displays a different icon for each job type: command, program or group. Move your cursor over a Job Schedule List entry (anywhere on the line) to display a call out box that lists the job type (including reactivity and group membership information) and other job information. In the example below, the icon in the Type fields represents a command job, which happens to be a group member.

Name

The Name column displays the name of the job.

Schedule Override Code

The Override column displays the schedule override code, if any, attached to the job.

Reactive

When the REACT scheduling code displays in the Reactive column, the job is a reactive job. The job runs when its conditions are met.

Schedule Code

If the job uses an Advanced Scheduling option, the code appears in the Schedule Code column. The codes are described below.

- INDAY: Job runs every n days.
- EVERY: Job runs every n minutes.
- REACT: Job runs when its conditions are met.

- DAYNO: Job runs on nth day of the month.
- DATE: Job runs on specified dates.

Attributes

The Attributes column displays job attributes, such as whether the job is the member of a group, or a submit-delay model job.

Description

The Description column displays the job's description.

Time

The Time column displays the next time the job is scheduled to run.

Runs Days or Dates

The Runs Days/ Dates column displays the days or dates the job runs.

- Y: Indicates the job will run on that day of the week.
- 1 - 5: Indicates the job will run on this day during this week number (week 1-5). For example, if you enter a 1, the job will run the first Monday.
- Numbers: If the job uses the DAYNO advanced scheduling option, numbers (any combination of positive or negative) show you the day numbers on which it will run.

Application

The Application column displays the application name associated with the job.

Group Name

The Group Name column displays the name of the group, if any, the job belongs to.

Job Schedule List Menu

Right-click a job in the Job Schedule List window to display the Job Schedule List menu. Use the menu to display other windows that apply to the job and to work with the job. This table describes the options you will find on the Job Schedule List menu. The options that display depend on the type of job you selected.

Option	Description
Properties	Displays the Job Properties window, which allows you to view and edit the properties of existing jobs.
Schedule Override	Allows you to attach a schedule override code to an existing job. See Schedule Override Codes for a description of each code.
New	Displays the Job Properties window so you can create a new job.
Copy	Displays the Job Properties window with the properties of the job you selected so you can create a new job by copying an existing one.
Rename	Allows you to rename an existing job.
Delete	Allows you to delete an existing job.
Print Job	Prints the Job Record List Report to a spooled file.

Option	Description
Job Text	Allows you to do two things: • Edit the job text. • Print the Job Text Report to a spooled file.
Job Completion History	Displays the Job Completion History window for the selected job.
Group Completion History	Displays the Group Completion History window for the selected group.
Schedule Activity Monitor	For Group Control jobs, displays the Schedule Activity Monitor.
Submit Blueprint	Allows you to build a blueprint based on the job setup and attributes.
Group Membership	Displays a list of the group or groups to which the job belongs.
Group Members	For a Group Control job, displays a list of the jobs that are members of the group.
Dependent Reactive Jobs	Displays a list of jobs that are dependent on the selected job.
Prerequisite Status	Displays a list of the jobs that are prerequisites to the selected job and their status.
Blank Completion Code	Allows you to clear completion codes for selected days.
Export	Allows you to do two things: • Export jobs to RBTMRGLIB for import on another system. • Export jobs objects to an XML file for import on another system.
Send to	If your system is in a network using Robot NETWORK, the Send to option allows you to send objects to another system in the network. See Using Robot SCHEDULE in Host Mode for complete information. The Send to option is not available on a standalone system.
Copy to Clipboard	Allows you to copy the job setup to the clipboard.
Select All	Allows you to select the job setup of all jobs displayed in the JSL to save to a file.
Save selected	Allows you to save the setup of the selected job to a file.

SCHEDULE ACTIVITY MONITOR

Schedule Activity Monitor

The Schedule Activity Monitor (SAM) provides a visual reference so that you can see that your jobs are running as expected. Whether you're new to Robot SCHEDULE or are an experienced user, SAM can help you monitor your job schedule.

You can use SAM to monitor all the jobs you have set up using Robot SCHEDULE. SAM can display information about jobs that are running, waiting to run, completed, failed, or forecasted.

SAM uses tabs that let you control which parts of your job schedule you want to display, while it monitors all of your jobs. The following table describes the SAM tabs and what you'll see when you select each one. In addition, each tab contains one or more menus from which you can select options to work with your jobs.
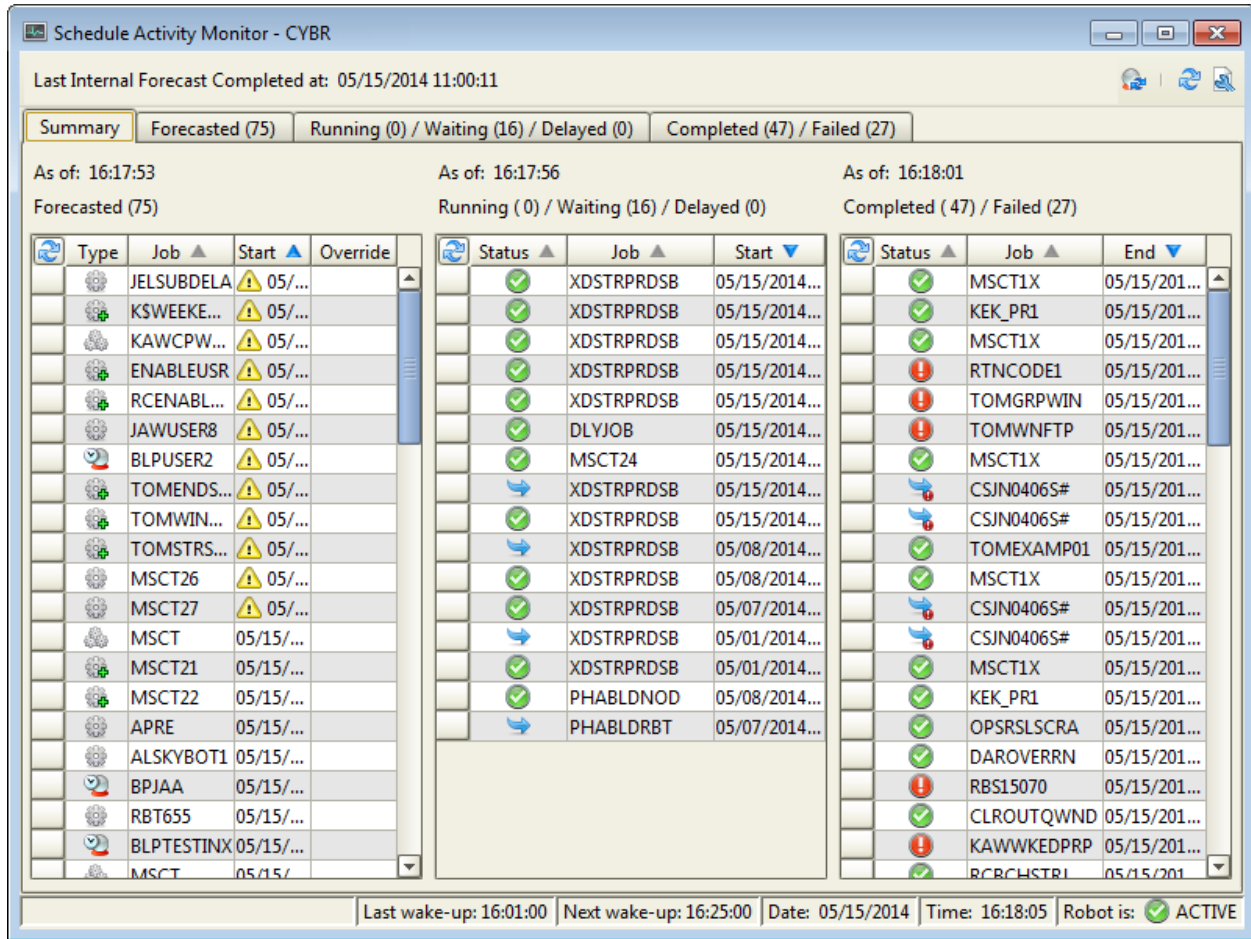
Tab in SAM	What it shows
Summary	Summarizes the job activity in the system by displaying a synopsis of the other tabs: Forecasted, Running/Waiting, and Completed/Failed. You can select a specific tab for more detailed information.
Forecasted	Lists each job scheduled to run in a 24-hour period, including its type, name, description, group, application, start time, and override code (if applicable).
Running/Waiting	Shows all the jobs that currently are running, waiting to run, or are OPAL delayed, including their status, name, description, group, application, start time, duration, and system.
Completed/Failed	Shows all the jobs that completed normally or abnormally and their status.

See also:

Using SAM

Summary Tab

Forecasted Tab

Running/Waiting/Delayed Tab

Completed/Failed Tab

SAM Preferences

Using SAM

Use the Schedule Activity Monitor toolbar to run anew internal forecast, refresh the data displayed in SAM's tables, and set the SAM preferences, which allow you to set the refresh rate and filter SAM's data.

- Click the Internal Forecast button to run a new internal forecast. The internal forecast allows SAM to display a list of the jobs scheduled to run over a 24-hour period. See Schedule Forecasting for more information.
- Click the Refresh button to refresh the information in the job tables.
- Click the User Preferences button to specify your SAM preferences.

Right-Click Menus

Each of SAM's tabs has a unique right-click menu that includes options for working with jobs displayed on the tab. The menus are the same whether you access them from the specific tab, or the corresponding section of the Summary tab.

Icons

The icon in the Type column indicates the type of job.

The icons in the Status columns of the Running/Waiting/Delayed and Completed/Failed tabs provide a visual indicator of the job's status. This allows you to use SAM for a quick overview of your jobs.

Robot SCHEDULE Details and Status

The fields at the bottom of the Job Schedule List display Robot SCHEDULE details and its status information.

Last wake-up

Time that Robot SCHEDULE last ran a job.

Next wake-up

Time that Robot SCHEDULE is next scheduled to run a job.

Date

The system date.

Time

The system time.

ROBOT is

Indicates the status of the Robot SCHEDULE monitors. The following are the possible statuses of Robot SCHEDULE:

- **ACTIVE:** Monitors have been started; Robot SCHEDULE can submit scheduled jobs.
- **INACTIVE:** Monitors have not been started; Robot SCHEDULE cannot submit scheduled jobs.
- **UNKNOWN:** Robot SCHEDULE is in the process of starting. Or, the active monitor jobs or the RBTSLEEPER subsystem was canceled. If the monitor job or RBTSLEEPER were canceled, the status remains unknown until Robot SCHEDULE is restarted.

Note: This information does not display when you display the Product Master Job Schedule List.

Summary Tab

The Summary tab is a combination of the other three tabs in the SAM: Forecasted, Running/Waiting/Delayed, and Completed/Failed. From the Summary tab you can display information about job or group completion history, spooled files associated with a job, a job's properties, job run history, and job details, You also can specify an override code, start a job, and save job information to the clipboard or another file.

The Summary tab displays information about the Robot SCHEDULE jobs forecasted to run in the next twelve hours, the jobs currently running, jobs that have recently completed (within the last one to two days), and jobs that have been checked off. The information displayed include the job's status, name, start time, and end time.

Forecasted Tab

The Forecasted tab displays a list of all the Robot SCHEDULE jobs scheduled to run in a 24-hour period. The list is generated by the internal forecast, which runs automatically at 12-hour intervals. Right-click to display a menu that allows you to display a job's properties, apply a schedule override code, display the job's completion history (individual and group jobs) and display a group's members.

Select a job and right-click to display the options menu:

- Select **Properties** to display and modify the job's properties.

- Select **Job Completion History** to see the job's completion history.

- Select **Schedule Override** to override the normal run schedule and control the job manually. If an override code has been applied, it displays in the Override column. For complete information on schedule override codes, see Schedule Override Codes.

- If you notice a job is going to run late or was missed, you can select Check-off Forecasted Job to acknowledge it. The Schedule Activity Monitor enters who checked off the job and when, so there is a record that it was acknowledged.

  Note: Checking off a forecasted job does not affect your job schedule.

- If the job is a member of a group, you can display the completion history of the group and the members of the group. If group completion history is available from a previous run, you can see where this jobs fits in the member sequence.

Running/Waiting/Delayed Tab

The Running/Waiting/Delayed tab shows all jobs that currently are running, waiting to run, or are OPAL delayed. Right-click a job to display menu options for monitoring and managing a job. You can display information about the job such as percentage of completion, completion history, spooled files, attributes, job log, and the job's properties.

Select a job and right-click to display the options menu:

- Select **Percent Complete** to display the completion percentage of the selected job.
- You can stop or hold a job that currently is running. Select **End** to end the job or **Hold** to place the job on hold. When you select either of these options, a dialog displays asking you to confirm the action. If you select to hold a job, the Hold dialog gives you the option to hold the job's spooled files. Select **Yes** to also hold the spooled files.
- Select **Job Completion History** or **Group Completion History** to see completion history for the selected job or group.
- Select **Job Spooled Files** to display and work with the job's spooled files.
- Select **Job Attributes** to display the job's attributes.
- Select **Display Job Log** to display the job log for the selected job.
- Select **Properties** to display the Job Properties window for the selected job.

Completed/Failed Tab

The Completed/Failed tab shows all jobs that completed normally or ended abnormally.

Select a job and right-click to display the options menu:

- To see the job's completion history, or the group completion history for a group, select the appropriate option.
- Select **Job Spooled Files** to display and work with the spooled files for the job.
- Select **Properties** to display the Job Properties window for the job.
- Select **Do Job Now** to run the selected job immediately.

SAM Preferences

Use the Activity Monitor Preferences dialog to specify how often to refresh the monitor tables; whether to show completed and failed jobs from today, or for the last two days; whether to display completed/failed and running/waiting user jobs; whether to show checked off forecasted jobs; and whether to show forecasted jobs that use the EVERY option.

HISTORY

Job Completion History Overview

The Job Completion History window (or Group Completion History window for group jobs) lists information about job runs on the system. It displays information about the actual start and end times for each job; the status of the job's completion (failed, successful, warning message); and detailed information about any spooled files, libraries, and messages associated with each job run.

You can display attribute information about a job based on its status, the way it was defined, and the result of its running. You can also display, save, and print any portion of the job log, message queue, or history (QHST), associated with a job.

Filtering Job Completion History

For clarity, you can filter the Job Completion history using the data filter manager. Robot SCHEDULE is shipped with standard job completion history data filters that allow you to display job history by:

- Time–completed, submitted, and terminated today; submitted last two days; today's activity
- Status–completed/failed or running/waiting
- Type–Robot/SCHEDULE jobs, all jobs, active jobs, and so forth

In addition, you can create your own data filters.

The completion messages for job runs accumulate automatically. You also can use the Job Completion History window to selectively delete history information you no longer need.

See also:
Job Completion History Details
Deleting Job History
Displaying Job Completion Percentage
Displaying Job Run History
Displaying Job Properties
Printing a Job Log
History Log (QHST) Viewer

Forecast Properties

Display Job Option

The Display Job option allows you to display a job's attributes, display information about the spooled files associated with a job, display or print the job log, and display the job's history (QHST) entries.

To see the Display Job options, right-click a job, and select **Display Job**. You can then select from the following options:

- Job Attributes
- Job Spooled Files
- Display Job Execution Log

  Note: This option is only available for Agent jobs. This option is not available if you have selected multiple jobs. If you select a job that is not active, the spooled file is displayed.

- Display Job Log

  Note: This option is not available if you have selected multiple jobs. If you select a job that is not running, the spooled file is displayed.

- Print Job Log
- Display QHST

Displaying the Job Completion History Window

You can display completion history from a number of windows in Robot SCHEDULE. To display the Job Completion History window for all jobs, click the Job Completion History button on the Explorer toolbar. Selecting completion history from windows that display jobs or groups displays the history for the selected job or group.

Displaying Job Completion History Details

Select a job and right-click to display a menu of options that you can use to examine and control the job. The first option, Display All Info, allows you to display a detailed record of the job's history. See Job Completion History Details for more information.

Job Completion History Detail

The Detail Value Column provides more information for each item in the Detail name column. See the table on the following page for more information on these fields.

The following table describes the information that displays on the Job Detail window.

Detail Name	Description
Job	The job name
Robot Job Number	The Robot SCHEDULE job number
Description	A user-supplied description of the job
Group Name	The name of the group with which the job is associated*

Detail Name	Description
Group System	The name of the system where the group is defined*
Initiation Code	Provided by the system
Message Status	A one-character code indicating the completion status of the job with which the message is associated. Possible values are: T - Terminated (job ended abnormally) E - Error on submit (error in setup, so job submission failed) C - Completed (job completed successfully) W - Warning (job completed with a warning message) D - Delay (delayed by OPAL) R - Running (job is currently running) S - Submitted (job has been submitted but is not running) P - Pending (job is in a queue waiting for OPAL to run) K - Skipped (job is skipped by OPAL) O - Omit (job is omitted from this run)
Message Text	The complete text of the job message
Message Last Changed	The date and time the message was last updated
Message Event ID	Provided by the system
Group Event ID	Provided by the system
System Job User	Provided by the system
System Job Number	Provided by the system
System Job Name	Provided by the system
* Only applies to Robot SCHEDULE group jobs.	

Job Execution Logs

Use the AGENTLOG window to display the job execution log information for the selected Agent job. **Note:** If you selected a job that is not active, the spooled file (if one is available) is displayed instead of the AGENTLOG window.

Right-click to copy job execution log information to the clipboard or save it as a text file.

Job Logs

Use the Job Log window to display the system messages associated with a selected job. **Note:** If you selected a job that is not active, the spooled file (if one is available) is displayed instead of the Job Log window.

Right-click a message to view details about the message (see below), copy it to the clipboard (including column headers), or save it as a text file (including column headers). Use the Control key to select multiple messages.

Message Details Window

Use the Message Details window to display details for the selected job log message.

Right-click to copy attributes to the clipboard (including column headers) or save it as a text file (including column headers). Use the Control key to select multiple attributes.

Printing a Job Log

You can print the contents of the job log to a IBM i spooled file. This option is not available if you select multiple jobs.

1. Select **Print Job Log** and specify an output queue for the print job.
2. Click the Prompt button to display a finder dialog you can use to locate an output queue.

History Log (QHST) Viewer

Use the History Log viewer to display history log entries for a selected job.

Right-click a message in the log and select **Message details** to display details (severity, message type, time and date sent) about the message and display the content of the message, in detail.

Displaying Job Completion Percentage

Use the Percent Complete option to display the current percentage complete of a job based on the job's average run duration (a job that completed is 100 percent). This can be useful for troubleshooting jobs. This option is not available if you select multiple jobs.

Select Percent Complete to display the percent of the job completed based on the average run duration of the job. For a job that has completed, this is 100 percent.

The Percent Complete window displays the job name, description, the normal duration (average) time required for the job to complete, and the total duration time (actual) amount of time the job has been running.

Displaying Job Run History

The Job Run History displays the history of the runs for the selected job. This history displays each job run, the actual elapsed time for the run, and the run time value to use for forecasting, if it is available.

Select Job Run History to display the time and date of each job run, the actual time the job took to run (Actual Elapsed Time), and the Forecast Elapsed Time.

Displaying Job Forecast Elapsed Time

You can edit the forecast elapsed time for a job run.

1. From the Job Run History window, right-click an entry and select **Edit Forecast Elapsed Time**. the Forecast Properties window displays.
2. Edit the new forecast time in minutes and click **OK**. The Job Job Run History window displays with the new time.

Job Run History Properties

Use the Forecast Properties window to edit forecast information. Enter the new forecast time in (minutes) in the **Forecast Elapsed Time** field and click **OK**. The window redisplays with the new time.

Displaying Job Properties

You can access and change job properties from the Job Completion History window.

Right-click a job and select **Properties** to display the Job Properties window.

Deleting Job History

Job completion history records accumulate until you delete them. You also can specify automatic deletion during system setup.

1. Select the records you want to delete.
2. Right-click and select **Delete History Record**.
3. A confirmation dialog displays asking you to verify the deletion. Click **Yes** to delete; **No** to cancel.

FORECASTING

Schedule Forecasting

A Robot SCHEDULE forecast shows you the run activity scheduled for all Robot SCHEDULE jobs over a time period you specify. To make its forecast, Robot SCHEDULE uses the job schedule, job completion history, and any information you add for user jobs, remote prerequisites, and members of remote groups. If you wish, the forecast can also include a run-time analysis of each active subsystem. The run-time analysis uses the subsystem's description to predict job queue wait time.

Robot SCHEDULE creates a special internal forecast, *INTERNAL, automatically every time it starts and at 12-hour intervals at 11:00 and 23:00. The forecast is for 24-hour periods and is designed to be used by the Schedule Activity Monitor (SAM) and Robot SCHEDULE job monitors. The Late start job monitor uses the *INTERNAL forecast to identify jobs that are late in starting. Because the *INTERNAL forecast is used by Robot SCHEDULE, you cannot modify or delete it. However, you can build a new *INTERNAL forecast at any time from the List view or from the Schedule Activity Monitor. (You also can use the RBTBLDFCT command from a green screen command line). You can print the *INTERNAL forecast from the Schedule Forecast print dialog.

You can view the forecast on the Schedule Forecast List window. The schedule forecast list shows each job scheduled to run during the forecast period with its start time and its expected run time. You can adjust the forecast by changing start times and run times, and by holding, releasing, and deleting jobs. These options allow you to perform "what if" scenarios without affecting your schedule.

If you wish, you also can update the actual Robot SCHEDULE job record. The update can hold or release the job or change its start time, but it cannot delete the job or change its run time.

See also:
Creating Forecasts
Schedule Forecast List
Forecast Schedule Jobs
Recalculating Forecasts
Deleting Old Forecasts
Printing Forecasts
Forecast Properties
Forecast Schedule Jobs

Creating Forecasts

The forecast is based on the job schedule, run history, and run-time analysis of each active subsystem. (The run-time analysis uses the subsystem's description to predict job queue wait time.) You can schedule the build on Robot SCHEDULE or build it in batch. The forecast period begins when the forecast is run and continues for the time specified, or the period defined by the start and end times.

To create a new job forecast:

1. Right-click **Forecast Objects** and select **New**. The Create Forecast window displays.

2. Enter a name and description for the forecast. If you accept the defaults (*GEN and *FCT), Robot SCHEDULE generates a name using a 10-character format. The first character is F (for forecast), followed by a 6-digit date using the date format of the job that builds the forecast, followed by a 3-digit sequence number. The description is identical to the forecast name.

   Note: If you build a forecast using an existing forecast name, the new forecast overwrites the old one.

3. Define the time parameters for your forecast. You can choose from Forecast Length or Forecast Period:

   - Select **Forecast Length** to specify the length of time for the forecast in days (up to 999) or hours (up to 999). The forecast time period begins when the build is submitted.
   - Select **Forecast Period** to specify a date and time range. Enter the beginning and ending dates and times for the forecast.

4. The Create Forecast window lists the subsystems on your system that are currently active. You can add or remove subsystems that are included in the forecast.

   - To add a subsystem, click **Add**. If you select to add a subsystem, the Subsystem Finder displays so you can select a subsystem.
   - To remove a subsystem, select the subsystem and click **Remove**.

5. Click the **Schedule** button to schedule the forecast build in Robot SCHEDULE.

Robot SCHEDULE forecasts based on a run-time analysis of all of the subsystems listed.

Adding Non-Robot SCHEDULE Jobs to a Forecast

Initially, a forecast uses only the information from the Robot SCHEDULE job schedule and Robot SCHEDULE job completion history. For a more complete forecast, you can add other jobs that will run during the forecast period.

To add a job to the forecast, right-click **Schedules for Forecasting** and select **New**. Select the type of job you want to add from the Create Forecast Schedule window.

Adding Remote Prerequisite Jobs to a Forecast

If you are forecasting a job that has a prerequisite on a remote system, you can add the prerequisite job schedule to get a more accurate forecast.

1. Select **Remote prerequisite** on the Create Forecast Schedule window.
2. The Select a Job finder lists the jobs on all systems that are prerequisites to jobs on your system. Select the job you want to add to the forecast.
3. The Job Properties window for the selected job displays, allowing you to edit the schedule of the job.
4. Click **OK** when you are done to add the job to the forecast schedule.

Adding a Member of a Remote Group

If a job on the local system is a member of a remote group, you can include it in your forecast to make the forecast more accurate. (This does not forecast when the group will run on the remote system.)

1. Select **Member of a remote group** to display the Select a Job finder.
2. The Select a Job finder lists the Robot SCHEDULE jobs on your system. Select the job whose group control job is on a remote system.
3. The Job Properties window for the selected job displays, allowing you to edit the schedule of the job.
4. Click **OK** when you are done to add the job to the forecast schedule.

Adding a User Job

1. Select **User job** to display the User Job Information dialog.
2. Enter the name and description of the job you want to add to the forecast.
3. The Job Properties window for the selected user displays. Use the window to add the schedule of the job.

Creating Forecast Schedules

Use the Create Forecast Schedule window to add a schedule to the forecast for jobs with remote prerequisites, jobs that are members of a remote group, user jobs (jobs outside of Robot SCHEDULE), agent events (monitors on agent systems), or event monitors (monitors on the IBM i system).
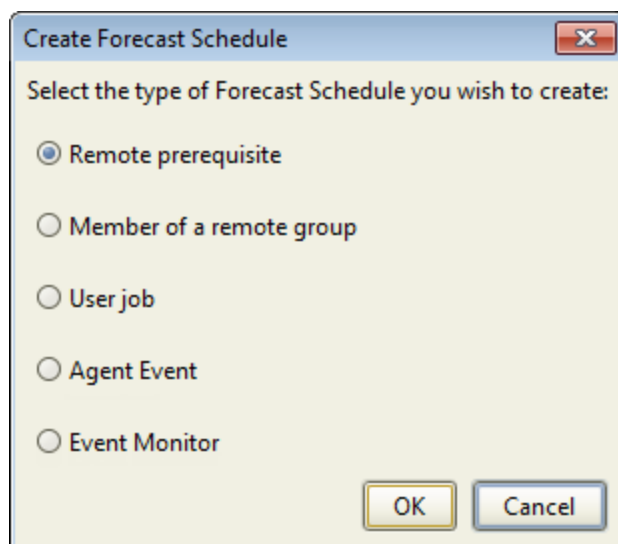
To create a new forecast schedule:

Right-click **Schedules for Forecasting** and select **New**. The Create Forecast Schedule window displays. Choose one of the following options:

- Select **Remote prerequisite** if you are forecasting a job that has a prerequisite on a remote system. By adding the prerequisite job schedule, you'll get a more accurate forecast.

- Select **Member of a remote group** if a job on the local system is a member of a remote group. Including the remote group member makes the forecast more accurate.
- Select **User job** to add a user job to the forecast. A user job is a job that runs outside of Robot SCHEDULE. Enter the User Job Name and Description for the for the Forecast Schedule you are creating.
- Select **Agent Event** to add an agent event monitor to the forecast. It monitors for an event (file/directory change, process started/ended) that occurs on an agent system connected through Robot SCHEDULE Enterprise.
- Select **Event Monitor** to add an event monitor to the forecast. It monitors for an event (file/directory/member change) that occurs on the IBM i system you're connected to.

Schedule Forecast List

The Schedule Forecast List window displays each job scheduled to run during the forecast period with its start time and expected duration. The expected duration is a moving average of the job's past run times. You can adjust the forecast by changing its start times and duration. You can also update the actual Robot SCHEDULE job record to hold or release the job or change its start time.

Use the Subsystem, Job Queue, and Data Filters to display only the jobs you want to see.

Right-click a job in the table to display the following menu options for working with the job:

- Edit Forecast Properties: You can change the start times and duration for a job on the Forecast Properties dialog. Changes you make to these values are stored with the forecast; they are not used when you build a new forecast.

  Note: If you change any information in this window, you should recalculate the forecast (see Recalculating a Forecast, later in this section).

- Remove From Forecast: You can remove a job from the schedule forecast. You should recalculate the forecast if you remove a job.

- Job Run History: Select Job Run History to display the Job Run History window. The information shown includes details about the job's start date and time, the actual elapsed time, and the forecast elapsed time. You can change the forecast elapsed time for the job. This is useful if the job's average duration is skewed because of a particularly short run due to abnormal termination or a long run due to various reasons and you want to use its normal run time in the forecast. Robot SCHEDULE uses the average of the run times stored in history to calculate the run time for this job when you build a new forecast.

  To change the elapsed time for the forecast, select a forecast, right-click, and select **Edit Forecast Elapsed Time**. Use the Forecast Properties window to enter the new elapsed time you want the forecast to use.

Recalculating Forecasts

Anytime you change the start times or duration for jobs, or the actual jobs contained in the schedule forecast, you should recalculate the forecast. This process may take some time.

To recalculate a forecast, select the forecast and select **Recalculate**. A confirmation dialog box displays asking you to verify that you want to start the recalculation process.

Deleting Old Forecasts

There are three ways to delete forecasts:

- To delete multiple forecasts older than a certain number of days, right-click **Schedule Forecasting** or **Forecast Objects** from the Tree view and select **Delete Old Forecasts**. Enter the number of days to retain forecasts on the Delete Old Forecasts dialog.
- To delete individual forecasts, select **Forecast Objects** from the Tree view, right-click a forecast and select **Delete**. A confirmation dialog box displays asking you to confirm the deletion.
- You can schedule the RBTDLTFCT command in Robot SCHEDULE. See the Robot SCHEDULE Green Screen User Guide for complete information on the RBTDLTFCT command.

To delete multiple forecasts beyond a certain age, right-click **Schedule Forecasting** or **Forecast Objects** and select **Delete Old Forecasts**. Enter the number of days for which you want to retain forecasts on the Delete Old Forecasts dialog.

To delete an individual forecast, right-click a forecast and select **Delete**. Click **Yes** to confirm the deletion.

Forecast Properties

Use the Forecast Properties window to change the duration and start times for jobs. The changed duration and start times are used when you recalculate the schedule forecast.

Printing Forecasts

To print a forecast:

1. Select Forecast Objects from the Tree view, right-click the forecast and select **Print Forecast**.
2. Enter the name of the forecast you want to print, its subsystem and job queue, and the output queue for the forecast.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Forecast Schedule Job

You can create a Forecast Schedule job using the Initial Job Setup, Scheduling, and Control tabs on the Job Properties window.

Initial Job Setup Tab

Job Type

Display only. The default value is Forecast Schedule.

Application

Enter the name of the application to be associated with the job (optional).

Schedule Override

Robot SCHEDULE lets you override the normal run schedule for a job as needed. Enter a schedule override code to override the run schedule for the job.

Notes

Enter job notes (up to 56 characters).

Scheduling Tab

Scheduling Method / Days and Times to Submit Job

Select one of the following scheduling methods for the job.

Note: The method you select determines what displays (how you enter run dates and times) on the Scheduling tab.

Weekly or Monthly

Select the days of the week and the

INDAY - Daily Interval

Select the start date for the job. Enter the job interval (run every *x* days), and the type of day on which to run. Then, enter the times you want the job to run.

EVERY - Timed Interval

Select to run a job regular time intervals from 5 to 1429 minutes. Select the days of the week or week of the month on which you want the job to run. If you don't select a day, the job will run each day every week.

DATE - Date Object

Enter a date object name or click the Finder button to select one. Then, enter the times you want the job to run.

DAYNO - Days of the Month

Enter the days of the month on which you want the job to run. Choose the type of day on which to run. Then, enter the times you want the job to run.

Control Tab

Job Submission

Job Description

Enter the job description for the job. The job description must be for a batch job. Click the Finder button to display a list of job descriptions. Select ***RBTDFT** to use the job description listed in the Environment for this job. Select ***USRPRF** to use the job description attached to the user profile for this job.

Job Queue

Enter the job queue to which Robot SCHEDULE should submit this job. Click the Finder button to display a list of job queues. Select ***JOBD** to use the job queue specified in the job description. Select ***RBTDFT** to use the job queue listed in the Environment for this job.

Message Queue

Enter the message queue that should receive the message returned by SBMJOB when the job completes. This is the IBM completion message; it is not a Robot SCHEDULE message. Click the Finder button to display a list of message queues. Select ***NONE** if you do not want the message returned. Select ***RBTDFT** to use the value specified in the Environment for the job. Select ***USRPRF** to use the message queue attached to the user profile for this job.

Library List

The Robot SCHEDULE Library List Management system lets you enter a list of libraries under a library list name. If you have defined library list names, enter the name of the library list to be used by the job. Before it runs the job, Robot SCHEDULE sets the library list for the job to the libraries in the list. Click the Finder button to display a list libraries. Select ***JOBD** to use the library list specified in the job description. Select ***RBTDFT** to use the library list specified in the Environment for the job.

Message Reply

Select a message reply option. Your selection tells Robot SCHEDULE what to do if a job sends an error message that requires a reply.

Select ***RBTDFT** to use the message reply value specified in the Environment for the job (this is the default selection). Select ***DFT** to have Robot SCHEDULE use the default message reply, which usually cancels the job. Use this option if you want the job to run unattended. Select ***RQD** to specify that an operator must reply to the message. Use this option if tapes must be mounted or if nothing else should run if this job halts with an error message. Select ***SYSRPLY** to have Robot SCHEDULE check the system reply list for the appropriate reply. **Note:** We do not recommend this option. Instead, use Robot CONSOLE, our message, resource, and log management system, for sophisticated unattended message handling. Select ***JOBD** to have Robot SCHEDULE use the message reply option in the job description.

User Profile

Enter the user profile under which the job should run (you must be authorized to the profile). **Notes:** This user profile must have authority to all objects this job uses for processing, but it cannot be QSECOFR, RBTUSER, or RBTADMIN.

Select ***JOBD** to use the user profile specified in the job description by its USER parameter. Select ***RBTDFT** to use the user profile listed in the Environment for this job.

Job Priority

Select the priority (1-9) to be given the job on the job queue. Select ***JOBD** to use the job priority specified in the job description. **Note:** The highest priority you can enter is determined by the Highest Priority Scheduling field on your user profile. At job submission, the IBM i verifies that the submitting user profile has sufficient scheduling priority. If not, the user's Highest Priority Scheduling value is used.

Job Switches

Enter job switches.

Current Library

Enter the library to be used as the current library for the job. The value you enter is substituted when the job actually runs. Click the Finder button to display a list of libraries. Select ***CRTDFT** if you don't want a current library designated. Select ***RBTDFT** to use the current library listed in the job's Environment.

Accounting Code

If you are using Robot CPA or the job accounting journal to record job statistics, enter the account code to which the statistics for this job should be assigned. Select ***RBTDFT** to use the accounting code specified in the job's Environment. Select ***JOBD** to use the accounting code specified in the job description. Select ***USRPRF** to use the accounting code attached to the user profile for this job.

Initial ASP Group

Enter the initial ASP group. Enter ***RBTDFT** to use the ASP group specified in the job's environment. Enter *NONE if there isn't an initial ASP group.

Job Control

Robot ALERT Device

If you have Robot ALERT installed, enter name of the device to which a message should be sent if the job terminates abnormally. Click the Finder button to display a list of Robot ALERT device names. Select ***RBTDFT** to use the device name from the job's Environment.

Historical Runs

Enter the number of runs to be maintained in Job History. Job History also is used to determine the average run time for this job. The average run time is used when forecasting (see Schedule Forecasting). Robot SCHEDULE also uses the value specified in this field when performing an automatic purge of completion history (see System Setup).

Calendar

Enter the name of the calendar the job should follow when determining working and non-working days, and fiscal month-ends. Click the Finder button to display a list of available calendars. Select ***RBTDFT** to use the calendar from the job's Environment.

Robot AUTOTUNE Pool Size

If you are using Robot AUTOTUNE, our performance tuning and monitoring software, enter the size (in Kilobytes) of the memory pool in which the job should run. You can enter up to 11 digits. Use this value to control the amount of system resources this job can use and thus, how fast the job runs. **Note:** This value does not default to the value in the Environment for the job.

Environment

Enter the name of the Environment for the job. Click the Finder button to display a list of environment names. **Note:** You must set up Environments before they can be selected.

Maximum Run Duration

Enter the maximum run time for the job (1 to 1439 minutes). Leave the blank if you want the job to run without a time limit. **Notes:** This option allows you to use the Maximum Run Duration field to tell Robot SCHEDULE what to do when a job runs too long. You can have Robot SCHEDULE end the job or continue running it. If it continues running, Robot SCHEDULE can send a warning status record and a Robot ALERT message. That way, if a job takes an unusually long time to run, you will be warned and you can take corrective action to adjust the schedule.

Maximum Run Action

When the job has run for the number of minutes specified in the Maximum Run Duration field, Robot SCHEDULE takes the action specified in this field.

Select **Warning Status** to allow the job to continue running, send a warning message to the message queue listed on this window, and create a warning status record.

Select **Warn & Page** to allow the job to continue running, send a warning message to the message queue listed on this window, create a warning status record, and send a message via Robot ALERT.

Select **End the Job** to cancel the job when it reaches the maximum run duration. **Notes:** Before selecting this option, consider the possible problems that could result from cancelling the job before it has finished processing. If you specify the option to end the job, another job is submitted to batch to end it.

SCHEDULING OBJECTS

Scheduling Objects

Object-oriented scheduling allows you to create several types of scheduling objects that can be attached to multiple jobs. By attaching the same objects to multiple jobs you gain the benefits of reuse, including simplifying the setup and maintenance of jobs. The use of scheduling objects is optional.

The Explorer Tree view displays scheduling objects by the following types:

- Calendar Objects
- Command Sets
- Date Objects
- Event Monitors
- Library List Objects
- Job Environment Objects
- Reserved Command Variables
- OPAL Objects
- Query Objects

Deleting Scheduling Objects

A scheduling object can be used by multiple jobs. Robot SCHEDULE allows you to display a list of jobs (and job environments) that use an object so you can consider the impact of deleting it. You can see the jobs (and environments, where applicable) that are using the selected scheduling object.

Because there are different circumstances to consider when deleting each type of scheduling object, this section includes unique instructions for deleting each of the scheduling object types.

Switching Scheduling Objects

You can easily switch a run or exception date object, or a calendar object for every job that uses the object. Before you switch a scheduling object, make sure you create a new object (or select an existing one) to replace the one you're switching.

1. Right-click the object and select **Switch**.
2. Enter the name of a replacement scheduling object, then click **OK**.

Calendar Objects

Several scheduling options use a calendar to determine working and nonworking days and fiscal month-ends. You specify the calendar name on the job's Environment or Control window. Robot SCHEDULE allows you to create and name as many calendars as you need. These calendars can be used by many different jobs. For example, you might want all the jobs associated with a particular application to use the same calendar.

Robot SCHEDULE comes with a default STANDARD calendar defined; you can define any other calendars you need. Robot SCHEDULE allows you to create as many calendars as you need. And, you can change them as needed. When you create a new calendar, Robot SCHEDULE copies the Standard calendar to the new calendar.

Note: Month-end dates are not allowed in a standard calendar; specify them only for fiscal calendars.

Creating a Calendar Object

To create a new Robot SCHEDULE calendar:

1. Right-click **Calendar Objects** and select **New**. The Calendar Object Properties window displays.

2. Enter a name and description for the calendar.

3. Select the working days of the week for the calendar.

4. Click to select the holidays and non-working days for the calendar. Or, click and drag to select multiple dates. Use the arrows to display the previous or following year.

   Notes:

   * A non-working day is a day when you do not want a job to run, such as a weekend or holiday.

   * You can define up to forty (40) holidays and non-working days.

   * Select **Clear All Dates** to clear all dates from the calendar.

To create a new Robot SCHEDULE Fiscal calendar:

1. Right-click **Calendar Objects** and select **New**. The Calendar Object Properties window displays.

2. Click the Calendars tab and select **Fiscal** as the Calendar Type.

3. Enter the Year End date for the prior year.

   Note: You cannot proceed until you enter this date.

4. Enter a name and description for the calendar.

5. Select the working days of the week for the calendar.

6. Select the fiscal month end dates. Each date you select displays next to the calendar. Use the arrows to display

the previous or following year.

Notes:

- As you select the month-end dates for the 12 or 13 fiscal months in the current year, they display in the list to the left.

- Select **Clear All Dates** to clear all dates from the calendar.

Modifying Calendars

You can change a calendar's working or non-working days and holidays at any time. You also can change a calendar from Standard to Fiscal, and vice versa, whenever necessary. If you change a calendar from Fiscal to Standard, you lose the defined fiscal month end dates.

Switching and Deleting a Calendar

Robot SCHEDULE makes it easy to switch the calendar for every job or job environment that uses a calendar. Calendar objects are required by Robot SCHEDULE jobs. Before you can switch a calendar, you must create a new calendar (or select an existing one) to replace the one you're switching. After you have switched to the new calendar, the old one can be deleted.

Note: To change the calendar used by an individual job, enter the new calendar name on the Control tab of the Job Properties window.

To replace a calendar:

1. Right-click the calendar and select **Switch**. The Select Replacement Calendar Object window displays.
2. Enter the name of the replacement calendar and click **OK**. The Where Used window displays all jobs and job environments that use the calendar you are replacing.
3. Click **Change All Listed Jobs** to switch the calendar for all the jobs and environments that are listed.
4. After you have switched to the new calendar, you can delete the old one. In the List view, right-click the old calendar and select **Delete**.

Command Sets

Robot SCHEDULE allows you to create command sets, which can be used by many different jobs. The true benefit of using command sets is the time you save when it's necessary to update your jobs. Instead of updating the commands in each job, you can update the command set and be done.

Creating or Editing a Command Set

Robot SCHEDULE allows you to create command sets, which are groups of commands that are used by different jobs, sometimes many different jobs. If you need to update a command, a command set allows to update it in only one place.

To create a command set:

1. Right-click **Command Sets** and select **New**. To edit an existing command set, select the command set and select **Properties**. The Command Set Properties window displays.

2. Enter a name and description for the command set.

3. Use the **Add** button to add a blank command line. If you know the command, you can enter it on the blank command line. Or, click the Finder button to select from a list of system commands.

4. Select what Robot SCHEDULE should do if there is a command error:

   - Ignore: Ignores the error and continues the job.
   - Cancel: Cancels the job.

5. Click the **Add Nested Job** button to add a nested command. A list of jobs displays, from which you can select a job.

6. Click the **Command Finder** button to select a Robot SCHEDULE command for the command set to run.

   Notes:

   - To remove a command from the command set, select the command and click **Remove**.
   - Use the **Move Up** and **Move Down** buttons to change the order of the commands in the command set.

Deleting a Command Set

Since a command set can be used by multiple jobs, Robot SCHEDULE allows you to see which jobs are using a command set, and assign a new command set (or enter unique commands) to the job. Right-click a command set in the List view and select Where Used. The Where Used window displays a list of the jobs that use the command set. Assign a different command set, or enter unique commands, for the jobs. You then can delete the command set.

Date Objects

Date objects give you even greater flexibility with your scheduling. They are intended to do the following:

- Define run dates for jobs using the DATE scheduling method
- Support irregular schedule patterns
- Provide an easy way to omit dates from a job's run schedule
- Provide a reusable module that can be attached to many jobs

Date objects cover a 12-month period. The date object is not a calendar. Calendars still determine working and nonworking days. You should NOT use a date object to define your holiday schedule. You can edit date objects at any time. See Switching Date Objects, later in this section, for complete information.

Robot SCHEDULE checks for expired or nearly-expired date objects during the morning schedule build process. Objects that have expired or are within a month of expiring are listed in the job completion history for the job.

There are two types of date objects–Run Dates and Exception Dates. A run-type date object is used in conjunction with the DATE scheduling method. An exception-type date object contains the dates that are omitted from the job's normal schedule as determined by exception scheduling options.

An exception-type object can provide exceptions to a job's standard schedule.

You can choose to have Robot SCHEDULE warn you (by sending a message to the job completion history file) when a normally scheduled run is omitted because of the information contained in the date object.

Using Date Objects With Group Jobs

For jobs that are members of a group, a date object also can provide exceptions to the group schedule for one or more members. When an exception-type date object is used for a group member, the member will be excluded from the group on the dates selected in the date object. The date object does not affect other members of the group. The group is simply scheduled as if the member were not part of the group on this date. For reactive groups, the omitted member does not run, but the next group member not also omitted by a date object will run.

See also:
   Creating and Editing Date Objects

Creating and Editing Date Objects

You can create as many date objects as you need, and change them as often as necessary. There are two types of date objects: Run Dates, which specify the run dates for jobs using the DATE scheduling method, and Exception Dates, which specify the exception dates to the job's normal run schedule.

To create a date object:

1. Right-click **Date Objects** and select **New**. To edit an existing date object, right-click the object and select **Properties**. The Date Object Properties window displays.
2. Enter a name and description for the date object. You might want to include the type of the object (Run or Exception) in the name and the description for easy identification.
3. Select the date object type:
   - Run Dates: Specifies the run dates for jobs using the DATE scheduling method.
   - Exception Dates: Specifies the exception dates to the job's normal run schedule.
4. Enter a starting month for the date object.
5. For Exception Date objects only, select whether you want to be notified when a job is omitted. If you select Create Warning Message on Exception Dates, the job's completion history will show when a run was omitted due to the date object.
6. Click to select the dates you want to include in the date object.

Switching and Deleting a Date Object

You can easily switch a run or exception date object for every job that uses the object. Before you switch a date object, create a new date object (or select an existing one) to replace the one you're switching. After you have switched to the new date object, you can delete the old one.

To replace a date object:

1. Right-click and select **Switch**. The Select Replacement Date Object window displays.
2. Enter the name of the replacement date object and click **OK**. The Where Used window displays all the jobs that use the date object you are replacing.
3. Click **Change All Listed Jobs** to switch the date object for all jobs listed.
4. After you have switched to the new date object, you can delete the old one. In the List view, right-click the old date object and select **Delete**.

Changing the Start Date for Date Objects

When a date object expires, you can change its start date and continue to use it. This saves you from creating a new date object each time an object expires. You can change the start dates for run-type and exception-type date objects.

1. Click **Set Starting Month** to select a new month or year for the date object. The Starting Month dialog displays.

2. Select a new starting month and/or year for the date object.

   The Start Date Changed window displays, allowing you to select how to handle the dates in the date object.

3. Select one of the following options for the date object:

   - **Clear all the existing date flags**: Clears all dates in the date object and allows you to enter new dates.

   - **Map all flags by month/day**: Uses the same starting month and dates with a new year. Select this option if you change the starting year.

   - **Keep common month/day/year flags**: Uses the new starting month keeps the dates for the rest of the year. Select this option if you changed the starting month. For example, if you have dates set up for the entire year and change the starting month from January to June, the date object now starts in June and uses the dates from June to December, plus any dates for the following year.

Event Monitors

Robot SCHEDULE includes event monitors to let you know when something has happened on the IBM i you're connected to. You can monitor for events such as changes to a file (IFS or native), directory (IFS), or member (native). You can then use these event monitors as prerequisites for reactive jobs.

Note: You can only create the event monitors in Robot SCHEDULE GUI.

Creating an Event Monitor

To create an event monitor:

1. Under Scheduling Objects, right-click **Event Monitors** and select **New**. The Event Monitor Properties window displays.
2. Enter a unique **Name** and **Description** for the event monitor. **Note:** This name must be unique among all event monitors, including agent event monitors (if you have Robot SCHEDULE Enterprise installed).
3. Select the **Event Type** that you want to monitor (see options below).
4. Set the number of days to retain history for this event.
5. Check **Enable the Event Monitor** to enable this event monitor. If this option is not checked, the event monitor is not started.
6. Set the times that this monitor is allowed to run. If both times are set to 0:00, then all events that occur can trigger reactivity. The monitor will continue to poll, even during off times, but any events that occur during off time won't trigger reactivity.
7. Set how often, in seconds, you want this event monitor to poll.
8. Set properties for the type of event monitor you're creating:
   - File Events
   - Directory Events
   - Member Events
9. Click **OK** to save the event monitor.

See also:
  [Viewing the event monitor history](#)

Directory Events

You can fire an event when an IFS directory is added, removed, changed, or reaches a certain size. Use the Event Monitor Properties window to set up directory event properties.

1. Complete the basic monitor information described in [Create an Event Monitor](#).

2. Enter the path and file name or click the Find 🔍 button to select an IFS directory to monitor (only IFS directories will be in the list). The specified directory can contain wildcards. Depending on the file system, the File/Path may be case sensitive. Leading and trailing blanks for directory and file names are important.

   To monitor for a specific directory:

   - /home/application/somedir

   To monitor for any/all subdirectories, use * as a generic value:

   - /home/application/*

   To monitor for a set of generic directories, use * or ? as a generic value, where * is one or more characters and ? is one generic character:

   - /home/application/dir*
   - /home/application/*dir
   - /home/application/dir?

3. You can use reserved command variables (RCV) in the path. However, be sure to use only static command variables. Click the Insert 🔘 button to find and select the command variable you want to use.

   If you use a reserved command variable in the path, click the Resolve 🔘 button to resolve the variable and see the actual path. **Note:** Depending on the reserved command variable used, the actual path at runtime may be different.

4. If you want the event monitor to use recursive polling, check the box by **Search all sub-directories**.

   Notes:
   - Any directory path ending in a forward slash (/) is considered recursive. If you don't check this box, the system will do so automatically.
   - Conversely, any directory path that doesn't end in a forward slash (/) is not considered recursive. If you have this box checked, the system will remove the check mark.
   - Use recursive polling with caution. Depending on the number of subdirectories and their size, this could use significant system resources.

5. After you have set up the event and path information, select the type of directory event you want to monitor for.

Directory Added or Removed Events

A directory is considered added when the monitor detects that it does not exist and then appears. A directory is considered removed if the monitor detects that it exists, but doesn't detect it during the next polling.

Complete the following attributes for directory added or removed events.

- Select **Added** to create an event when a new directory is added.
- Set the length of time that a directory must be unchanged before the event is fired.
- Select **Removed** to create an event when an existing directory has been removed. There are no additional attributes for this event type.

Directory Changed Events

A directory is considered changed when the size has increased or decreased, or if the timestamp changes. Increased/Decreased refers to either the count of files in the directory or the cumulative size of the files in the directory.

1. Select **Changed** to create an event when a directory has been modified.
2. Select one or more types of attribute changes that should determine when the event is fired.

Directory Threshold Events

You can fire an event when a directory has exceeded or dropped below a set size.

1. Select **Threshold**.
2. Select **Greater Than** to monitor for the size increasing past the threshold or **Less Than** monitor for the size dropping below the threshold.
3. Enter the threshold size. The size can be measured in bytes, kilobytes, megabytes, gigabytes, or terabytes.
4. Select how often the event should be fired: only the first time the threshold is met, every time the threshold is met, or as the size is increasing or decreasing. First Time events do not occur again until the monitor is reset by the size decreases or increases from the specified threshold.

File Events

You can fire an event when an IFS file or a native file is added, removed, changed, or reaches a certain size. Use the Event Monitor Properties window to set up file event properties.

1. Complete the basic monitor information described in Creating Event Monitors.

2. Enter the path and file name or click the Find ![Find button] button to select either an IFS file or a native file to monitor (native files are in QSYS.LIB). The specified directory can contain wildcards. Depending on the file system, the File/Path may be case sensitive. Leading and trailing blanks for directory and file names are important.

   To monitor for a specific file:

   IFS file example:

   - /home/application/somefile
   - /home/application/somefile.ext

   Native file example:

   - /qsys.lib/libname.lib/filename.file

   To monitor for any/all files in a directory, use * as a generic value:

   IFS file example:

   - /home/application/*

   Native file example:

- /qsys.lib/libname.lib/*

To monitor for a set of generic files in a directory, use * or ? as a generic value, where * is one or more characters and ? is one generic character:

IFS file example:

- /home/application/acct*.ext
- /home/application/*.data
- /home/application/payroll.*
- /home/application/file?.data

Native file example:

- /qsys.lib/libname.lib/partialname*.file
- /qsys.lib/libname.lib/*.file
- /qsys.lib/libname.lib/filenam?.file

3. You can use reserved command variables (RCV) in the path. However, be sure to use only static command variables. Click the Insert 🔘 button to find and select the command variable you want to use.

   If you use a reserved command variable in the path, click the Resolve 🔘 button to resolve the variable and see the actual path.**Note:** Depending on the command variable used, the actual path at runtime may be different.

4. After you have set up the event and path information, select the type of file event you want to monitor for.

File Added or Removed Events

A file is considered added when the event monitor detects that it does not exist and then appears. A file is considered removed if the event monitor detects that it exists, but doesn't detect it during the next polling.

Complete the following properties to create a monitor for file added or removed events:

- Select **Added** to create an event when a new file is added.
- Set the length of time that a file must be unchanged before the event is fired.
- Select **Removed** to create an event when an existing file has been removed. There are no additional attributes for this event type.

File Changed Events

A file is considered changed when the size has increased or decreased, or if the timestamp changes.

1. Select **Changed** to fire an event when a file has been modified.
2. Select one or more types of attribute changes that should determine when the event is fired.

File Threshold Events

You can fire an event when a file has exceeded or dropped below a set size.

1. Select **Threshold**.
2. Select **Greater Than** to monitor for the size increasing past the threshold or **Less Than** monitor for the size dropping below the threshold.
3. Enter the threshold size. The size can be measured in bytes, kilobytes, megabytes, gigabytes, or terabytes.

4. Select how often the event should occur: only the first time the threshold is met, every time the threshold is met, or as the size is increasing or decreasing.

Member Events

You can fire an event when a native member is added, removed, changed, or reaches a certain size. Use the Event Monitor Properties window to set up member event properties.

1. Complete the basic monitor information described in Creating Event Monitors.

2. Enter the path and member name or click the Finder button   to select a member to monitor. The specified member name can contain wildcards. Leading and trailing blanks for library, file, and member names are important.

   To monitor for a specific member in a file:

   - /qsys.lib/libname.lib/filename.file/membername.mbr

   To monitor for any/all members in a file, use * as a generic value:

   - /qsys.lib/libname.lib/filename.file/*

   To monitor for a set of generic members in a file, use * or ? as a generic value, where * is one or more characters and ? is one generic character:

   - /qsys.lib/libname.lib/filename.file/acct*.mbr
   - /qsys.lib/libname.lib/filename.file/*.mbr
   - /qsys.lib/libname.lib/filename.file/file?.mbr

3. You can use reserved command variables (RCV) in the path. However, be sure to use only static command variables. Click the Insert   button to find and select the command variable you want to use.

   If you use a reserved command variable in the path, click the Resolve   button to resolve the variable and see the actual path. **Note:** Depending on the reserved command variable used, the actual path at runtime may be different.

4. After you have set up the event and path information, select the type of member event you want to monitor for.

Member Added or Removed Events

A member is considered added when the event monitor detects that it does not exist and then appears. A member is considered removed if the event monitor detects that it exists, but doesn't detect it during the next polling.

Complete the following properties to create a monitor for member added or removed events:

- Select **Added** to create an event when a new member is added.
- Set the length of time that a member must be unchanged before the event is fired.
- Select **Removed** to create an event when an existing member has been removed. There are no additional attributes for this event type.

Member Changed Events

A member is considered changed when the size has increased or decreased, or if the timestamp changes. Select what member attribute you want to determine when the event is fired. You can choose multiple options.

1. Select **Changed** to fire an event when a member has been modified.
2. Select one or more types of attribute changes that should determine when the event is fired.

Member Threshold Events

You can fire an event when a member has exceeded or dropped below a set size.

1. Select **Threshold**.
2. Select **Greater Than** to monitor for the size increasing past the threshold or **Less Than** to monitor for the size dropping below the threshold.
3. Enter the threshold size. The size can be measured in bytes, kilobytes, megabytes, gigabytes, or terabytes.
4. Select how often the event should occur: only the first time the threshold is met, every time the threshold is met, or as the size is increasing or decreasing.

Viewing Event Monitor History

Use the Event Monitor History window to review and troubleshoot event monitors.

Note: To help system performance, the Event Monitor History filtering tool shows only the first 256 characters of the Event Data field. Use caution when using the filtering tool, as creating a large set of results affects system performance.

- Right-click **Event Monitors** under Scheduling Objects, and select **Event Monitor History**.
- Use the Data Filter to search for specific events by event name, event data, event type, or when the event occurred.
- The status is usually an asterisk (*), which indicates that the event has occurred. If you used the RBTEVTDTA command to blank the event, the status may be empty.
- Likely error codes include Time Range or Invalid Filter.
- Click the arrow to sort a column in ascending or descending order.
- Right-clicke or more events to see additional options.

Creating Forecast Schedules for Event Monitors

Initially, a forecast uses only the information from the Robot SCHEDULE job schedule and Robot SCHEDULE job completion history. For a more complete forecast, including jobs that depend on events completing, you can add other jobs to run during the forecast period.

To add an event monitor job to the forecast:

1. Right-click **Schedules for Forecasting** and select **New**.
2. Select **Event Monitor** as the type of Forecast Schedule to create and then click **OK**.
3. Enter an event name or click the Prompt button to select an event to use for this Forecast Schedule.
4. Enter a description of this Forecast Schedule and click **OK**. The Job Properties window displays.
5. Click **Scheduling** to set up when the job should run.

   Note: When setting the schedule for the forecast job, decide how many events you want to appear in the Forecast Schedule List, the frequency of the events that you are monitoring, and the length of time you want to forecast. If you have hundreds of jobs dependent on multiple events, your Schedule Forecast List could become cluttered and difficult to use.

6. Set the schedule for this job to run based on when you expect the event to occur.

   Note: How often you set this job to run affects the Schedule Forecast List.

View the Schedule Forecast List to see forecast jobs that you created and the dependent Robot SCHEDULE jobs. Even though a job appears in the Schedule Forecast List, it does not indicate that the job will run in the given time period. It only indicates that it could run during the time period if the event occurs.

Library List Objects

Robot SCHEDULE lets you store your library lists under library list object names. Before it executes a job, Robot SCHEDULE sets the library list for the job to the libraries in the named library list object. Each library list object can contain up to 250 libraries.

After you create a library list object, you can enter it as part of the definition for an environment. You may want to enter the name of your most commonly used library list object as part of the definition of the Standard environment. You can change the library list object for a specific job on its Control tab of the Job Properties window.

Creating a Library List Object

To create a library list object:

1. Right-click **Library List Objects** and select **New**. To edit an existing library list object, right-click and select **Properties**.

   The Library List Object Properties window displays.

2. Enter a name and description for the library list. Use the Text field to enter additional information about the library list object.

3. Click **Add** to add a blank line to the library list. Click the Finder button on the blank line to display a list of libraries on the system.

4. Select a library and click **Remove** to remove it from the library list object.

5. Use the **Move Up** and **Move Down** buttons to change the order of the libraries in the list.

Deleting a Library List Object

Since a library list object can be used by multiple jobs, you can display which jobs are using a library list object, and assign the job a new library list object, before you delete the old one.

1. Right-click a library list object and select **Where Used** to display the Where Used window.
2. Select **Delete** to delete the library list object. **Note:** A error message displays if the object is being used by a job.

The Where Used window displays the jobs currently using the selected library list object. Double-click a job name to display its Job Properties window. Then, use the Control tab to select a new library list object for the job.

Job Environment Objects

Robot SCHEDULE lets you create named groups of job control defaults called environments. These environments make job creation easier now and job changes easier later. A standard Robot SCHEDULE default environment (that you can edit) is shipped with the product.

When you create a Robot SCHEDULE job, the standard Robot SCHEDULE default environment is assigned automatically as its control options. Many users find they do not need to change the standard default values. If you want to select a different environment, you simply use the finder on the Control tab of the Job Properties window.

The advantage of having named environments is that they can be used by many jobs. For example, you might want all the jobs that are associated with a certain application to run in the same job environment.

Environments can be a powerful tool by simplifying the maintenance of Robot SCHEDULE jobs. When you change a named environment or the standard Robot SCHEDULE default environment, you automatically change control options for all the jobs that use that environment.

For example, assume the Robot SCHEDULE default job queue is QPGMR, and jobs A, B, and C use the Robot SCHEDULE default environment. Later, you edit the Robot SCHEDULE default environment so that the new default job queue is ROBOTQ. The result is that jobs A, B, and C stop using the job queue QPGMR and start using ROBOTQ automatically! For these reasons, we recommend that you use environments.

See also:
> Creating and Editing Job Environment Objects
> Job Environment Overrides

Creating and Editing Job Environment Objects

Robot SCHEDULE allows you to create environment objects for your jobs. Environment objects allow you to define unique job submission, job control, and job output options for the jobs that use the environment object.

Robot SCHEDULE is shipped with a default environment, the Standard environment, to make creating jobs quick and easy. You can tailor the Robot SCHEDULE default values to fit your needs. Review the Standard environment values before you begin to schedule jobs to decide if the default values suit your needs. You can edit the Standard environment values and set up as many additional environments as you need.

To create a job environment object:

1. Right-click **Job Environment Objects** and select **New**. To edit an existing object, select **Properties**.
2. The Job Environment Properties window displays.
3. Enter a name and description for the job environment object.

Use the Job Submission, Job Control, and Output tabs to complete the job environment object.

Job Submission Tab

- Job Description: Enter the default job description for the environment. The job description must be for a batch job.

- Message Queue: Enter the default message queue that should receive the messages returned by SBMJOB when a job completes. This is the IBM completion message; it is not a Robot SCHEDULE message. Select *NONE if you do not want the messages returned.

- Job Queue: Enter the default job queue for the environment.

- Message Reply: Select the default message reply to be used for this environment when Robot SCHEDULE

issued an error message requiring a reply:

- *DFT Use the default message reply, which usually cancels the job. Use this option if you want jobs to run unattended.
- *RQD Do not enter a message reply; the operator must reply to the message.
- *JOBD Use the message reply option in the job description.
- *SYSRPYL Check the system reply list for the appropriate reply. Use this option to tailor replies to messages.

- Initial ASP Group: Enter the default ASP group for the environment. You can select one of the following: *JOBD, *NONE, or enter the name of the ASP group. **Note:** The ASP group you enter must contain this instance of Robot SCHEDULE.

- Current Library: Enter the library to be used as the current library for the environment. The value you enter is substituted when the job actually runs.

- Library List Name: The Robot SCHEDULE Library List Management system lets you enter a list of libraries under a library list name. If you have defined library list names, enter the name of the library list to be used by the job. Before it runs the job, Robot SCHEDULE sets the library list for the job to the libraries in the list.

- User Profile: Enter the default user profile under which jobs using this environment should run. The user profile must have authority to all objects the jobs need for processing, but it cannot be QSECOFR, RBTUSER, or RBTADMIN. Select *JOBD to use the user profile specified in the job description.

  Note: Robot SCHEDULE allows a user profile whose authority is less than the one attached to the job to copy a job. If you want to prevent users from doing this, or from changing profiles, restrict them using Robot SCHEDULE job security. See Job Security for more information.

- Accounting Code: If you use Robot CPA or the job accounting journal to record job statistics, enter the default account code to which the statistics for this environment should be assigned.

Job Control Tab

- Robot ALERT Device: If you have Robot ALERT installed, enter name of the device to which a message should be sent if the job using this environment terminates abnormally or for job monitor events.
- Calendar Name: Enter the name of the default calendar the environment should use when determining working and non-working days, and fiscal month-ends.
- AutoTune Pool Size: If you use Robot AUTOTUNE, the performance tuning and monitoring software, enter the size (in K) of the memory pool in which each job using this environment should run. You can enter up to 11 digits. Use this value to set a standard for the amount of system resources the average job that uses this environment should use.

Output Tab

- Output Queue: Enter the default output queue for reports produced by jobs using this environment. Select *JOBD to use the output queue specified in the job description.

Deleting an Environment Object

Since an environment object can be used by multiple jobs, you can display a list of the jobs that are using the object, and assign a new environment, before you delete the old one. Regardless of which environment a job is using, you can override the job's environment settings on the Job Properties window for each job.

1. Right-click an environment and select **Where Used** to display the Where Used window.
2. Select Delete to delete the environment object. **Note:** An error message displays if the environment is being used by a job.

The Where Used window displays the jobs currently using the selected environment. Double-click a job name to display the Job Properties window. Use the Control tab to select a new environment for the job.

Job Environment Overrides

Use the Job Environment Overrides window to display and compare job environment defaults and override values.

Auto Tune Pool Size

The default size (in K) of the memory pool in which each job using this environment runs (if Robot AUTOTUNE, the automatic IBM i performance tuning and monitoring system, is used). This value is used to set a standard for the amount of system resources the average job that uses this environment should use.

Library List Name

The default library list. *JOBD indicates this environment uses the library list specified in the job description.

Note: The Robot SCHEDULE library list management system lets you enter a list of libraries under a single name. See Scheduling Objects for more information.

Job Description

The default job description and library.

Message Queue

The message queue and library that should receive the message returned by SBMJOB each time a job completes. These are IBM completion messages, not Robot SCHEDULE messages. *NONE indicates messages aren't returned for this environment.

Current Library

The library to be used as the default current library for this environment.

Job Queue

The default job queue and library. *JOBD indicates this environment uses the job queue specified in the job description.

User Profile

The default user profile under which jobs using the environment run. *JOBD indicates this environment uses the user profile specified by the USER parameter in the job description.

iASP Group

The default initial ASP group. *JOBD indicates this environment uses the initial ASP group specified in the job description. *NONE indicates there isn't an initial ASP group specified for this environment.

Accounting Code

The default account code to which statistics for this environment should be assigned (if you are using Robot CPA or the job accounting journal to record job statistics).

Output Queue

The default output queue and library used for reports produced by jobs. *JOBD indicates this environment uses the output queue specified in the job description.

Pager Name

The default pager to which Robot SCHEDULE jobs using this environment should send a pager message if they end abnormally (if Robot ALERT, the system event notification software, is used).

Calendar Name

The name of the default calendar this environment uses when determining working, nonworking, and fiscal month-end days. **Note:** Robot SCHEDULE allows to create as many calendars as you need. And, you can change them as often as needed. See Scheduling Objects for more information.

Message Reply

The default message reply to be used for this environment when a Robot SCHEDULE job issues a terminal error message requiring a reply.

- ***DFT** indicates this environment uses a default message reply, which usually cancels the job. This option is used to run jobs unattended.
- ***RQD** indicates this environment does not enter a message reply; the operator must reply to the message.
- ***JOBD** indicates this environment uses the message reply option in the job description.
- **SYSRPYL** indicates this environment checks the system reply list for the appropriate reply. This option is used to tailor replies to messages (refer to your IBM manuals for details).

Reserved Command Variables

Programs often require you to enter dynamic values, such as the system date and time, the job user name, or the default printer name. Such global values apply to jobs throughout the system. Robot SCHEDULE provides an easy way to automate this process. All you do is insert Robot SCHEDULE reserved command variables (RCVs) in your Robot SCHEDULE job; Robot SCHEDULE replaces the reserved command variables with the corresponding global values before it executes the job.

For example, suppose you need to pass the current system date and time to a program when it runs. Insert two reserved command variables, @@DATE and @@TIME, in the program call in your Robot SCHEDULE job:

CALL PRG105 ('@@DATE' '@@TIME')

Just before it executes the job, Robot SCHEDULE substitutes the current system date and time for the reserved command variables. If the job runs on July 16, 2006 at 3:39 p.m., the command executed would be:

CALL PRG105 ('071606' '153900')

In addition to calculated values like the date and time, Robot SCHEDULE reserved command variables also can substitute constant values. This makes it easy to update global values in all Robot SCHEDULE jobs, without editing each job individually.

For example, suppose your programs need the accounts payable file name. A program call could use a reserved command variable called @@AP that returns the file name as a constant:

CALL PRG106 ('@@AP')

Yesterday, the name was APMAST1, but today the name should be APMAST2. To change the constant value for @@AP, you can change either the reserved command variable definition in Robot SCHEDULE or use the command RBTCHGRSV. For example, this command changes the value of @@AP.

> **RBTCHGRSV RSVVAR(@@AP) VALUE(APMAST2)**

Code the RBTCHGRSV command into your own programs to update global constants as needed. Or, if you have ROBOTLIB in your library list, just enter it on an system command line to instantly update variables.

Defining Your Own Reserved Command Variables

Do you have global values that are unique to your system? Define reserved command variables to insert these values in your Robot SCHEDULE jobs. This ensures consistency in the values used and makes your jobs easy to update when global values change.

A reserved command variable can insert a constant value or insert a value returned by a program. Robot SCHEDULE calls the program just before it executes the job; it then substitutes the value returned for the reserved command variable in the job.

Use Robot Programs to Calculate Dates Without CL Programming

HelpSystems also ships you source code so you can take advantage of Robot SCHEDULE's useful date utilities through reserved command variables without doing CL programming. The code is located in the file RBTRSVSRC in library ROBOTLIB. The four programs we ship do the following:

- RBT013–This program uses today's date as its starting point and calculates dates x days into the past or the future. It also can return month-end dates for the current and previous months.
- RBT014–This program calculates fiscal month-end dates and determines other characteristics of the day.
- RBT017–Based on today's date, this program calculates dates x days into the past or future for working, nonworking, or calendar days.
- RBT002–This program retrieves system values directly from the operating system.

Several of the reserved variables shipped as part of Robot SCHEDULE use RBT002. You can set up additional variables to retrieve other operating system values used by your programs. When you select one of these variables (such as @@DATE, @@PRINTER, @@JOB, etc.), you can see how they are set up. Only one parameter exists and it is used for both input and output.

You can call these programs many times using different reserved variable entries. Each entry calls a program and passes it a different parameter string. Different strings return different results.

If these programs suit your needs as written, you can just use them. If you want to change the source files, copy them into a different library, make your changes, and recompile the code. Do not put modified code back into ROBOTLIB or it will be lost the next time you update your copy of Robot SCHEDULE.

See also:
Defining and Editing Reserved Command Variables
Coding a Reserved Command Variable Program

Defining and Editing Reserved Command Variables

Robot SCHEDULE is shipped with pre-defined reserved command variables for your convenience. You can edit, copy, and delete these reserved command variables using the right-click menu options. You also can create your own

reserved command variables, which can return a constant value or call a program. When you define a new reserved command variable, it will display in the List view with the pre-defined reserved command variables.

To define a new reserved command variable:

1. Right-click **Reserved Command Variables** and select **New**. To change an existing variable, select **Properties**.

    The Reserved Command Variable Properties window displays.

2. Enter the name and description of the command variable. All reserved command variable names must begin with @@ followed by up to eight alphanumeric characters. The only symbols that can be embedded in the names are the initial @@.

3. If the variable should always return the same value, enter the constant value.

4. If the variable calls a program, enter the program name. If necessary, enter the parameter string to be passed to the program.

Testing a Reserved Command Variable

To see the value a reserved command variable will return when it is used, right-click a reserved command variable and select Test Variable in the List view. The reserved command variable Test Results windows displays the selected value.

Coding a Reserved Command Variable Program

You can code your own program to return the value for a Robot SCHEDULE reserved command variable. The program must be coded to receive and return a 50-character parameter value. Robot SCHEDULE passes the parameter value (if any) that was entered on the Reserved Command Variable Properties window. After the program completes, Robot SCHEDULE receives the value the program returns and substitutes it for the reserved command variable in the Robot SCHEDULE command. The following program examples show how a value is returned for a reserved command variable.

```
PGM (&VALUE)

        DCL &VALUE TYPE(*CHAR) LEN(50)

        CHGVAR &VALUE 'HELPSYSTEMS'

EXIT: ENDPGM
```

Using RBT013 to Call RBT802

RBT013 is a preloaded program that calls the RBT802 date utility. It allows you to take advantage of Robot SCHEDULE utilities and command variables without doing CL programming. For more information on Robot SCHEDULE's utilities, see the green screen version of the *Robot SCHEDULE User Guide*.

RBT013 allows you to enter up to five characters in the Parameter field on the Variable Details window. Based on the parameters you choose, the program calculates dates in the past or the future by adding or subtracting days from today's date. It can return the date in system date format, year/month/day format, or several other formats. It also can return the current month-end date or the previous month-end date. The following table describes the input parameters for this program.

Position	Description	Value to Enter	Meaning of the Value	Tips
1	Date Format	S	System Date Format	Enter code in uppercase format
		Y	YMD Format	
		C	CYMD Format (cyymmdd)	
		I	ISO Date Format (yyyy-mm-dd)	
		U	USA Format (mm/dd/yyyy)	
		E	EUR Format (dd.mm.yyyy)	
		M	MDY Format (mmddyy)	
		D	DMY Format (ddmmyy)	
		A	MDYY Format (mmddyyyy)	
		B	DMYY Format (ddmmyyyy)	
		G	YYMD Format (yyyymmdd)	
2	Calculation Code	+	Add Days	
		-	Subtract Days	
		P	Present Month	Enter letters in uppercase format
		L	Last Month	
3-5	Number of Days	-1	Last Day of the Month	Use with P or L in position 2
		001-031	Day of the Month	
		000-999	Number of days to add or subtract	Use with + or - in position 2

Example of Using RBT013

Suppose you want to create a Robot SCHEDULE reserved command variable that always calculates a date equal to today's date plus 10 days. First, enter the variable on the Reserved Command Variable Properties window. Then, test the variable. RBT013 returns six digits that represent a date in the format you specified.

1. Enter a name that will help you remember what value this variable will supply.
2. Enter a description for the variable.
3. Enter **RBT013** as the program to call.
4. Enter up to 5 characters to tell RBT013 the value to calculate. Use the table above to determine the characters to enter.
5. Click **OK** to save the reserved command variable. Then, locate the variable you created in the List view, right-click and select **Test Variable**. The RCV Test Results dialogue displays the value returned by the command variable.

Using RBT014 to Work with Fiscal Month-End Dates

RBT014 is a preloaded program that calls the RBT801 date utility. RBT014 calculates the current fiscal month-end date based on the fiscal calendar you are using in Robot SCHEDULE. This program allows you to take advantage of Robot SCHEDULE utilities and command variables without doing CL programming. For more information on Robot SCHEDULE's utilities, see the green screen version of the Robot SCHEDULE User Guide.

RBT014 allows you to enter up to 12 characters in the Parameter field on the Reserved Command Variable Properties window. Based on the input parameters explained in the table below, this program can determine any of the following about the fiscal month-end date:

- On what date does the current fiscal month-end occur?
- What day number of the month is it?
- What week number of the month is it?
- What day number of the week is it?
- Is it a workday?

Position	Description	Value to Enter	Meaning of the Value	Tips
1	Date Format	S	System Date Format	You must enter a date for- mat in position 1. However, this parameter affects only calculation code L.
		Y	YMD Format	
		C	CYMD Format (cyymmdd)	
		I	ISO Date Format (yyyy-mm-dd)	
		U	USA Format (mm/dd/yyyy)	
		E	EUR Format (dd.mm.yyyy)	
		M	MDY Format (mmddyy)	
		D	DMY Format (ddmmyy)	
		A	MDYY Format (mmddyyyy)	
		B	DMYY Format (ddmmyyyy)	
		G	YYMD Format (yyyymmdd)	
2	Calculation Code	L	Last day of the fiscal month	
		D	Day number of the week on which the fiscal month-end date occurs	
		W	Week number of the month when the fiscal month-end occurs	
		T	Type of day (workday or non-workday) when the fiscal month-end date occurs	This calculation code returns a Y if this date is a workday or an N if it is a non-workday
		N	Day number of the month	
		M	Month number	
		Y	Year number	
3-12	Calendar Name	1-10	Name of your fiscal calendar in Robot SCHEDULE	Enter calendar name in uppercase.

Example of Using RBT014

Suppose you want to create a Robot SCHEDULE reserved command variable that always returns the current fiscal month-end date. First, enter the variable on the Reserved Command Variable Properties window, as shown below. Then, test the variable. RBT014 returns values of one to six characters depending on the calculation code you used.

1. Enter a name that will help you remember what value this variable will supply.
2. Enter a description for the variable.
3. Enter **RBT014** as the program to call.
4. Enter up to 12 characters to tell RBT014 the value to calculate. Use the table on the previous page to determine the characters to enter. Be sure to enter the calendar name in uppercase.
5. Click **OK** to save the reserved command variable.
6. Locate the variable you created in the List view and select **Test Variable**. The RCV Test Results dialogue displays the value returned by the command variable.

Using RBT017 to Call the RBT825 Date Utility

RBT017 is a preloaded program that calls the RBT825 date utility. This program allows you to take advantage of Robot SCHEDULE utilities and command variables without doing CL programming. For more information on Robot SCHEDULE's utilities, see the green screen version of the Robot SCHEDULE User Guide.

RBT017 allows you to enter up to 15 characters in the Parameter field on the Reserved Command Variable Properties window. Based on the parameters you choose, the program calculates dates in the past or the future for working, nonworking, and calendar days. It can return the date in system-date format, in year/month/day-date format, or in several other formats. The following table describes the input parameters for this program.

Position	Description	Value to Enter	Meaning of the Value	Tips
1	Date Format	S	System Date Format	Enter code in uppercase format.
		Y	YMD Format	
		C	CYMD Format (cyymmdd)	
		I	ISO Date Format (yyyy-mm-dd)	
		U	USA Format (mm/dd/yyyy)	
		E	EUR Format (dd.mm.yyyy)	
		M	MDY Format (mmddyy)	
		D	DMY Format (ddmmyy)	
		A	MDYY Format (mmddyyyy)	
		B	DMYY Format (ddmmyyyy)	
		G	YYMD Format (yyyymmdd)	
2	Day Type	W	Work days	
		N	Non-Workdays	
		C	Calendar Days	
		M	Month Number	
		Y	Year Number	
3	Calculation Code	+	Add days	
		-	Subtract days	If the subtraction results in a negative number, the date returned is based on the first day of the month minus the negative number.
4 -5	Number of Days	01 – 49	Number of days to add or subtract	
6 - 15	Calendar Name	1 – 10 characters	Name of the Robot SCHEDULE calendar to be used in the calculation	Enter the calendar name in uppercase format.

Example of Using RBT017

Suppose you want to create a Robot SCHEDULE reserved command variable that always calculates the date 10 workdays from today. First, enter the variable on the Reserved Command Variable Properties window, as shown below. Then, test the variable: right-click it in the List view and select **Test Variable**.

RBT017 returns a six-character numeric date value in the format you specified. If the value ERROR is returned, you are calculating a day number greater than 49 or have made an entry that caused today's date to have a negative day number value.

1. Enter a name that will help you remember what value this variable will supply.
2. Enter a description for the variable.
3. Enter **RBT017** as the program to call.
4. Enter up to 15 characters to tell RBT017 the value to calculate. Use the table on the previous page to determine the characters to enter. Be sure to enter the calendar name in uppercase.
5. Click **OK** to save the reserved command variable.
6. Locate the variable you created in the List view and select **Test Variable**. The RCV Test Results dialogue displays the value returned by the command variable.

Using RBT002 to Retrieve System Values

RBT002 retrieves system values directly from the operating system. Several of the reserved command variables shipped as part of Robot SCHEDULE use RBT002. You can set up additional variables to retrieve other operating system values used by your programs. When you select one of these variables (such as @@DATE, @@PRINTER, @@JOB, and so on), you can see how they are set up. Only one parameter exists and it is used for both input and output.

1. Right-clicke of the preloaded variables and select **Properties**. The Reserved Command Variable Properties window displays.
2. Enter a name and description.
3. Enter **RBT002** as the Program to Call Name. RBT002 retrieves system values from the operating system.
4. The name of the variable is the only parameter.

OPAL Objects

Another major job definition object is OPAL–OPerator Assistance Language. OPAL is our powerful operations language that was added to Robot SCHEDULE by popular demand. See the separate OPAL Reference Guide for more information about using OPAL with Robot SCHEDULE.

With OPAL, you can check a variety of tasks, including:

- If an object exists on the IBM i or if the objects has locks
- If a file has any records in it
- If printers, workstations, users, controllers, and communication lines are up and running
- The completion status of any batch job or whether the job is running

OPAL lets you set up any type of job-prerequisite requirement. OPAL also can read or update Robot SCHEDULE Reserved Variables. This capability gives you two-way communication with other Robot Automated Operations Solution products. It also allows for two-way communications with PCs.

Thus, you can use OPAL to do the following:

- Change any Robot SCHEDULE job to reflect changed conditions.
- Change any job environment object to reflect changed conditions. For example, if one printer is down, you can direct all the night's reports to another printer automatically.
- Change any data area, including the LDA.
- Skip running the job at this time.
- Delay running the job to a later time when conditions can be rechecked.
- Notify an expert using Robot ALERT.
- Start another Robot SCHEDULE job – even if it is on a remote system.

Plus, other things too numerous to mention.

Once you enter the OPAL code, you can assign a name to the set of instructions and use them over and over again.

This means that users can create their own very advanced scheduling options, their own very advanced job prerequisites, and their own very advanced event monitoring options. You can have exactly the options you want. OPAL simply makes Robot SCHEDULE the most powerful scheduler in existence.

Within OPAL, you also can work with Data Area Definition Objects. Using a fill-in-the-blanks window, you can define user fields to segment any data area or LDA. You then can assign names to these data area definitions and use them over and over again.

OPAL uses the data area objects to read and update data areas. This option greatly enhances inter-program and inter-job communications.

Viewing OPAL Objects

To see a list of the OPAL objects on your system, select **OPAL Objects** from the Tree view. All the OPAL objects that have been defined display in the List view.

The Status field displays status information about your OPAL code.

Status	Description
Blank	The object is ready to run.
New	You've named and described the OPAL Object, but have not created any code yet.
Changed	You've displayed the OPAL Object Properties window, but have not created a new object yet.
Generate	You've created a new object from the OPAL Object Properties window.
Compile	The object is compiling.
Abnormal	There is a problem with your OPAL; call Robot Technical Support.

See also:

Creating and Editing OPAL Objects
Replacing OPAL Variables and Operation Values
Using the OPAL Simulator
Creating and Editing OPAL Tables
Creating and Editing Data Area Definitions
OPAL Scan and Replace

Creating and Editing OPAL Objects

Use the OPAL Object Properties window to create and edit OPAL objects.

Complete the following fields:

- OPAL Object: Enter a name for the OPAL object. The name can be up to 10 characters in length.
- Description: Enter a useful description for the OPAL object.
- Make OPAL Inactive: You can select to make the OPAL object inactive. An inactive OPAL object has the same effect as removing the OPAL object name from the job record of all the jobs that use this object. An OPAL object normally is active.
- Logging level: Select how the OPAL object is logged:
    - Put messages in job log: Sends two messages to the job log that indicate when the OPAL object started and its effect on the job. For example, the job will run as scheduled, the job was skipped, or the job was

delayed. This is the default value.

- Build trace data: Creates a trace that shows which OPAL statements executed the last time this OPAL object ran.
- Always send status message: Sends a status message to Robot SCHEDULE's Job Completion History that indicates the effect of the OPAL object. For example, the job will run as scheduled, the job was skipped, or the job was delayed.
- Send status message on skips: Sends a status message to Robot SCHEDULE's Job Completion History only when a job is skipped.
- When should OPAL run: Specify when this OPAL object should run:
  - Before Submission: The OPAL runs before the job is submitted.
  - After Submission: The OPAL runs after the job is submitted, but before the job runs.

Enter OPAL statements in the OPAL Detail section:

- Click **Add** to add a line for the OPAL code.
- Use the **Move Up** or **Move Down** buttons to change the order of the OPAL statements. Click **Remove** if you need to remove a statement.
- click a line where you want to add or edit an operand, variable or operation. Then, click the arrow to display a list of keywords for the selected field. When you select a keyword, the menu closes.
- When you select a command in the Operation field, a Prompt button can display in the Operation Values field. Click the button to select or enter a value for the command.
- Click the @ button to select from a list of reserved command variables for the selected command.
- Click **Logic Check** to check your OPAL code. If there are errors in any of the OPAL statements, a message displays and a warning icon displays next to the statement that contains the error. If you find an error, correct your OPAL code and perform the logic check again.

Replacing OPAL Variables and Operation Values

You can search for values in your OPAL code and change them using the Scan/Replace OPAL option. This option works similarly to the search and replace option in a word processing program.

To replace OPAL values globally:

1. Right-click **OPAL Objects** in the Tree view and select **Scan/Replace OPAL**. To replace values for a selected OPAL object only, right-click an object in the List view and select **Scan/Replace OPAL**.

   The Scan/Replace OPAL window displays.

2. Use the Scan/Replace OPAL window to find and replace OPAL variable or operations in your OPAL code.

3. Enter the name of the variable you want to replace and the replacement variable.

4. Enter the operation value you want to replace and the replacement operation.

   Note: The replacement operation value must have the same number of characters as the operation value being replaced.

5. Click **Replace** to change the values listed on the window. If the replacement was successful, a message displays indicating the values were changed.

6. If a match for a value could not be found, check to see if the value exists in the OPAL object. Then, re-enter the change, and click **Replace** again.

Using the OPAL Simulator

The OPAL Simulator lets you test your OPAL code before putting it into production. The top part of the window consists of several input fields. The Simulator tells you if the job will be skipped or delayed as a result of your OPAL code. To avoid unintended job schedule changes, we recommend testing your OPAL code before putting into production.

1. Right-click an existing OPAL object and select **OPAL Simulator** to test an OPAL object before putting it into production. The OPAL Simulator window displays.
2. The name of the OPAL object being tested displays at the top of the window. You cannot change this value.
3. Enter the name of the Robot SCHEDULE job you want to use to test the OPAL code.
4. To test the job as a member of a group, enter a Robot SCHEDULE group name.
5. Enter the run date and time you want to test.
6. Select **Allow job update** to change the job record as a result of the test. **Warning:** This can result in unintended changes to your job schedule.
7. If the job name specified on this window has an OPAL temporary job on the Job Schedule List, click the **Temp Job** button to display the Job Properties window for the temporary job. You then can view or update the job information.
8. Click **Run Simulation** to run the OPAL simulation. The results of the simulator run display on the OPAL Simulator Results window. The fields indicate if Robot SCHEDULE will skip or delay the job. The OPAL statement trace field displays the OPAL statements that actually executed.

Creating and Editing OPAL Tables

Use the OPAL Table Properties window to define the OPAL table. Table elements are assumed to be left justified. Therefore, if the comparison information in the Robot SCHEDULE job is NOT left-justified, you must enter leading blanks. Trailing blanks of any element are ignored.

To create an OPAL table:

1. Right-click **OPAL Tables** and select **New**. To edit an existing table, right-click the table and select **Properties**.

   The OPAL Table Properties window displays. The OPAL Table Properties window lists the names and descriptions of defined OPAL tables.

2. Enter a name and description for the table.

3. Click **Add** to add a line on which you can enter the comparison information for the table.

4. Enter one table element on each line. Table elements can be any alphanumeric character, up to a maximum length of 66 characters.

5. Use the **Move Up** and **Move Down** buttons to change the sequence of table elements. If you need to remove an element from the table, click **Remove**.

Note: The INTABLE and NOTINTABLE operations seek an exact, precisely aligned, character-for-character match. The operations also are case-sensitive.

Creating and Editing OPAL Data Area Definitions

Use the OPAL Data Area Definition Properties window to create and edit OPAL Data Area Definitions. Data Area Definitions are used with the OPAL keywords CHGDTADFN and RTVDTADFN. RTVDTADFN fills user fields with values from the defined updates the defined data area with values from the OPAL user fields. Use the OPAL Data Area Definition Properties window to give a Robot SCHEDULE name to a data area. You then can use the data area name in your OPAL code with the RTVDTADFN and CHGDTADFN keywords.

To create a data area definition:

1. Right-click **Data Area Definitions** and select **New**. To edit an existing data area definition, right- click and select **Properties**.

    The OPAL Data Area Definition Properties window displays.

2. Enter a name for the data area definition. The name can be up to 10 characters in length. Use a logical name that describes how the data area definition is used.

3. Enter a description for the data area definition.

4. Enter the name of a data area and its library. Or, enter *LDA. When Robot SCHEDULE executes the OPAL that references the *LDA, it first checks to see if there is an LDA defined for the job in the Robot SCHEDULE job record. If there isn't, it uses the actual LDA for the IBM i job.

5. Click **Add** to add a line on which you can enter data area definition information.

6. Enter the beginning and ending positions within the data area to access.

7. Enter an OPAL user variable name. Valid names include USRFLGn, USRFLDn, and USRLONGn, where n is a value between 1 and 5.

8. Enter a description of what you are retrieving from the data area or what value you are updating.

9. Use the **Move Up** and **Move Down** buttons to change the sequence of the statements. Click **Remove** to remove an entry.

OPAL Scan and Replace

Use the Scan/Replace OPAL window to replace a variable or operation value, or both at once. When you have entered the information on the Scan/Replace OPAL window, click the **Replace** button. If the replacement was successful, a message displays indicating the OPAL object values have been changed. If a match for a value you want to replace was not found, a message displays indicating a match could not be found. In this case, ensure the value exists in the objects you are changing. Then, re-enter the value and click the Replace button again.

Complete the following fields:

Replace OPAL variable

Enter the name of the variable value you want to replace in the **OPAL variable name** field. In the Replacement name field, enter the new (replacement) value.

Replace OPAL operation value

Enter the name of the operation value you want to replace in the Operation value field. In the Replacement value field, enter the new (replacement) value.

Query Objects

Query objects allow you to customize reports by including only jobs that meet the comparison criteria you define. A query is simply a set of criteria you define for Robot SCHEDULE to use when selecting jobs. The selection criteria are stored and can be used over and over again. Robot SCHEDULE provides many options for creating, testing, and editing a query to ensure that it includes only the jobs you want.

You can print the Query Definition report to see the comparison fields defined in a selected query.

Robot SCHEDULE stores the selection criteria you define. You then can use the query in the schedule and job setup reports to limit the information in those reports to only jobs selected by the query. The optional Query fields in the report submission dialog windows let you select from a list of valid queries.

See also:

Creating and Editing Query Objects

You can create queries that customize Robot SCHEDULE reports by including only those jobs that meet the comparison criteria you define. A query can contain multiple comparison criteria to narrow down the list of jobs as much as you need.

To create a new query object:

1. Right-click **Query Objects** and select **New**. To edit an existing query object, right-click the object and select **Properties**.

2. The Query Object Properties window displays.

3. For a new query object, enter a name and description. For an existing query object, you can modify the description, but cannot change the name.

4. Click the **Add** button to define a field comparison, or the **Edit** button to modify an existing entry. The Edit Query Field dialog displays.

5. Enter a line condition for the field comparison. The valid values are **AND** and **OR**.

6. Click the Prompt button to display a list of the Robot SCHEDULE fields that you can use as query fields.

7. Select a comparison operand.

   Comparison operands include standard values (such as Equal, Greater Than, and so on) in addition to "fuzzy" values such as Like and Not Like. Use Like and Not Like to determine if the contents of the Field are similar or not similar to the value entered in the Value field. These operands require a percent (%) in the Value field, which represents 0 or more characters. For example, PURCH% includes all names that begin with PURCH; %PURCH% includes all names with the character string "PURCH" that may be preceded or followed by other characters.

8. Enter the value to compare against the Field description.

   This can be an alpha-numeric value or hex value in standard hex format. If you are searching for a hex value, start the value field with the letter X to indicate it is a hex value. Then, enter the hex value enclosed in single quotation marks. A hex search may be especially useful when you are working with commands that contain protected characters. Hex values are only used on the Command Entry window.

9. Specify a sort order in which the comparisons will be listed on the display or report when the query is run. If you use 0 for all comparisons, the jobs are merged and listed by job name and job number in ascending order.

10. Select a sort type for the query.

11. Click **OK** to save your entries. The comparison you entered displays the Query Object Properties window.

Testing a Query Object

When you create or edit a query, by default, its status is Edited. Before you can use a query in a report, you must test it (its status must equal Tested). A query's status displays in the List view.

Select the query you want to test and select either **View Robot QUERY Results** or **Print Robot QUERY Results**.

- If you select View Robot QUERY Results, the query's results display in the View Robot Query Results window. After you close the window, the query's status changes to Tested.
- If you select Print Robot QUERY Results, a dialog window displays that allows you to schedule or submit the Query Results Report. After you click the Schedule or Submit button, the query's status changes to Tested.

After testing a query, click the **Refresh** button on the toolbar to display the new status of the query.

Query Object Properties

Query objects allow you to customize reports by including only jobs that meet the comparison criteria you define. A query is simply a set of criteria you define for Robot SCHEDULE to use when selecting jobs. The selection criteria are stored and can be used over and over again. Robot SCHEDULE provides many options for creating, testing,and editing a query to ensure that it includes only the jobs you want.

Complete the following fields:

Name

Enter a name for the query.

Description

Enter a description for the query.

Add, Edit, Remove, Move Up, and Move Down Buttons

After you give the query object a name and description, click the **Add** button (or select a selection criteria and click the Edit button) to display the Edit Query Field window. Use the **Move Up** and **Move Down** buttons to change the order of the query information.

Select a line and click the **Remove** button to delete it from the query.

Updating Jobs Using a Query

You can update certain job fields using a query. For example, you can update the Job Queue field for every Robot SCHEDULE jobs selected by a query. See the tables below for a list of fields that can and cannot be updated using a query.

Note: A query must be in Tested status be for you can use it to update jobs.

To update a job using a query:

1. Right-click an existing query object and select **Update Jobs with a Query Object** to update the jobs selected by the query. The Update Jobs via Query Object window displays, listing the values that the query will update.
2. To change a value, right-click the value and select **Edit To Value**. Use the Edit To Value window to enter a new To (replacement) value for a query when you plan to use the query to update job fields.
3. Select whether to perform the update interactively or submit it to batch.

You can update the following fields via query:

File	Field	Description
RBTROB	JBQLIB	Job Queue Library
	JOBLIB	Job Description Library
	JOBQ	Job Queue
	LSTNME	Library List Name
	OUTQLB	Output Queue Library
	PROFIL	User Profile Name
	RBJOBD	Job Description JOBD
	RBOUTQ	Output Queue
	RTCLIB	Current Library
	RTENVN	Environment Name
	RTMQLB	Message Queue Library
	RTMSGQ	Message Queue
	RTOPNM	OPAL Object Name
	RTPGR	Pager Name: ID/List

You cannot update the following fields via query:

File	Field	Description
RBTAP	APNAME	Application Name
RBTCMD	EXCMD	Command Line
RBTDEP5	DEPKEY	Prerequisite Job
	KYTIME	Have Prerequisites
RBTDEP9	DEGNME	Group Name
	DESEQ	Group Sequence
RBTROB	ACTION	Schedule Code, Adv.
	CALNAM	Calendar Name
	JOBNAM	Job Name
	KYTIME	Job Number
	RTDONM	Date Object
	RTRACT	Reactive job
	SCHOVR	Schedule Override
	TIMEST	Today's Start Time
RBTTXT	TXTTXT	Job Text

View Query Results

Use the View Robot Query Results window to view the test results for the query you want to run and view. If the status of a query in the List view is EDITED, you must view (or print) the query before you can use it. After you view the test results, the status changes to TESTED and you can use the query. If you change the query again, the status again changes to EDITED. In that case, you must test the query again before you can use it. If no jobs are selected by the query when it is tested, it remains in EDITED status.

The top part of the window displays the fields in the query you are testing. The lower part of the window displays the jobs that meet the comparison criteria in the query.

Type

The type of job.

Job Number

The job numbers of the jobs that meet the comparison criteria.

Job Name

The names of the jobs that meet the selection criteria.

Description

A description of the job.

BLUEPRINTS

Job Schedule Blueprints

Robot SCHEDULE allows you to select all, or a portion of, your job schedule and display it in a graphical blueprint that identifies the relationships between jobs, including reactivity and group membership. Using the Blueprint, you can discover gaps in your schedule where jobs can be added; find inefficiencies in your job schedule quickly; and see the effect of schedule changes before you apply them. You can print the blueprints for a visual overview, or use them to train your operators.

You can easily create, edit, and move the components of your schedule using point-and-click editing to diagram job relationships and make schedule changes. You also can annotate and modify a schedule by adding comments or your own user processes, such as external calls to programs and processes.

You can save as many different blueprints as you need. It is often easier to use a series of blueprints, with a small number of jobs displayed in each rather than one blueprint displaying your entire job schedule. Usually, the process is quicker and viewing or printing the displayed job schedule is more manageable.

You save your blueprint either in Robot SCHEDULE, or as a PDF file that you can email or distribute anywhere. You can use the PDF file to overview your job schedule or to train operators.

Note: A blueprint is a snapshot in time of your job schedule. Saved blueprints may be out of date and can reference jobs that are no longer on your system.

See also:
Creating Job Schedule Blueprints
Working With the Job Schedule Blueprints Window

Creating Job Schedule Blueprints

You can create a blueprint in three ways:

- Creating a Job Schedule Blueprint From an Empty Blueprint Template
- Creating a Job Schedule Blueprint From a Query

- Select a job, right-click, and select **Submit Blueprint**. This method automatically creates a blueprint using a temporary query that collects information based on your selection.

Current blueprints display in the List view, labeled as Completed or Created. Completed indicates the time a blueprint was created by a query; Created indicates the time a blueprint was created manually from a blank template or using the Save As option.

Creating a Job Schedule Blueprint From an Empty Blueprint Template

You can create a new job schedule blueprint from an empty blueprint template.

1. Right-click **Job Blueprints** and select **New** to create a blueprint.
2. Select **Empty Blueprint** from the New Blueprint window.
3. Use the **Select a Job** finder to select a job to be included in the blueprint.
4. Robot SCHEDULE creates the blueprint for the selected job. You can select the job and drag it to another location in the blueprint or display and edit its properties and history.
5. To add another job to the blueprint, click the **Add a Job** icon in the toolbar, or right-click in the blueprint and select **Add Job** from the drop-down menu.

Creating a Job Schedule Blueprint From a Query

1. Right-click **Job Blueprints** and select **New** to create a blueprint.

2. Select **Query Object** from the New Blueprint window.

3. Click the Prompt button (...) to display the Select a Query Object finder. Select a query to use for your blueprint.

   Robot SCHEDULE creates the blueprint using the results of the query you selected.

4. To add another job to the blueprint, click the **Add a job** icon on the toolbar, or right-click and select **Add Job** from the drop-down menu.

Working With the Job Schedule Blueprints Window

Job Blueprint Objects

The objects in the blueprint contain information about the job and job relationships.

- The symbols across the top of the job object indicate the type of job and its attributes.
- Move your cursor over a job object to display the job's name, description, and job number.
- If a blueprint contains prerequisite and reactive jobs, the line connecting the two indicates the React to status defined for the prerequisite job.

The blueprint object menu contains a list of options that allow you to edit the blueprint. You can display the menu with or without a job object selected. The menu options that display vary depending on whether or not a job object is selected.

- Right-click anywhere in the blueprint to display a drop-down menu of blueprint editing options. If you select a job object, the border around the object changes from a solid line to a dashed line.
- When you display the menu without an object selected, the following options are available:
    - Add Job: Add a new job to the blueprint
    - Create Comment: Insert a comment box into the blueprint to enter comments about the blueprint

● Create User Process: Insert a manual process or reminder and connect it to its associated job

Job Blueprint Toolbar

The Job Schedule Blueprint toolbar contains tools you can use to view and manage your job schedule blueprint. You can add jobs or objects to, or remove them from, existing blueprints; display or edit a job's properties; reload selected jobs in the blueprint; save a blueprint; view a job's completion history records; create a PDF version of a blueprint; zoom in or out; and display a legend of blueprint symbols.

Note: Many of the functions on the toolbar are also available when you right-click in the blueprint. Certain toolbar options are inactive (grayed out) based on what you select in the blueprint:

● If an object is not selected, the object editing functions are inactive.

● If an object is selected, the Add a job icon is inactive.

● If a text object is selected (a comment text box or user process box), the Add a job icon and the job object editing functions are inactive.

Inserting Comments and User Processes

You can insert comments or user processes anywhere in a job schedule blueprint. For example, you might want to add a manual user process such as a CL program that uses File Transport Protocol (FTP) to send a report to a UNIX server as part of the production process.

1. Right-click an empty area of your blueprint.
2. Select **Create Comment** or **Create User Process** to insert a comment or user process in the blueprint. A text box displays.
   ● When you add a comment, a text box displays in the blueprint. Double-click the box to enter text. You can re-size the text box and place it anywhere in your blueprint.
   ● When you add a manual user process, a text box with a connector arrow displays in the blueprint. Double-click the box to enter text. To connect a user process to the job with which it is associated, click the text box and drag the connector point to the appropriate box

REPORTS

Reports

Robot SCHEDULE provides many reports for all categories of job scheduling to help you manage, monitor, and maintain your IBM i job schedule. Other reports help you manage the tools in Robot SCHEDULE that you use for job scheduling. These include system reports, such as the Good Morning Report, the Security Setup Report, and the Job Monitor Event Report, that give you feedback on the status of jobs and your schedule. In addition, object reports detail scheduling objects such as date objects and OPAL objects; while distribution reports indicate information by setup, job, day, and recipient. Whether you want a high-level summary or a more comprehensive analysis of your job schedule or its components, Robot SCHEDULE offers the report.

See Printing Reports for information about setting up Robot SCHEDULE reports for printing.

The following tables describe the reports that are available in Robot SCHEDULE. The reports are listed alphabetically by type.

Schedule Reports

Report Name	Report Description
Schedule Forecast	Displays the forecast for a specific period, which lists the jobs scheduled to run and their predicted run time. You must enter the forecast name. You can enter a subsystem and job queue if you want to see only the jobs that run in the specified job queue and subsystem.
Schedule of Date Jobs to Run This Month	Lists all jobs that have a Run Date Object or are using DAYNO to schedule the job to run on a specific date for the current month. The report lists the job name, description, group job (if any), day to run, the day of the week it falls on, and working and non-working day information.
Schedule of Jobs to Run by Date	Lists all jobs for the forecast within the specified date and time range. The report lists the jobs in ascending order for the time they are scheduled to run. It includes the job name, description, group name (if any), and the last date and time the job ran.
Unused Jobs	Lists all jobs that have not run since a date you specify. The report displays basic job information, such as name, number, type, override status, description, and the last run date for the job.

Report Name	Report Description
Weekly Work Schedule by Completion Time	Lists job by completion time and date for the current week.
Work Schedule by Time Scheduled	Lists all jobs for the week in group order and in run time order. Group jobs are listed in their order of execution.

Job Setup Reports

Report Name	Report Description
Cross System Prerequisite Jobs	Lists information for a prerequisite job and its related reactive jobs. The report includes the following prerequisite job information: • Job name • Description • System name The report also lists the following: • Related reactive job name • System name • React to status
Cross System Reactive Jobs	Lists information for a reactive job and its related prerequisite job, including the following reactive job information: • Job name • Job description • System name The report also includes the following reactive job information: • AND/OR • Job name and description • System name • Job Class–Robot or User • React To Status • Keep • Special instance
Job Command List	Lists the commands used by Robot SCHEDULE jobs, as well as job names, error processing instructions, and detailed command descriptions.
Job Record List	Lists job record information, including: • Job name and description • Job setup information • Output options • Robot SCHEDULE command information • Last run information
Job Text Report	Lists the Robot SCHEDULE job name, number, and description, in addition to the job text for the job. You can enter job text, for example: Run this job only after nightly processing completes, when you create a Robot SCHEDULE job.
Local Data Area by Job List	Lists LDA (local data area) information for the Robot SCHEDULE jobs. It also includes the job name and description, and the job number.

Report Name	Report Description

Reactive Job Cross Reference by Dependency	Lists information for a dependent job and its related reactive job. It includes the following dependent job information:
	
	   • Job name and description
	   • Type of job
	   • System name
	
	The report also includes the following reactive job information:
	
	   • Job name and description
	   • System name
	   • Job status
	   • Date and time
	   • Reactive job options
	   • Last start date information

Reactive Job Cross Reference by Reactive Job	Lists information for a reactive job and its related dependent job. The report includes the following reactive job information:
	
	   • Job name and description
	   • System name
	   • Job status
	   • Date and time
	   • Reactive job options
	   • Last start date information
	
	The report also includes the following dependent job information:
	
	   • Job name and description
	   • Job type
	   • System name

Records to be Exported	Lists the Robot SCHEDULE jobs in RBTMRGLIB waiting to be exported to other systems.

Distribution Reports

Report Name	Report Description
Report Distribution Setup List	Lists the job name, print file information, and print file recipients. You can select to limit the report by job, print file, or recipient.
Report Distribution by Day	Lists the distribution of print files by day. The report contains the recipient information, job name and description, print file name, output queue, library, and the number of copies.
Report Distribution by Job	Lists the print file distribution by job name. The report contains the job name and description, the print files, recipient name, days of the week for distribution, and the location for distribution.
Report Distribution by Recipient	Lists the print file distribution by recipient name. The report includes the recipient information, job name and description, print file name, days for distribution, and the number of copies.

Scheduling Object Reports

Report Name	Report Description
Calendar Object Report	Lists the calendars used in Robot SCHEDULE by name, description, and the calendar's last day. You can specify all calendars or a specific calendar object. You also have the option to select Summary Detail or Show Full Detail for the report.
Command Set Report	Lists all, or selected, Robot SCHEDULE command sets. You see the command set name, the error process setting (cancel or ignore), the command details, and sequence numbers.
Date Object Report	Lists Robot SCHEDULE date objects by name, description, type (run or omit), and starting and ending dates for the object. You also have the option to select summary details or full details. The Summary lists the starting and ending dates. The Full Details report lists the months with the days selected to run or omit.
Event Monitor Report	Lists the event monitors in Robot SCHEDULE by name, description, days to retain history, and event type. You can specify all event monitors or select a specific monitor or to view. For each monitor in the report, you can see the event monitor cycle information and the event properties.
Job Environment Object Report	Lists Robot SCHEDULE environments and their descriptions. You also have the option to select summary or full details. The Summary lists the environment name and description. The Full Details report lists all the values defined to the environment.
Library List Report	Lists Robot SCHEDULE libraries by name, description, number of libraries within the library list, and notes associated with the library. You also have the option to select Summary or Full details. The Summary lists the library list object, description, and how many libraries are defined to the object. The Full Details report lists the libraries in the library list object.
OPAL Object Report	Lists Robot SCHEDULE OPAL objects and their descriptions. You also have the option to select Summary or Full details of the OPAL objects. The Summary list the OPAL object name and description. The Full Details includes the OPAL code defined in the OPAL object.

System Setup Reports

Report Name	Report Description
Audit Log Report	Lists job schedule insertions, updates, deletions, and user actions for selected jobs and user profiles across a selected date range. You see the date and time of a job schedule change, the change, who made it, and what the changed file or field value used to be.
General System Defaults Report	Lists the current settings for the Robot SCHEDULE system defaults.
Security Setup Report	Lists the secured objects in Robot SCHEDULE. You see the authority level for *PUBLIC and all other user profiles set for the objects. The authority levels are: Exclude, Use, Display, Add, Change, and Delete. The report also lists the Authorization List, if one is used.

Job History Reports

Report Name	Report Description
Event Monitor History Report	Lists the monitored events of these types: directory, file, and member. You can specify all available events or specify a specific date range. You also can limit the report to a specific event monitor or list all events that were monitored. The report includes detailed information about the monitored events.
Good Morning Report	Summarizes the job processing during a specific time period. The following spooled files could be produced when you select the Good Morning Report. ● RB9401P1–Summary List ● RB9401P2–Abnormal Jobs ● RB9401P3–Reports time deviations ● RB9401P4–Report forecast deviations
Job Completion Message Report	Lists the completion message information about job status, date range, all jobs, specific jobs, or by job type. It also includes status messages for the selected jobs. You can select by job name, group name, or query name. You can choose to display all status messages or list the messages by: ● All Statuses ● From/To Date ● D Delay ● K Skipped ● R Running ● T Abnormal Terminate ● C Normal Completion ● E Error in setup ● P Pending ● S Submitted to queue ● W Warning message
Job Monitor Event Report	Lists the job monitor events; job underruns, job overruns, and job late starts. You can specify all available events or specify a specific date range. You also can limit the report to a specific job, specify a query name, or list all jobs. The report includes a summary page and detailed information about the jobs that had a monitored event.

See also:

Printing Robot SCHEDULE Reports

For most Robot SCHEDULE reports, you can specify selection criteria, such as a date range, for the report. The selection criteria that display on the print dialog vary depending on the report being printed. You also can specify whether to submit the report immediately or schedule a job to print the report.

Right-click a report and select **Set up Report** to specify selection criteria for the report. The dialog that displays is determined by the report you select.

The name of the report you are printing displays at the top of the dialog.

Selection Criteria

The Selection Criteria portion allows you to specify various selection options for the report. These options vary depending on the report.

Print Options

Specify an output queue for the report. The output queue defaults to the output queue defined to your user profile.

Other Options

- Select **Schedule** to schedule the report in Robot SCHEDULE. The Job Setup window displays allowing you to specify the run time and date for the report.
- Select **Submit** to print the report immediately.
- Select **Cancel** to cancel the print request.

Consolidated Reports

Consolidated reports are available in host mode to allow you to print key information gathered from all, or selected systems in the network. For all reports, you can submit them immediately or schedule them in Robot SCHEDULE. If you choose to schedule a consolidated report, the report job is scheduled on the host's node. The spooled files created by the report are located on the host system.

Robot SCHEDULE's consolidated reports option provides five reports that allow you to consolidate selected data from multiple nodes in your network. Each report presents the information from the selected node systems in a single report. You select which systems to include in each report.

By using these reports to combine information from multiple systems, you can reduce the number of reports you need to manage your systems. You also can use the consolidated reports to perform system-to-system comparisons. You can run the following consolidated reports from the host system:

Audit Log Reports

- The Consolidated Audit Log Summary
- The Consolidated Audit Log Detail

Good Morning Report

- Consolidated Good Morning

Cross-System Jobs Reports

- Consolidated Cross System Reactive Jobs
- Consolidated Cross System Prerequisite Jobs

On-Demand Reporting

Use the On-Demand Reporting window to create an ad hoc report using the data you select and your formatting specifications. This window appears when you select the Report option within a table by using a right-click menu.

Note: The report data that is available to use varies depending on the table you used to display the window.

Fields, Headings, and Buttons

The following are the fields, column headings, and buttons in this window:

Report Name: The name of the table used to create the report.

Comment: A descriptive comment you can enter to provide detail about the report.

Available Columns: The information that you can include in your report.

Selected Columns: The information that you currently have selected to add to, remove from, or move within your report.

Add: Use this button to add a selected column to the report.

Remove: Use this button to remove a selected column from the report.

Move Up: Use this button to move a selected column up in the report. You also can move a column by dragging it with the mouse.

Move Down: Use this button to move a selected column down in the report. You also can move a column by dragging it with the mouse.

Output Type: Use these radio buttons to specify the output for the report:

- HTML produces a formatted HTML file.
- Text produces a space-delimited text file.
- Text in HTML produces an HTML text file that is space-delimited.
- Text in PDF produces a PDF-type text file.

Note: You cannot use Report options to create a tab-delimited file to use in a spreadsheet or other application. To do that, you must use the right-click menu options of Select All and Copy to Clipboard.

Preview: Use this button to preview your report in the output format you specified.

Save: Use this button to save your report to your PC. A window displays allowing you to specify the name and location of the report, as well as the output type: PDF, text, or HTML.

Creating a Report

To create an on-demand report, do the following:

1. Do one of the following:
    - To select *specific* records, select one or more records, right-click and select **Report-Selected Records**.
    - To select **all** records, right-click and select **Report-All Records**.
2. The On-Demand Reporting window displays with the data you selected. Enter a descriptive comment in the Comments field (optional). The comment appears at the top of the report.
3. Select a column from the Available Columns window and click **Add** to add it to the report. Repeat this step until you have all the necessary information added.
4. Select a column from the Selected Columns window to remove it or change its order in the report. Repeat this step until you have the report organized correctly.
5. Select the type of file you want to create: HTML (formatted), Text (.txt), Text in HTML (.htm), or Text in PDF (PDF).
6. Click **Preview** to preview the report in the format you specified.
7. If you are satisfied with your report, click **Save** to save the file. A window displays you can use to specify the name and location of the report. Otherwise, click **Close** and repeat steps 1-6 as needed.

ENTERPRISE SERVER

Robot SCHEDULE Enterprise

Robot SCHEDULE Enterprise provides enterprise scheduling across non-IBM i servers connected to your IBM i. Robot SCHEDULE Enterprise is fully integrated with Robot SCHEDULE to coordinate batch processes, secure FTP transactions, and monitor system events across your Windows, UNIX, and Linux systems. You can schedule jobs on the IBM i using Robot SCHEDULE for your entire enterprise. Then, the Robot SCHEDULE Enterprise Server coordinates agent activity for each server, checks server operational status, receives job status information, launches processes, monitors server applications and services, transfers data, and much more.

Robot SCHEDULE Enterprise:

- Extends Robot SCHEDULE's powerful scheduling features to Windows, UNIX, and Linux servers, including flexible date scheduling, group and reactive jobs, and completion history and reporting.

- Uses event-driven scheduling based on file arrival– directory updates, and services or daemons starting or ending

- Provides a single user interface to manage your entire enterprise schedule

Since Robot SCHEDULE Enterprise is fully integrated into the Robot SCHEDULE Explorer interface, all scheduling tools are available for managing jobs on your Windows, UNIX, and Linux servers. You can use the Job Creation Wizard, Job Schedule List, Schedule Activity Monitor, Job Completion History, Job Schedule Blueprints, Schedule Forecasting, and other tools to create, manage, and even react to jobs on your Windows, UNIX, and Linux servers.

Read more about Robot SCHEDULE Enterprise on the HelpSystems website.

See also:

About Agent Jobs
Managing the Enterprise Server
Built-In Functions
Agent Systems
Agent Scheduling Objects
Agent Reports

Agent Systems

You can define servers that are connected to your IBM i in Robot SCHEDULE Enterprise as agent systems. Agent systems can be Windows, UNIX, or Linux servers in your network. After defining an agent system in Robot SCHEDULE Enterprise, you can create and manage agent jobs that perform tasks on the agent system. You also can define Agent Event Monitors to notify Robot SCHEDULE when something has happened on the agent system and start a dependent job.

Agent systems automatically appear in the Robot SCHEDULE Explorer when Robot SCHEDULE Enterprise detects its agent. Agent systems must have the agent installed and running for Robot SCHEDULE Enterprise to detect it.

Note: Agents do not need to be licensed to be detected, but there is no functionality for unlicensed agent systems. See Licensing Enterprise Agents for more information.

Use the Robot SCHEDULE Explorer to view, troubleshoot, and access your agent systems from one console. You also can use the Robot SCHEDULE Agent Manager on Windows servers to start, stop, add, remove, or edit agents.

Setting Up Agent Systems

To install agents on your Windows, UNIX, and Linux systems, see "Installing Robot SCHEDULE Enterprise Agents" under the Robot Support Self-Service tab on our website.

Viewing Active Processes

Use the Active Processes window to view active processes on any active agent system. You can view the Process ID (PID), which user is running the process, and what command the process is using.

- Right-click an agent system and select **Show Active Processes**. The Active Processes window displays.
- Sort the results by clicking the arrow next to a column name.

Using a Command Prompt on Agent Systems

You can start and use a command prompt on an agent system from Robot SCHEDULE Enterprise to troubleshoot or perform other tasks on the remote system.

- Right-click an agent and select **Start Agent Shell**. The Agent Shell window displays.
- Use the agent shell window to log into the agent system.

Running Jobs on an Agent without a Password

Even if you're using Robot SCHEDULE security, you can still set up an agent to allow specific jobs to run on it without a password (run as agent's user or 'setuid'). To accomplish this, you must enable it on the system, on the agent, and for the job. See the following for help:

- System Defaults under System Setup.
- Agent Properties window for the agent where the jobs will run without a password.
- Agent Environment tab of the Job Properties window for the specific job you want to allow to run without a password. (Or, you can create an agent environment under Scheduling Objects, see Agent Environments for details.)

Additionally, you must edit the user authorities for both Agent Properties Security and Job Security under System Setup to identify the users you want to allow to run the job on that agent without a password.

If this is a UNIX or Linux agent, you must run the script **allownopwd.sh** as part of the startup. You can find the script in the agent directory.

Agent Properties

Use the Agent Properties window to modify the agent system description and notification options of your agent systems.

Right-click an agent and select **Properties**. The Agent Properties window displays.

Attributes Tab

- Enter a description of the agent system.
- Enter the name of the shell used on this system.
- Select **Allow jobs to run without a password** if you want to allow specific jobs to be run on this agent without providing a password. **Note:** There are two other areas where you must enable this: System Defaults (under System Setup) and on the Agent Environment tab of the Job Properties window for job you want to allow to run on this agent without a password. Additionally, you must edit the user authorities for both Agent Properties Security and Job Security under System Setup to identify the users you want to allow to run the job on that agent without a password.
- View information about the selected agent system.

Offline Notification Tab

Occasionally, agent systems may disconnect unexpectedly. You can use Robot ALERT and Robot NETWORK to set up notifications when this occurs. You must have Robot ALERT and Robot NETWORK installed for these options to work.

- Select **Send a warning to** to set up notification options when an agent is unexpectedly disconnected.
- Select **Message Queue** to send a message to a message queue. Enter a name or click the Prompt button (...) to browse for a message queue.
- Select **Robot ALERT Recipient** to send a message to a Robot ALERT device. Enter a device name, or click the Prompt button (...) to select a device.
- Select **Robot NETWORK** to send a message to the Robot NETWORK Status Center. You can select to send an Informational, Warning, or Attention message.

Offline Events Tab

When an agent system is disconnected from the Enterprise Server, the agent continues to queue monitor events. When the agent system is reconnected to the Enterprise Server, it sends all of the queued monitor events to be processed. There are two options for handling these queued events:

- Select **Delete the queued Monitor Events** to delete events that were queued during the disconnection.
- Select **Process** the queued Monitor Events to process all events that were queued during the disconnection.

Diagnostics Tab

You can set the level at which the agent system logs system information. The logs that the agent system creates are helpful for troubleshooting your system.

Set the logging level for your agent system.

- Informational: Logs INFO level and higher severity. This is the default logging level.
- Debug: The Enterprise server logs INFO level and higher severity information. This option is useful for problem investigation.
- Trace: The Enterprise server logs TRACE level and higher information.

You can view information for your agent system through a web browser. The webpages provide information you can use to troubleshoot problems. This information includes configuration, status, and history logs for the systems.

- Click **View Diagnostics Page** to view information about your agent system through a Web browser. The Robot SCHEDULE Enterprise Server Information webpage opens in your default web browser.

Switching Which Agent System Jobs Run On

Use the Switch Agent tool to quickly move agent jobs from one agent system to another. Use this tool when you are removing an agent system from your network, but want to run the same jobs.

1. Expand **Jobs by Agent** in the Jobs section of the Tree view.
2. Right-click the Agent that you want to move jobs from and select **Switch**. The Switch Agents window displays.
3. Click **Yes** to continue. The Select an Agent window displays.
4. Select an agent and click **Select** to switch the jobs to the selected agent. The Switch Agents confirmation window displays.
5. Click **Yes** to switch the agent that the jobs run on.

Starting and Stopping Agent Systems

Occasionally, you may need to perform maintenance on your agent system that requires stopping the agent. You can stop or restart active agents from the Robot SCHEDULE Explorer. You must start inactive agents from the remote system.

Note: You also can start or stop agents by using executable script files that are installed on the agent system. See Agent Commands for more information.

- To restart an agent system, right-click the agent and select **Stop and Restart Agent**. The agent stops and then restarts on the agent system.
- To stop an agent, right-click an agent and select **Stop Agent**. The agent stops on the remote system.

Agent Commands

Agent Commands help automate your system when you do not have access to the Robot SCHEDULE Explorer. You can enter agent commands in any command prompt that is connected to your agent system. You can include agent commands in the command string for your agent jobs by entering them in the Command Entry tab of the Job Properties window.

For more help on any of these commands, press **F1** from the command panel.

Sending Messages

Use the **send** command to send messages to any of the following:

- Robot ALERT Recipient
- Robot CONSOLE Message Center
- Robot NETWORK Status Center
- Robot SCHEDULE Job
- IBM i User

Reserved Command Variables

Use the **getrcv** and **setrcv** commands to work with Reserved Command Variables.

- Get Reserved Command Variables: This command retrieves the value of one or more Robot SCHEDULE Reserved Command Variables from the Enterpriser server.
- Set Reserved Command Variables: This command instructs an Agent to set one or more Reserved Command Variables in Robot SCHEDULE based on constants or current values of environment variables with the same name. Reserved Command Variables must exist in Robot SCHEDULE.

Displaying Active Processes

The **getactivity** command displays the active processes for the agent system, including jobs that are running, files that are in transfer (from or to the IBM i), and event monitors. The agent does not need to be connected to an active Enterprise Server for this command to work.

Changing Agent Configuration

The **config** command changes an agent's configuration information, including port information, and server address. You also can use the Windows Agent Manager to change these settings on Windows servers. See Setting Up Agents on Windows Servers for more information.

Writing a Diagnostics File

The **diag** command writes diagnostics information to a file on your agent system that is useful for researching problems.

Getting Agent Status

The getstatus command checks the status of an agent. Use this command when you need to know if an agent is active. For example, you cannot run a backup while the agent is active.

Starting/Launching Agents

The **launch** command connects to the Agent Service on the local machine and instructs it to start the agent with the given Alias name.

Note: This command is named start.sh on UNIX and Linux agent systems and uses different parameters.

Stopping Agents

Use the **stop** command to stop agents. If jobs are running, the agent ends when processing finishes, unless the optional parameter now is used. Using now terminates all Robot SCHEDULE jobs running on the agent.

Switching Agents

The **switch** command instructs an agent to switch to a different Enterprise server by modifying configuration information, including the name of the agent file, port information, and the server address.

Note: You also can use the Robot SCHEDULE Explorer to change these settings. See Switching Which Agent System Jobs Run On for more information.

Firing Manual Events

The fireevent command starts a Java process which connects to an agent and instructs it to fire a named/manual event that was previously defined in Robot SCHEDULE ENTERPRISE. You can use the fireevent.sh agent command in any process on the agent system. For example, you might manually run a process on an agent system at the end of the business day to close out the business activity for the day, and use the command at the end of that process to start a network backup process on the Enterprise server.

Or, you might want to send a message to the system operator. You can have jobs react to the manual event completing. You can integrate manual events in your job schedule by including the fireevent command in a regular Robot SCHEDULE job command stream.

Removing Agent Systems

You can remove agent systems from the Explorer view. An agent system cannot be removed if it has agent jobs or agent event monitors defined for it. Use the Where Used option to find items defined for an agent. You can delete the objects preventing the agent from being removed, or you can use the "switch" option from agents listed under the Jobs by Agent and Event Monitors by Agent Tree nodes to reassign jobs and event monitors to other agent systems as needed.

1. Click **Agents** from the Tree view. A list of agents displays in the List view.
2. Right-click an agent and select **Remove Agent**. A dialog displays, showing the status of the removal.
3. Click **OK** to remove the agent.

About Agent Jobs

Agent jobs are similar to normal Robot SCHEDULE command jobs, except they run on other systems connected to your IBM i through Robot SCHEDULE Enterprise. You can use agent jobs to run scripts and commands, processing payroll, managing files, and other routine system jobs on Windows, UNIX, and Linux servers connected to your IBM i.

After you create and save an agent job, it displays under the All Jobs and Jobs by Agent categories in the Robot SCHEDULE Explorer tree view. You can select the job to modify it, display it on the Job Schedule List, or view it in the Schedule Activity Monitor (SAM).

Setting Up Agent Jobs

For agent jobs, use the Job Properties window to define, schedule, and control the agent job. When you select Agent as the job type, the Job Properties window displays the tabs that are available for agent jobs. In most cases, you need only a few tabs to set up the job.

Use the Command Entry tab to set up commands and agent return codes for your agent job. You can set up individual commands for the job or use a shared command set. See the Agent Command Sets section for more information on setting up shared command sets. See Built-In Functions for more information.

Built-in Functions

Built-in functions help automate your schedule by completing common tasks for you from within your job.

From the Built-in Function Builder window, select the type of built-in function you want to add. You have two choices:

- File Transfers: This function lets you easily and securely transfer files across your enterprise.
- SQL Server Jobs: This function lets you schedule and integrate your Microsoft SQL Server jobs into your enterprise schedule.

File Transfer Function

Complete the following fields to add a file transfer to your job:

- FTP or Secure FTP (using SSL): Select if you want this job to use to use a secure method of file transfer.
- Use FTP Server Identity Map Entry: Select this option to use a predefined server system name, user name, password, and secure range of ports (standard FTP only). Read more about FTP Server Identity Maps.
- Server System Name, User Name, Password Fields: If you do not use a Server Identity Map, enter the server system name, user name, and password that you want to work with.
- Select FTP Direction: Select if you want to transfer a file to or from the server listed above.
- Agent File Name: Enter the path and file name on the agent to work with.
- Server File Name: Enter the path and name on the Enterprise server to work with.
- Replace the existing Target file: Select if you want to replace the existing file, if it exists. If you do not select this option, and there is a duplicate file, this command results in an error.
- Select if you want to include detailed logging for this function.

- File Transfer Protocol Mode: Set the FTP mode. Select Binary when transferring applications or other information you won't want encoded. Select Text when transferring textual information.

Click **OK** to save your FTP command and return to the Job Properties window.

Managing FTP Server Identity Maps

You can use FTP server identity maps with the file transfer built-in function when creating FTP jobs. An identity map allows you to easily bring the server name, user name, password, and secured range of ports into the FTP job. See File Transfer Function for more information.

Note: You can use any identity map with either the FTP or SFTP functions. However, only FTP functions will use the port range you set here. For SFTP functions, you must set the secured port range on the file transfer server.

To create or change a FTP server identity map:

1. Right-click **Enterprise Server** and select **Manage FTP Server Identity Map**.

   The Manage FTP Server Identity Map window displays.

2. Click **Edit** to change the settings of an existing map or click **Add** to create a new map.

   The Add/Edit FTP Server Identity Map Entry dialog displays.

3. Edit the properties (Server Name, User Name, Password, Confirm Password, Port Range) for the identity and then click **OK**. Note: You can select

Select an identity and click **Remove** to remove it from the list.

Microsoft SQL Server Function

Complete the following fields to add a SQL Server job to your command:

- Use shared SQL Server: Select Use shared SQL Server to use a predefined name, description, instance, and authentication method.

  Read more about Shared SQL Servers.

If you do not use a shared SQL server, continue with the following fields.

- Name: Provide a unique name for the SQL Server Definition, with no spaces.
- Description: Provide a useful description of the SQL Server Definition.
- Instance: If you have multiple SQL Server instances on the agent system, specify which instance you want to use with this definition. If you leave this blank, it will use the SQL Server default instance.
- Authentication: Select an authentication method: SQL Server or Windows.
- User Name: Enter a valid user for the authentication method you selected.

- Password/Confirm Password: Enter a valid password for the user name.
- SQL Server Job Name: Enter a valid SQL Server job name that is valid with the server Instance.
- Use Verbose Logging: Select this option to use verbose logging to help with troubleshooting.

Click **OK** to save your SQL Server command and return to the Job Properties window.

Managing SQL Server Identity Maps

Use SQL Server Identity Maps with the Microsoft SQL Server built-in function to manage SQL Server jobs.

1. Right-click **Enterprise Server** and select **Manage SQL Server Identity Map**.

   The Manage SQL Server Identity Map window displays.

2. Click **Edit** to change the settings of an existing SQL Server identity map or click **Add** to create a new SQL Server identity map entry.

   The Add/Edit SQL Server Identity Map Entry dialog displays.

3. Add the properties (Name, Description, Instance, Authentication, User Name, Password) for the identity and then click **OK**.

Select an identity and click **Remove** to remove it from the list.

Agent Scheduling Objects

Robot SCHEDULE Enterprise allows you to create agent command sets, agent environments, agent returns codes, and agent event monitors that can be shared by many different agent jobs, on any of your servers. By using shared scheduling objects, you save time when it's necessary to update your jobs. Instead of updating the settings for every job, you update the object once.

See also:
   Agent Command Sets
   Agent Environments
   Agent Environment Security
   Agent Return Codes
   Creating Agent Event Monitors

Agent Command Sets

Use the Agent Command Sets window to set up agent command sets that can be shared across your Enterprise network. Agent Command Sets are a command or group of commands that can be used by multiple agent jobs. An Agent Command Set allows you to update a command set in one place and not for every job that uses the command. When you modify the properties of a command set, all agent jobs that share that command set are modified automatically.

To create a new Agent Command Set:

1. Right-click **Agent Command Sets** and select **New**.
2. Enter the name and description for the new command set.
3. Click **Add** to insert a line for a new command.

There are several ways to enter command information into the properties window. You can type a command, find a command stored on an active agent system, use the Reserved Variable Command window, use the Agent Command Finder, or add a built-in function. You can use one or multiple methods to customize your command to do exactly what you want.

Using Commands From Other Agent Systems

1. Click the folder icon to browse available agent systems for a valid command.
2. click an agent system and click **Select**. The File Browser window displays.
3. Browse to the command you want to use and click **Select**. The command you selected appears in the Agent Command Set Properties window.

Adding Reserved Command Variables

1. Click the "at" (@) icon to browse reserved command variables on the Enterprise server.
2. Browse to the reserved command variable that you want to use and click **Select**. The command you selected appears in the Agent Command Set Properties window.

Using Commands from Other Command Sets or Jobs

1. Click **Command Finder** to browse for commands used by other command sets or jobs.
2. Select **Jobs** or **Command Sets** to browse available commands to copy.
3. Click the command you want to use and click **Select**. The command you selected appears in the Agent Command Set Properties window.

Adding Built-In Functions

1. Click **Add Function** to add a task to your job. The Built-in Function Builder window displays.
2. Select the type of function you want to add to your job. See Built-In Functions for help on the type of BIF you select.

Agent Environment Properties Window

Use the Agent Environment Properties window to set up agent environments that can be shared across your Enterprise. Robot SCHEDULE Enterprise lets you create named groups of job control defaults called agent environments. Agent job environments contain special attributes that only pertain to agent jobs, including environment variables, which user to run the job as, and which directory to work in on the agent system. A shared agent environment allows you to update a environment in one place and not for every job that uses the environment.

1. Right-click **Agent Environments** and select **New**. The Agent Environment Properties window displays.

2. Enter a name and description for the agent environment.

3. Select the **Authentication Type** from the drop-down list. The default selection is "Username and Password."

   To allow jobs to run without a password on agents that use this environment, select "Run as Agent's User" (for Windows, then skip steps 4 and 5) or "setuid" (for UNIX and Linux, then skip step 4). For details on how to set up the system so that jobs can run without a password, see that section in Agent Systems.

4. Enter a user to run this environment that exists on the agent system. Click the Prompt (...) button to browse for

users on available agent systems.

5. Enter a working path for the agent system you are working on. Click the Prompt (...) button to browse for a directory on available agent systems.

6. Set the action to take when the IBM i job is terminated:

- Continue process on remote agent, Robot SCHEDULE job terminates: The simultaneous remote agent process will continue and may complete normally, but the job completion history will show the job as terminated immediately.
- End command shell on remote agent, Robot SCHEDULE job terminates: The simultaneous remote agent process will be ended immediately and the job completion history will show the job as terminated immediately.

7. Click **Add** to create a new variable for this environment or Properties to edit a variable. The Agent Environment Variables window displays.

8. Enter a name and value for the variable. Click **OK** to return to the Agent Environment Properties window.

9. Click **OK** to save the Agent Environment.

Agent Return Codes

Commands within agent jobs send return codes back to Robot SCHEDULE to let you know if that command completed successfully. Robot SCHEDULE Enterprise ships with a standard set of agent return codes where 0 is pass and all other numbers are fail.

Return codes can be added as individual numbers or as a range of numbers. Valid return code numbers are -2147483648 to 2147483647. When you modify an agent return code, all agent jobs and agent command sets that share that return code are updated automatically.

1. Right-click **Agent Return Codes** and select **New**.
2. Enter a name and description for the agent return code. The name must be unique.
3. Select if this return code will be a Pass List or a Fail list. A pass list must have at least one return code. Return codes are not required for a fail list, if everything is considered passing.
4. Specify your numbers:
   - To add individual numbers, select a number and click **Add Number**. The number appears in the list on the left-hand side.
   - To add a range of numbers, select the beginning and end of the range and click **Add Range**. The range appears in the list on the left-hand side.

Creating Agent Event Monitors

Robot SCHEDULE Enterprise includes agent event monitors to let you know when something has happened on one of your remote servers. You can monitor for events such as changes to a file or directory, a file that's not growing, when a process starts or ends, or your own user-defined events. You can then use these agent event monitors as prerequisites for reactive jobs.

To create an agent event monitor:

1. Right-click **All Event Monitors** and select **New**. The Agent Event Properties window displays.
2. Enter a unique name and description for the agent event. **Note:** This name must be unique among all the event monitors, not just among the agent event monitors.
3. Select the type of agent event you want to create (see options below).
4. Set the number of days to retain history for this event.

5. Check **Enable the Event Monitor** to enable this event monitor. If this option is not checked, the event does not occur.

6. Set the times that this monitor is allowed to run. If both times are set to 0:00, the monitor can run any time it occurs. The monitor will continue to run during off times, but any events generated during the off time do not trigger reactivity.

7. Set how often, in seconds, you want this event monitor to run. (This option is not available for manual events.)

8. Set properties for the type of agent event monitor you're creating:
    - File Events
    - Directory Events
    - Process Events
    - Manual Events

9. Click **OK** to save the agent event monitor. The Event Forecast Schedule Prompt window displays.

10. Select **Yes** to have Robot SCHEDULE create a forecast schedule for this agent event monitor. Click **Use this as the default and do not ask again** to use your settings for each new agent event monitor.

File Events

You can fire an agent event when a file on a remote system is added, removed, changed, or reaches a certain size. Use the Agent Event Properties window to set up file event properties.

1. Complete the basic information described in Creating Agent Event Monitors.

2. Enter the path and file name or click the Prompt (...) button to select a file to monitor. The specified directory can contain wildcards. Depending on the agent file system, the File/Path may be case sensitive. Leading and trailing blanks for directory and file names are important.

    To monitor for a specific file in a directory:

    - /home/application/somefile
    - /home/application/somefile.ext

    To monitor for any/all files in a directory, use * as a generic value:

    - /home/application/*

    To monitor for a set of generic files in a directory, use * or ? as a generic value, where * is one or more characters and ? is one generic character:

    - /home/application/acct*.ext
    - /home/application/*.data
    - /home/application/payroll.*
    - /home/application/file?.data

3. After you have set up the agent event and path information, select the type of File Event you want to monitor for. Then, follow the steps below.

File Added or Removed Events

File Added

A file is considered added when the event monitor detects that it does not exist and then appears. Text EOF Markers can be used when the file has simple text at the end of the file to mark the end. If the file has non-display characters at the end (such as carriage return or line feed) or other non-textual characters, you will need to enter the marker as hexadecimal notation. There are many file utilities available that will help you view the hexadecimal notation of a file. The selected encoding option determines the hex value of the text that this event monitor will look for at the end of a file.

Complete the following properties to create an Agent Event Monitor for added files:

1. Select **Added** to fire an event when a new file is added.
2. Set the length of time that a file or directory must be unchanged before the event is fired.
3. Select **Do not check EOF marker** if you do not want this monitor to check the end of file marker.
4. Select **Text EOF marker** and enter a value to check a text encoded end-of-file marker. Select the type of encoding this file uses. Each agent has a default encoding.
5. Select an encoding option to use for this EOF marker.
6. Click the button next to Agent's default encoding is to use the agent's encoding system on the current EOF marker.
7. Click **Hex EOF marker** to check a hex-encoded end-of-file marker.

File Removed

File Removed Events do not have any special attributes. A file is considered removed if the monitor detects that it exists, but does not detect it during the next polling.

Select **Removed** to create an event when an existing file has been removed.

File Changed Events

A file is considered changed when the size has increased or decreased, or if the timestamp changes. Select what file attribute you want to determine when the event is fired. You can choose multiple options.

1. Select **Changed** to fire an event when a file has been modified.
2. Select what file attribute you want to determine when the event occurs. You can choose one or more options.

File Threshold Events

Use the Threshold option to create an event when a file has grown past or shrunk below a specific size.

1. Select **Threshold** to create an event when a file size has increased or decreased beyond a certain level.
2. Select **Greater Than** to create an event when a file grows past a certain size or **Less Than** if a file shrinks below a certain size.
3. Enter the threshold size. The size can be measured in bytes, kilobytes, megabytes, or gigabytes.
4. Select how often the event should occur: only the first time the threshold is met, every time the threshold is met, or as the size is increasing or decreasing.

Directory Events

You can fire an agent event when a directory on a remote system is added, removed, changed, or reaches a certain size. Use the Agent Event Properties window to set up directory event properties.

1. Complete the basic information described in Creating Agent Event Monitors.

2. Enter the path and file name or click the Prompt (...) button to select a directory to monitor. The specified directory can contain wildcards. Depending on the agent file system, the File/Path may be case sensitive. Leading and trailing blanks for directory and file names are important.

   To monitor for a specific directory:

   - /home/application/somedir

   To monitor for any/all subdirectories, use * as a generic value:

   - /home/application/*

To monitor for a set of generic directories, use * or ? as a generic value, where * is one or more characters and ? is one generic character:

- /home/application/dir*
- /home/application/*dir
- /home/application/dir?

3. After you have set up the agent event and path information, select the type of Directory Event you want to monitor for. Then, follow the steps below.

Directory Added or Removed Events

A directory is considered added when the monitor detects that it does not exist and then appears. A directory is considered removed if the monitor detects that it exists, but does not detect it during the next polling.

Complete the following attributes for Directory Added Events.

- Select **Added** to create an event when a new directory is added.
- Set the length of time that a directory must be unchanged before the event is fired.
- Select **Removed** to create an event when an existing directory has been removed. There are no additional attributes for this event type.

Directory Changed Events

A directory is considered changed when the size has increased or decreased, or if the timestamp changes. Increased/Decreased refers to either the count of files in the directory or the cumulative size of the files in the directory. This is not a recursive monitor (subdirectories are not included).

1. Select **Changed** to create an event when a directory has been modified.
2. Select what directory attribute you want to determine when the event is fired. You can choose multiple options.

Directory Threshold Events

You can fire an event when a directory size has exceeded or dropped below a set size.

Select **Threshold** to create an event when a directory size has increased or decreased past a certain level.

Select **Greater Than** to fire an event when a directory grows past a certain size or **Less Than** if a directory shrinks below a certain size.

Enter the threshold size. The size can be measured in bytes, kilobytes, megabytes, gigabytes, or terabytes.

Select how often the event should be fired: only the first time the threshold is met, every time the threshold is met, or as the size is increasing or decreasing. First Time events do not occur again until the monitor is reset by the size decreases or increases from the specified threshold.

Process Events

You can fire an agent event when a process on a remote system is started or ended. Use the Agent Event Properties window to set up process event properties.

1. Complete the basic information described in Creating Agent Event Monitors.
2. After you have set up the agent event, select the type of Process Event you want to monitor for. Then, follow the steps below.

Process Started or Ended Events

Processes are the equivalent of an IBM i job. Robot SCHEDULE Enterprise allows you to monitor processes by name, user, and process time. You must use at least one of the selection options, but may use all three (name, user, start time).

1. Under Process Event Properties, select **Process Started** to monitor when a process starts or **Process Ended** to monitor when a process ends.
2. Enter a name for the process to monitor, or click the Prompt (...) button to select a process.
3. Enter the user name, or click the Prompt (...) button to select monitor processes ran by a specific user.
4. Click **Advanced Settings** to select multiple variables to use as feedback.
5. Select the variables you want to use as feedback.
   - Process ID: The ID number of the variable. This is the default selection.
   - Process User: The user that the process is running under.
   - Process Name: The name of the process.
6. Click **OK** to return to the Agent Event Properties window.

Manual Events

Manual agent events do not contain any unique property values. Manual agent events allow any agent process to trigger reactivity in Robot SCHEDULE with the "fireevent.sh" agent command. The "fireevent.sh" agent command can be ran in any process on the agent system.

For example, a customer may manually run a process on an agent system at the end of the business day to close out the business activity for the day. They could invoke the "fireevent.sh" agent command at the end of that process to trigger a network backup process to start.

Agent Event Forecast

1. Enter an Agent Event Name or click the prompt button (...) to browse for an agent event monitor.
2. Enter a description for this forecast schedule.
3. Click **OK** to save the forecast schedule.

See Forecast Schedule Job for more information on setting up forecasts.

Agent Event History Window

Use the Agent Event History window for reviewing and troubleshooting agent event monitors.

Use the Data Filter to search for specific events by event name, agent name, event data, or server timestamp.

Click the arrow to sort a column in ascending or descending order.

The status is usually an asterisk (*), which indicating that the event has occurred. If you used the SNDAGTDTA command to blank the event, the status may be empty.

Likely error codes include:

- Time Range: Event was fired at a time that was outside the range defined for that agent event monitor.
- Held Event: This is a rare error code. It requires an event to have happened in the short window between the database being held and the update actually being received by the agent.

Viewing Agent Event Monitor History

Use the Agent Event History window to review and troubleshoot agent event monitors.

Note: To help system performance, the Agent Event History filtering tool shows only the first 256 characters of a field. Use caution when using the filtering tool, as creating a large set of results affects system performance.

* Right-click **All Event Monitors** and select **Agent Event History**.
* Use the Data Filter to search for specific agent events by event name, agent name, event data, or server timestamp.
* The status is usually an asterisk (*), which indicates that the event has occurred. If you used the SNDEVTDTA command to blank the event, the status may be empty.
* Likely error codes include Time Range or Held Event.
* Click the arrow to sort a column in ascending or descending order.
* Right-clicke or more agent events to see additional options.

Creating Forecast Schedules for Agent Event Monitors

Initially, a forecast uses only the information from the Robot SCHEDULE job schedule and Robot SCHEDULE job completion history. For a more complete forecast, including jobs that depend on agent events completing, you can add other jobs to run during the forecast period.

To add a job to the forecast:

1. Right-click **Schedules for Forecasting** and select **New**.

2. Select **Agent Event** as the type of Forecast Schedule to create and then click **OK**.

3. Enter and agent name or click the Prompt button (...) to select an agent event to use for this Forecast Schedule.

4. Enter a description to describe this Forecast Schedule and then click **OK**. The Job Properties window displays.

5. Click **Scheduling** to set up when the job should run.

   Note: When setting the schedule for the forecast job, decide how many events you want to appear in the Forecast Schedule List, the frequency of the events that you are monitoring, and the length of time you want to forecast. If you have hundreds of jobs dependent on multiple events, your Schedule Forecast List could become cluttered and difficult to use.

6. Set the schedule for this job to run based on when you expect the event to occur.

   Note: How often you set this job to run affects the Schedule Forecast List.

View the Schedule Forecast List to see forecast jobs that you created and the dependent Robot SCHEDULE jobs. Even though a job appears in the Schedule Forecast List, it does not indicate that the job will run in the given time period. It only indicates that it could run during the time period if the event occurs.

Switching Which Agent System Event Monitors Run On

Use the Switch Agent option to quickly move agent event monitors from one agent system to another. Use this option when you are removing an agent system from your network, but want to monitor for the same events.

1. Right-click the agent that you want to move event monitors from and select **Switch**. The Switch Agents window displays.
2. Click **Yes** to continue. The Select an Agent window displays.
3. Select an agent and click **Select** to switch the event monitor to the selected agent. The Switch Agents

Enterprise Server / *Changing the User or Password on Multiple Agent Jobs*

confirmation window displays.
4. Click **Yes** to switch the agent that these event monitors run on.

Changing the User or Password on Multiple Agent Jobs

If you have multiple jobs running on an agent system that use private environments, but have the same user, use the Update Agent Environment User/Password option. This option does not change any jobs that use a shared Agent Environment.

Note: To use this option, you must have authority for enterprise maintenance, authorization to the job being changed, and general job change authority. See the Robot SCHEDULE GUI User Guide for more information on modifying security settings.

1. Right-click an agent and select **Change Agent User/Password**. The Update Agent Environment User/Password window displays.

2. Enter the user that you want to change the password for.

3. Click **User name is case sensitive** if the user name uses both uppercase and lowercase letters.

4. Select **Change user to** if you want to change the user name to run the job as.

    Note: Both user names must use the same password.

5. Select **Change password to**, and then enter and confirm the new password.

6. Click **OK** to save changes for all the jobs that use this user name.

Managing the Enterprise Server

Use the Robot SCHEDULE Explorer to start or stop the Enterprise Server, manage server and agent licenses, set logging level settings, check the status of the server, and launch a webpage to show details of your system configuration.

Enterprise Server Properties Window

Use the Enterprise Server Properties window to view server information, set logging levels, and access the diagnostics webpage.

- Attributes: The attributes panel displays server attributes, showing the name and value for each.
- Diagnostics: The Diagnostics panel allows you to set logging levels for the Enterprise server and access the Diagnostics webpage.
  - Informational: The Enterprise server logs INFO level and higher severity information. This option is useful for problem investigation. This is the default logging level.
  - Debug: Logs DEBUG level and higher severity problems.
  - Trace: The Enterprise server logs TRACE level and higher information.
- Click **View Diagnostics Page**, to open the Robot SCHEDULE Enterprise Server Information webpage in your default web browser. The Server Information webpage provides overview and detailed information about your Enterprise Server.

- 187 -

Starting and Stopping the Enterprise Server

You start and stop the Enterprise server from the Robot SCHEDULE Explorer. When the Enterprise server is active, you will see the ENTSERVER and ENTSERVER1 jobs running in the RBTSLEEPER subsystem.

Right-click **Enterprise Server** and select **Start Enterprise Server** or **Stop Enterprise Server**.

Checking Enterprise Server Status

You can quickly check the status of your Enterprise Server from the Robot SCHEDULE Explorer.

Right-click **Enterprise Server** and select **Show Enterprise Status**. The Robot SCHEDULE ENTERPRISE Server Status window displays.

Available statuses include Active, Inactive, Starting, and Ending.

Agent Reports

Robot SCHEDULE Enterprise provides reports for all agent scheduling object categories to help you manage, monitor, and maintain your IBM i job schedule. See Robot SCHEDULE Reports for information on other Robot SCHEDULE reports.

Agent Command Set Report

This report lists all, or selected, Robot SCHEDULE Enterprise Agent Command Sets. You see the command set name, error process setting, agent return code, and command details.

1. From the List View, right-click **Agent Command Set Report** and select **Set up Report**.
2. Enter a Command Set name and output queue for the report.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Agent Environment Report

Lists all, or selected, Robot SCHEDULE Enter- prise Agent Environments. You see the environment name, a description, user, working path, and the IBM i termination action.

1. From the List View, right-click **Agent Environment Report** and select **Set up Report**.
2. Enter an agent environment name and output queue for the report.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Agent Event Report

Lists all, or selected, Robot SCHEDULE Enterprise Agent Events. You see the event name, description, agent that processes the event monitor, event type, and the selected option to enable the event monitor.

1. From the List View, right-click **Agent Event Report** and select **Set up Report**.
2. Enter an agent event name and output queue for the report.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Agent Return Code Report

Lists all, or selected, Robot SCHEDULE Enterprise Agent Return Codes. You see the name, description, list type (pass or fail), and a list of return codes.

1. From the List View, right-click **Agent Return Code Report** and select **Set up Report**.
2. Enter an agent return code name and output queue for the report.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Agent Setup Report

Lists all, or selected, information for Robot SCHEDULE Enterprise agent systems. You see the agent name, description, job shell, and system information (IP address, Port, OS, and CPU information).

1. From the List View, right-click **Agent Setup Report** and select **Set up Report**.
2. Enter an agent name and output queue for the report.
3. Click the **Schedule** button to schedule the report job in Robot SCHEDULE.
4. Click the **Submit** button to submit the report job.

Licensing the Enterprise Server

Use the Work With Enterprise Server License window to manage Primary and Temporary licenses for your Enterprise server.

Robot SCHEDULE Enterprise uses two types of licenses: Primary and Temporary. The Primary license is the permanent license for your system. When you purchase a Primary license, you purchase a certain number of points with that license. If you max out your point usage, and would like to add more systems, but don't know how many additional points you'll need, you can use a Temporary license to figure out how many more points you will need to purchase for your Primary license.

1. Click **Change Primary License** or **Change Temporary License** to update your Enterprise Server license. The Robot ENTERPRISE Primary (or Temporary) Product License window displays.
2. Enter the Primary or Temporary license for your Enterprise Server.
3. Click **Display License Agreement** to view the license agreement.
4. Click **OK** to accept the license information.

Licensing Enterprise Agents

You do not need to key in individual licenses for every agent. Each agent system you license through Robot SCHEDULE Enterprise is worth a certain number of points, depending on its system configuration. Contact your

Regional Sales Manager for more information.

The Work with Enterprise Agent Licensing window provides details of agent systems connected to the Enterprise Server, including OS, agent name, how many points are used, and how many are available.

Click the box next to each system that you want to license.

Enterprise Server Properties Window

Use the Enterprise Server Properties window to view server information, set logging levels, and access the diagnostics webpage.

Attributes

The attributes panel displays server attributes, showing the name and value for each.

Diagnostics

The Diagnostics panel allows you to set logging levels for the Enterprise server and access the Diagnostics webpage.

Agent Feedback Mechanisms

Reactive jobs with agent feedback variables may sometimes start before the feedback variable is set for the event by performing jobs with "DO" commands for having complex prerequisites using the "or" option. In these cases, a blank value is used as the feedback data. Agent event feedback mechanisms are similar to reserved command variables. You can reference the feedback of an agent event by prefixing the event name with "@@" in the commands of jobs that react to the event.

The feedback value for each type of event is as follows:

- File and directory events is the file or directory path.
- Manual events is the event data specified on the fireevent.sh command.
- Process events can be customized on the process event setup.

The reactive job reacts to the manual event and sends the event data as the message value.

Agent Finder Window

Use this window to browse for an agent system. The name and a brief description of each agent system connected to your IBM i are provided. Highlight an agent system and click **Select**.

HOST MODE

Product Master

The Product Master mirrors Robot SCHEDULE and allows you to create and distribute the same setup instructions to the other systems in the network. You cannot run jobs from the Product Master; its main function is to allow you to create setup information for distribution to other systems.

You can use the Product Master to:

- Create jobs and setup instructions and send them to Robot NETWORK for installation on the node systems of your choice.
- Change a job and have Robot NETWORK make the same changes on specified nodes, including deleting a job.

Managing jobs from the Product Master allows you to update and maintain job setup throughout the network. For example, you might want to place a particular Robot SCHEDULE job on hold on all networked systems. Using the product master on the host system, place that job on hold and then send the job to all the networked systems. This makes it very easy to make a scheduling change throughout an entire network quickly.

You also can set up test jobs on any node, including the host's node, test them until you are confident they work, then send them to the Product Master for distribution to other systems, or directly to another node.

If you want to make a change to a Robot SCHEDULE job on just one node, you can do so easily by selecting the node from the Explorer Tree. If you've set up an identity map entry, you connect directly to the node system without having to enter signon information. You then see the jobs and objects on the node system and can work with them.

From the Product Master menu:

- Select **Jobs** to display and work with the jobs defined in the Product Master, and create new jobs.
- Select **Scheduling Objects** to define objects that you can distribute to other systems in the network.
- Select **Reports** to submit or schedule reports in the Product Master. Submitting the report creates a spooled file containing Product Master data. If you schedule a report in the Product Master, it creates a Product Master job, which you then can distribute to the node systems to run as a node job.
- Select **System Setup** to define system defaults that determine how Robot SCHEDULE operates. You can send these defaults to the other systems in your network.

See also:
Product Master Schedule List

Sending and Deleting Information
Using the Send to Wizard
Using the Delete From Wizard
Securing Jobs in the Product Master
Product Master Reports

Product Master Schedule List

The Product Master Job Schedule List displays a list of all the jobs that are defined in the product master on the host system. You can use the Product Master Job Schedule List to define new jobs, view job information, modify current job settings, and send jobs to, or delete them from, other systems in the network.

To view the Product Master Schedule List, right-click Product Master and select **Job Schedule List**. The Job Schedule List for the Product Master displays.

- You can filter the jobs shown in the Job Schedule List using one of the available data filters or define a custom filter. See Filtering Data and Displays for complete information on using data filters.
- You can arrange the Job Schedule List columns in any order by clicking the column heading and dragging it to a new position. You also can sort columns that display a sort symbol, in ascending or descending order, by clicking the column heading.
- The Product Master Job Schedule List Menu options are a subset of the options available on a node or standalone system. Certain options, such as completion history and some schedule override codes, are not available from the Product Master since it cannot run jobs. Other options are dependent on the job you select or specific to the Product Master. See Job Schedule List for a description of the menu options.
- You can select a single job, or multiple jobs, from the Product Master Job Schedule List to send to node systems or another host using the Send To Wizard. You also can choose jobs to be deleted from a node using the Delete From Wizard.

Sending and Deleting Information From the Product Master

Robot SCHEDULE provides two wizards that walk you through the process of sending setup information to, or deleting jobs and scheduling objects from, other systems in the network.

- Use the Send To Wizard to send jobs, scheduling objects, and system setup defaults to other systems.
- Use the Delete From Wizard to send delete instructions from the host system to a node to delete jobs or scheduling objects.

Managing Scheduling Objects

When you send a job to another system from the Product Master, you can choose to send scheduling objects associated with the job. You also can use the Product Master to define and distribute, or delete, individual scheduling objects to other systems. The Send To and Delete From Wizards allow you to standardize scheduling objects across the network.

Select a type of scheduling object in the Tree view to display a list of objects currently defined in the Product Master in the List view. You can choose to define a new object or modify an existing object. Then, use the Send To or Delete From Wizards to distribute the instructions to the nodes or another host.

Sending Secured Objects From the Product Master

You can use the Product Master to authorize users to Robot SCHEDULE product functions and then distribute the records to node systems. Defining product security from the Product Master allows you to standardize your Robot

SCHEDULE security across your network.

1. In the Product Master, right-click **Product Security** and select **Properties** to display the Product Security window.

2. Use the Product Security window to define authorizations for the objects you want to secure. See Robot SCHEDULE Security for complete information on defining product security.

3. After you've defined security for the objects you want to secure, right-click each object and select **Send To** to start the Send To Wizard. Follow the instructions in the Wizard to send the security authorization information to selected nodes.

   Note: You cannot send security authorizations to other host systems in the network.

Using the Send to Wizard

The Send To Wizard allows you to send jobs, scheduling objects, and system setup defaults to the other systems in the network. From the Product Master, you can send all types of setup information to the nodes and to other hosts that are visible to the host system. From the nodes, you can send jobs and scheduling objects to the Product Master on the host system and to the other nodes in the network.

The Send To Wizard uses two different send types: packet and copy.

- Sending from the host to a node or distribution list of nodes sends a packet. Packets are sent to the selected systems and installed by Robot NETWORK.
- Sending from the host to another host, a node to the host, or a node to another node, copies the data directly to the selected system. Data copied to another system is added into the system immediately.

The type of send used displays in the Send confirmation window.

The Send To Wizard walks you through the process of sending jobs and objects. For instructions, clicke of the following:

- Sending from a Node System
- Sending from a Host to a Node System
- Sending from a Host to another Host System

Sending from a Node System

You can use the Send To Wizard to send jobs or objects from a node system to the Host Product Master or to another node in the network. Sending a job or scheduling object from a node does not create a packet that needs to be installed. The jobs or objects you send are added immediately to the Product Master or inserted into the job schedule on the node. Use the following to send a job or scheduling objects from a node system.

1. Right-click the job or object and select **Send To** to start the Send To Wizard.
2. The Select Objects to Send panel displays the job or object you selected.
   - If you're sending a job, any scheduling objects associated with the job also are listed. You can select which objects you want to send with the job.
   - If this is a new job, you should send all associated objects with the job.
   - If a scheduling object associated with a job is a common one that is used across systems (such as the STANDARD calendar), you can choose not to send it with the job.
   - If you want to send only the scheduling objects, simple remove the check mark by the job.
   - If you're sending a group job, click the [icon] button by Member Jobs to open a window where you can decide which member jobs you want to send with the group. If you remove a member job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the group job or another member job that you are sending).

- If you're sending a reactive job, click the 🔍 button by Prerequisite Jobs to open a window where you can decide which prerequisite jobs you want to send. If you remove a prerequisite job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the reactive job or another prerequisite job that you are sending).

3. On the Select Destination Type panel, select one of the following destination types: **Host** to send to the Host Product Master or **Node** to send directly to another node in the network. **Note:** You cannot send jobs or scheduling objects from a node to a distribution list (node group).

4. If you chose a destination type of node, the Select Destination panel displays a list of node systems in the network. Select the nodes you want to send to .

5. The Confirm Send To panel displays a summary of the Send To request. Click **Send**.

6. The Wizard sends the specified items to the selected systems. The Send To Results panel displays indicating the items that were sent. If you are sending to the host, the objects are added into the Host Product Master. If you are sending to a node, the job is inserted immediately into the job schedule on the node system. Click **Close** to return to the Wizard.

7. The Wizard displays a completion message for the Send To operation. Click **Finish** to end the Send To Wizard.

Sending from a Host to a Node System

Use the following to send a job or scheduling object from a host to one or more a node systems.

1. Right-click the job or object and select **Send To** to start the Send To Wizard.
2. The Select Objects to Send panel displays the job or object you selected.
   - If you're sending a job, any scheduling objects associated with the job also are listed. You can select which objects you want to send with the job.
   - If this is a new job, you should send all associated objects to the nodes.
   - If you are changing just one part of an existing job, you can select to send only the objects that have changed.
   - If you want to send only the scheduling objects, simple remove the check mark by the job.
   - If this is a group job, click the 🔍 button by Member Jobs to open a window where you can decide which member jobs you want to send with the group. If you remove a member job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the group job or another member job that you are sending).
   - If you're sending a reactive job, click the 🔍 button by Prerequisite Jobs to open a window where you can decide which prerequisite jobs you want to send. If you remove a prerequisite job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the reactive job or another prerequisite job that you are sending).

3. On the Select Destination Type panel, select **Node**, for distribution to one or more nodes, or **Node Group** for distribution to a list of selected nodes (the node group must be defined in Robot NETWORK).

4. On the Select Destination panel, select a destination for the packet. If you selected node as the destination type, a list of node systems displays; if you selected node Group, a list of node groups defined in Robot NETWORK displays. You can select one or multiple destinations.

5. The Packet Install - Update Objects panel shows the destinations you selected. Enter a description for the packet. Specify a schedule for the packet installation. Select **Install Now** to install the packet immediately on the node system. Select **Install Later** and specify a time and date for the packet to be installed. If you are sending a job to a node system, you can specify security settings for *PUBLIC. This overrides any security settings for the job specified using Job Security in System Setup. Select from the following: Exclude, Display Only, Change, Delete. **Note:** When sending any object other than a job, the Job Security Settings for *PUBLIC field does not appear in the Send To Wizard.

6. The Confirm Send To panel displays a summary of the Send To request. Click **Send**.

7. The Send completed panel displays a message indicating whether the items were sent successfully.
8. Click **Finish** to end the Send To Wizard.

Sending from a Host to another Host System

When you use the Send To Wizard to send objects from one host system to another host, it does not create a packet. The objects you send are added immediately to the Product Master on the selected host. Use the following to send a job or scheduling objects to a host system.

1. Right-click the job or object and select **Send To** to start the Send To Wizard.
2. The Select Objects to Send panel displays the job or objects you selected.
    * If you're sending a job, any scheduling objects associated with the job also are listed. You can select which objects you want to send with the job.
    * If this is a new job, you should send all associated objects to the nodes.
    * If you are changing just one part of an existing job, you can select to send only the objects that have changed.
    * If you want to send only the scheduling objects, simple remove the check mark by the job.
    * If this is a group job, click the [🔍] button by Member Jobs to open a window where you can decide which member jobs you want to send with the group. If you remove a member job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the group job or another member job that you are sending).
    * If you're sending a reactive job, click the [🔍] button by Prerequisite Jobs to open a window where you can decide which prerequisite jobs you want to send. If you remove a prerequisite job, any scheduling objects associated with it will also be removed (unless the objects are also associated with the reactive job or another prerequisite job that you are sending).
3. On the Select Destination Type panel, select **Host** as the destination type.
4. The Select Destination panel displays a list of the host systems visible to the host, as defined in Robot NETWORK. Only the host system name displays, even if Robot NETWORK host visibility has defined the nodes as visible. The Send To Wizard can send only to a host system; it cannot send to another host's nodes. You can select one or multiple hosts.
5. The Confirm Send To panel displays a summary of the Send To request. Click **Send** to send the packet. If you haven't defined a host in your identity map, you will be asked to sign on to the host system. If you've defined the host system in your identity map, you do not need to sign on.
6. The Wizard sends the specified items to the selected hosts, where they are inserted into the Host Product Master. The Send To Results window displays indicating the items that were sent. Click **Close** to return to the Wizard.
7. The Wizard displays a completion message for the Send To operation. Click **Finish** to end the Send To Wizard.

Using the Delete From Wizard

The Product Master Delete From Wizard allows you to delete jobs and scheduling objects from the node systems in a network. The Delete From Wizard is available only from the Product Master; you cannot send packets containing delete instructions from a node to the host or to another node. To use the Delete From Wizard, select the job or object you want to delete from the Product Master, create the packet, and send it to the selected node. The packet deletes the selected object on the node.

Note: If you choose to delete a job using the Delete From Wizard, the job originally must have been sent to the nodes from the Product Master.

In the Product Master, select the job or scheduling object you want to delete. Right-click and select **Delete From**.

The Delete From Wizard walks you through the process of deleting jobs from the node.

Product Master Reports

The Product Master reports options allow you to print or schedule reports in the Product Master. Submitting a report creates a spooled file containing Product Master data. If you schedule a report in the Product Master, it creates a Product Master job, which you then can distribute to the node systems to run as a node job. For complete information on Robot SCHEDULE reports, see Robot SCHEDULE Reports.

1. Select **Reports** from the Tree view to display a list of Robot SCHEDULE report categories.
2. Select a report category to display a list of the reports in that category.
3. Right-click a report and select **Set up Report** to specify selection criteria for the report. The dialog that displays is determined by the report you select. See Robot SCHEDULE Reports for complete information on setting up reports.

Securing Jobs in the Product Master

When you set up jobs in the Product Master for distribution to node systems, you can define job security settings for specific users and *PUBLIC to be sent with the job. If you don't enter security settings using System Setup Job Security, you can specify security for *PUBLIC on the Send To Wizard. Defining job security from the Product Master helps you standardize Robot SCHEDULE security across your network.

1. Right-click **Job Security** and select **Properties** to edit the job security settings for the jobs defined in the Product Master.

2. Select the job you want to secure and select **Properties** to display the Edit User Authorities window.

3. Specify the security settings for the job. You can add or remove user profiles and specify the authority each should have. (See Editing User Authorities for complete information on specifying job security.)

   Note: You can specify security settings for *PUBLIC using the Edit User Authorities window. You also can specify *PUBLIC security settings for a job when sending it to a node using the Send To Wizard. The security you specify in the Wizard overrides the *PUBLIC settings entered through Job Security.

Host Mode

If your systems are connected in a network using Robot NETWORK, the network management software from HelpSystems, Robot SCHEDULE allows you to send jobs, scheduling objects, and system setup information among systems, receive statuses from other systems, and provide cross-system reactivity. Using Robot SCHEDULE in host mode offers a number of benefits.

- Standardize Your Network: If you run the same jobs on multiple systems, set up your Robot SCHEDULE jobs in the Product Master on the host system, then send them to the nodes and other hosts. You also can send jobs or objects from a node to the host system or to another node in the network. Standardizing your remote IBM i
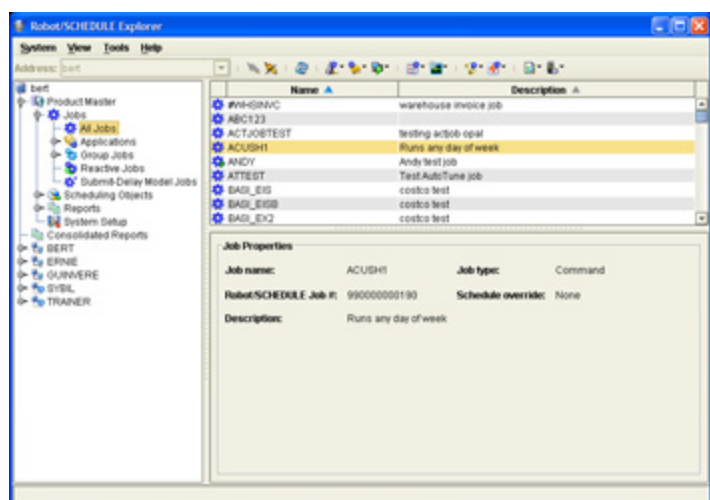
operations simplifies maintenance work on your network.

- Save Time You: save time because you don't have to create the same Robot SCHEDULE job or setup information on each host and node, one at a time.

- Control Your Network from One Site: You can control network scheduling from one host system. This is a huge benefit if you are completely automating IBM i operations at your remote sites.

- Consolidated Reporting: You can create consolidated versions of selected Robot SCHEDULE reports that include information from multiple systems in the network. Use these reports to collect and combine information from the systems in the network, allowing you to reduce the number of reports needed to manage your systems. In addition, you can use the consolidated reports to perform system-to-system comparisons.

When you connect to a system in host mode, the Robot SCHEDULE Explorer provides additional functions that allow you to send and receive information from the other systems in the network. This section assumes you are familiar with Robot SCHEDULE. It describes how to use Robot SCHEDULE in host mode and the differences you'll see from connecting to a system directly. For more information on using Robot SCHEDULE, review the appropriate sections of this manual.

Network host systems and their nodes are defined during Robot NETWORK setup. A system must be designated as a Robot NETWORK host before Robot SCHEDULE can connect to it in host mode. Each host system is also a node to itself.

See the Robot NETWORK User Guide for a complete description of the types of networks you can define and information on setting up Robot NETWORK. This user guide assumes that you have set up your network using Robot NETWORK and are familiar with its use.

Using Reactive Jobs Across Your Network

Robot SCHEDULE and Robot NETWORK let you schedule jobs to run on your network according to system dependencies. When certain conditions are met on a node, other remote systems react based on the Robot SCHEDULE job dependencies you have set up. Without cross-system reactive jobs, job scheduling between systems is based on timing. With Robot SCHEDULE and Robot NETWORK, you can set up jobs to run reactively, optimizing processing times.

Types of Jobs You Distribute Across Your Network

There are certain types of jobs that you should schedule using Robot SCHEDULE host mode to optimize your IBM i network operation:

- Standard operations jobs that affect the running of remote systems. For example, you might schedule routine cleanup operations. Set up these utilities on the Product Master, then send the jobs to each of the nodes. By setting up and managing these jobs from the host, you can be sure that routine operations are done on a regular schedule throughout your network.

- Jobs that users on remote systems might need to run but don't know how to set up. Set up these jobs in the Product Master and then distribute them throughout the network.

- Jobs that are too important to the functioning of your business applications to be left to the possibility of human error. By setting up these jobs in the Robot SCHEDULE Product Master and then sending them to the nodes, you can be sure that these very important jobs will run without fail.

- Jobs that currently are set up and run on remote systems. If these jobs are common to multiple systems in your network, send the jobs to the Product Master so they can be distributed to the other systems in the network. You also can send jobs from one node to another node in the network.

Related Topics

- Connecting to a System in Host Mode
- Using Robot SCHEDULE in Host Mode
- Defining an Identity Map
- Product Master

Connecting to a System

To connect to a system in host mode, you must define a connection profile in Robot SCHEDULE. (See Connection Properties for complete information on setting up a profile that allows you to connect in host mode.) When you connect to a system in host mode, Robot SCHEDULE has additional functions that allow you to send and receive information from other systems in the network.

Select the system to which you want to connect from the Address drop-down. If you didn't specify an alias name when you set up a connection profile, the IP address of the system displays. You can identify a host system by its icon. Click the **Connect** button on the tool bar to connect to the system.

Note: The systems that appear in the list are defined in Robot NETWORK. See Defining an Identity Map for more information.

The Robot SCHEDULE Explorer window displays showing the host system and its nodes.

Robot SCHEDULE in Host Mode

When you connect to a system in host mode, the Robot SCHEDULE Explorer Tree displays the host system and its nodes. The nodes are defined to the host system in Robot NETWORK. When you select a node system from the Explorer tree, you connect to, and work on, the system, as if you had connected directly. All the options and functions described in the earlier part of this User Guide apply to the node systems in a network.

You also can create jobs on a node system and send the information to other nodes or to the Product Master for distribution to other systems in the network.

Product Master

The Robot SCHEDULE Product Master allows you to create and distribute the same setup instructions to the other systems in the network. You cannot run jobs from the Product Master; use it to create setup information for distribution to other systems. The Product Master Reports option allows you to print reports of the Product Master data and schedule report jobs for distribution to node systems.

Consolidated Reports

Use Consolidated Reports to create consolidated versions of selected Robot SCHEDULE reports that include information from a single system, or multiple systems, in the network.

Displaying Robot SCHEDULE Status from Host Mode

When you connect directly to Robot SCHEDULE, the Robot SCHEDULE status displays in the lower right-hand corner of the Explorer window. In host mode, several systems can be represented in the Explorer tree. To see the status of Robot

SCHEDULE on any of the systems in network, select Show Robot SCHEDULE Status from the node system menu options.

Right-click a node system name and select **Show Robot SCHEDULE Status** to display a status window showing the status of Robot SCHEDULE on the selected system.

Robot SCHEDULE's status can be one of the following:

- Active: The Robot SCHEDULE monitor jobs have been started; Robot SCHEDULE can submit scheduled jobs
- Inactive: The monitor jobs have not been started; Robot SCHEDULE cannot submit scheduled jobs
- Unknown: Robot SCHEDULE is in the process of starting, or the monitor jobs or RBTSLEEPER were cancelled. If the monitor jobs or RBTSLEEPER were canceled, the status remains unknown until Robot SCHEDULE is restarted.

Host System Menu Options

Use the host system menu options to enter user name and password information for the systems in the network, edit the host system library list, work with active jobs on the host system, and view spooled files.

Right-click the host system name to display the host menu options:

- Select **Identity Map** to define user names and passwords for the systems in the network. See Defining an Identity Map for more information.
- Select **Edit Library List** to manage the libraries for the current Robot SCHEDULE session. See Library List Objects for complete information.
- Select **Work with Active Jobs** to display the active jobs on the host system. This displays only the jobs on the host; it does not display active jobs throughout the network. See Working With Active Jobs for more information.
- Select **Work with Spooled Files** to display a list of the spooled files on the host system. This displays only the spooled files on the host; it does not display the files throughout the network. See Working With Spooled Files for more information.

Defining an Identity Map

The identity map displays the node systems of the host to which you are connected. You can define a user ID and password for each system listed in the identity map. This allows you to connect to the node systems from the Explorer Tree without having to enter signon information.

In addition, if host visibility is enabled in Robot NETWORK, the identity map includes other host systems and their nodes. Host visibility describes the ability of a host system to "see" (communicate with) other hosts and their nodes, allowing you to perform cross-system reactivity and Host-to-Host Send To operations. Host visibility must be defined in Robot NETWORK. See the Robot NETWORK User Guide for complete information on defining host visibility.

1. Right-click the host name and select **Identity Map**.

   The Identity Map window displays a list of the host and node systems visible to the host system. The systems that display in this window are determined by how host visibility is defined in Robot NETWORK and cannot be changed in Robot SCHEDULE. You can specify user profile information that is stored in the identity map. This allows you to sign on to the systems without entering login information.

2. Select a system and click **Edit** to display the Maintain Identity dialog.

3. Enter the user name and password for the selected system and click **OK**.

   Note: You cannot edit the system to which you currently are connected.

4. Select a system and click **Clear** to remove the user profile information for the system.

Working on Node Systems

When you sign on to a system in host mode, you see the systems that are nodes of the host system. If you select a node system from the Explorer tree, you connect to and work on the node system, as if you had connected directly.

You also can send jobs and scheduling objects from a node system to the Host Product Master or to other nodes in the network. This can be useful if you have a job on one node that you would like to duplicate on other nodes. Instead of recreating the job on each node, you can send it directly to the nodes, which creates the new job on the nodes. Or, send the job to the Product Master on the host system for distribution throughout the network.

Notes:

- You cannot send changes to jobs from a node to another node. If you want to maintain jobs throughout the network, you must send the job from the node to the Host Product Master, modify the job setup (if necessary), and then use the Product Master to distribute the job to all node systems in the network (including the original node system). You then can use the Product Master to manage changes to the job on all the nodes.
- If you send a Robot SCHEDULE job from a node to the host and back to the same node, there will be two jobs on the node with the same job name. However, Robot NETWORK assigns a new job number that begins with 99 to all jobs sent from the Product Master.

Sending Jobs From a Node

Use the Send To Wizard to send jobs or objects from a node to the host system or another node in the network. Sending a job from one node to another node does not send a packet that needs to be installed; the job is placed directly into the job schedule on the node.

On the node system, select the job you want to send. Right-click and select **Send To**.

The Wizard displays the job you selected and any scheduling objects associated with it. Follow the onscreen instructions to complete the wizard.

Sending Robot SCHEDULE Jobs from the Green Screen

The RBNSNDRBT command allows you to use green screen panels to send Robot SCHEDULE jobs on a node (including the host's node) to the Product Master. The command uses the Robot SCHEDULE merge function and must be done one node at a time. Then, you can make changes to the jobs using the GUI Product Master and distribute them to other systems using the Send To Wizard.

Note: Robot SCHEDULE and Robot NETWORK must be installed on each node. Use the following procedure to send a Robot SCHEDULE job using the RBNSNDRBT command.

Enter the following command on a command entry line and press Enter:

RBTNETNODE/RBNSNDRBT

The Robot SCHEDULE Job Schedule List displays.

Locate the job you want to send and press **F4** to display the Options window. You can send the job three ways:

- SJ Send Job: Sends the job only. If you selected to send a job (using the SJ option), the job information displays on the panel. The job will be sent to the Product Master.
- SG Send Group: Sends all jobs under the specified group name. If you selected to send a group (using the SG option), the job you selected displays along with the group name. All jobs in the group will be sent to the Product Master.

- SA Send Application: Sends all jobs sharing the same application name. If you selected to send an application (using the SA option), the job you selected displays along with the application name. All jobs that share the same application name will be sent to the Product Master.

Enter a **1** next to the option you want to select. Or, you can enter the appropriate two-letter option next to the job name on the Job Schedule List panel.

The Confirm of Send Records to host panel displays with information for the job, group, or application you selected. Press Enter to send the records, or press **F3** to cancel the send request.

Setting Up Cross-System Reactive Jobs

Robot SCHEDULE lets you schedule reactive jobs that run only after certain prerequisite conditions are met. With Robot NETWORK, the list of prerequisite jobs for a reactive job can include Robot SCHEDULE jobs on remote node systems. Then, when certain conditions are met on the current system and/or a remote node, the reactive job runs. (See Reactivity, earlier in this User Guide, for complete information on Robot SCHEDULE reactive jobs.) To set up cross-system reactive jobs, you must have Robot SCHEDULE and Robot NETWORK installed on the nodes, as well as the host system. If you need to create a new prerequisite job on a remote node, set it up before creating the reactive job list.

1. On the node system, select New to create a new job.
2. When the Job Properties window displays, enter the name and description of the job, and select the job type. You can specify an application name, if you wish. Click **Apply** to save your job information.
3. Click the Scheduling tab and enter a run schedule for the job. You can limit a reactive job to certain run times. See Overview of Reactivity for more information about reactive jobs.
4. Click the Reactivity Tab to add the prerequisite jobs for the job.
5. To add a Robot SCHEDULE job on the local system to the prerequisite list, click **Add Robot Job**. Select the job you want to add to the prerequisite list from the Add Robot Job window.
6. To add a job on the remote node as a prerequisite, click **Add Remote Job**.
7. The Select a System window displays a list of the systems in this network and, if host visibility is enabled, it also lists the systems in the host's visibility definition. Select the system where the remote prerequisite job is located and click **Select**.
8. On the Add Robot Job window on the remote system, select the job you want to add as a prerequisite. Specify the Conjunction, React on Status, and Keep option for the job. Click **OK** when you are done.

The jobs you've specified as prerequisite jobs display in the Reactivity tab for the reactive job. You can change the order in which the prerequisite jobs run by clicking the **Move Up** or **Move Down** buttons. You also can modify the conditions used by a prerequisite job; click **Edit** to change the Conjunction, React on Status, or Keep option, or to set up a special instance. See Overview of Reactivity for complete information.

When the prerequisite jobs run and meet the conditions you've set, the reactive job will run.

Consolidated Reports

Robot SCHEDULE's consolidated reports option provides five reports that allow you to consolidate selected data from multiple nodes in your network. Each report presents the information from the selected node systems in a single report. You select which systems to include in each report.

By using these reports to combine information from multiple systems, you can reduce the number of reports you need to manage your systems. You also can use the consolidated reports to perform system-to-system comparisons.

You can run the following consolidated reports from the host system:

Audit Log Reports

The Consolidated Audit Log Summary report shows counts of updates (create, change, delete) and user actions. The extended summary provides subtotals by application category (job, command, and group membership). You also can choose to include totals by the user profile who made the change.

The Consolidated Audit Log Detail report lists audited transactions, including the name of each system, the time and date the change was made, the user profile that made the change, the category of the change, and job or message information.

Good Morning Report

The Consolidated Good Morning report summarizes job processing information for a specified time period. You also can specify additional information to include in the report, such as a list of the jobs that deviated from their average runtime, jobs that ended abnormally, error messages, warning messages, and job monitor events. If you select these additional job information categories, running the Consolidated Good Morning report produces a separate report for each category in addition to the summary report.

Cross-System Jobs Reports

The Consolidated Cross System Reactive Jobs report lists the reactive jobs on each system and their related prerequisite jobs on other systems in the network.

The Consolidated Cross System Prerequisite Jobs report lists prerequisite jobs on each system and their related reactive jobs on the other systems in the network.

Printing Audit Log Reports

Two of the reports available through consolidated reporting allow you to print audit log information for the systems in the network. Both reports allow you to specify a time range and the systems to be included in the report.

Note: Both of the Consolidated Audit Log reports exclude the changes made by the RBTADMIN and RBTUSER profiles.

Use the setup dialogs to specify selection criteria and print options for each report.

Audit Log Detail Report

1. Select **Audit Log Detail** to set up the Consolidated Audit Log Detail Report.
2. Specify a time range for the report. You can enter both a start and end date for the report. From Beginning to To End prints all available audit log data for the selected systems. You can restrict the data in the report by specifying start and end dates; you also can specify a start and end time for the report.
3. Specify the systems in the network for which to run the report. Select All to run the report for all systems in the network. If you select Single System or Distribution List, click the Prompt button to select the systems to include in the report.
4. Specify the time zone for the report. A host system and its nodes may be in different time zones. Select **Host** to use the host system time zone for the report; select **Node** to use the node system time zone.
5. Enter a user profile to limit the information in the report to the changes made by that profile. Select ***ALL** to include changes made by all user profiles.
6. Click **Schedule** to schedule the report; or **Submit** to submit the report immediately.

Audit Log Summary Report

1. Select **Audit Log Summary** to set up the Consolidated Audit Log Summary Report.
2. The Consolidated Audit Log Summary Report allows you to select one of the following report types:
   * Basic: Includes the total number of each type of action made to Robot SCHEDULE on the specified systems by user profile.
   * Advanced: Includes the total number of each type of action, by category, made to Robot SCHEDULE on the specified systems by user profile.
3. Specify a time range for the report. You can enter both a start and end date for the report. From Beginning to To End prints all available audit log data for the selected systems. You can restrict the data in the report by specifying start and end dates; you also can specify a start and end time for the report.
4. Specify the systems in the network for which to run the report. Select All to run the report for all systems in the network. If you select Single System or Distribution List, click the Prompt button to select the systems to include in the report.
5. Specify the time zone for the report. A host system and its nodes may be in different time zones. Select **Host** to use the host system time zone for the report; select **Node** to use the node system time zone.
6. Select ***ALL** to print summary information about each individual user that has entries in the audit log. Select ***NONE** to print a summary of all audit log information, with no individual user breakdown.
7. Specify an output queue for the report.
8. Click **Schedule** to schedule the report; or **Submit** to submit the report immediately.

Printing Cross-System Job Reports

The Cross System Prerequisite Job and Cross System Reactive Job reports include information about prerequisite jobs and reactive jobs across networked systems. Jobs can run in reaction to jobs on other systems. Use these reports to see the jobs that are prerequisites to other jobs and their reactive jobs.

1. Select Consolidated Cross System Prerequisite Jobs or Consolidated Cross System Reactive Jobs from the List view to specify selection criteria for the reports.

   Note: The dialog used to specify selection criteria is the same for both reports, except for the name.

2. Specify the systems for which you want to run the report:
   * All: Includes all systems in the network
   * Single System: Specify the name of the system for the report. Click the Prompt button to display the Select a System finder window.
   * Distribution List: Specify a distribution list name. Click the Prompt button to select a distribution list. Note: A distribution list must be defined in Robot NETWORK.
3. Specify an output queue for the report.

Printing the Consolidated Good Morning Report

The Consolidated Good Morning Report summarizes the job processing during a specified time period across the systems in a network. The report can include the following information:

* Number of jobs that ran
* Number of jobs that completed normally

- Total batch job execution
- Jobs that ran outside the average runtime
- Deviation from past runs
- Jobs that ended abnormally
- Job monitor events on each system
- Warning and error messages issued

Schedule the Good Morning Report to print every day to receive an overview of your Robot SCHEDULE job processing across your network systems.

1. Select **Good Morning Report** from the Consolidated Reports List view to enter selection criteria for the report. The Consolidated Good Morning Report window displays.

2. Specify a time range for the report. Select **Current Day** to run the report for the current day starting at midnight. If you want to change the reporting period, you can enter a starting and ending date and time.

3. Specify the systems in the network for which to run the report. Select **All** to run the report for all systems in the network. If you select Single System or Distribution List, click the Prompt button to select the systems to include in the report.

4. Specify the time zone for the report. A host system and its nodes may be in different time zones. Select **Host** to use the host system time zone for the report; select **Node** to use the node system time zone. Depending on the time zone you select, the time values used for the report are adjusted according to the difference between the host time zone and the node time zone.

   For example, your network consists of a host system in the Central time zone and a remote node in the Pacific time zone. You enter a time range of 08:00 to 17:00. If you select the node time zone, the time range used for the remote node is 08:00 PST to 17:00 PST. If you select the host time zone, the time range for the host's node is 08:00 CST to 17:00 CST, while the time range for the remote node is 06:00 PST to 15:00 PST.

5. To see the number of jobs that varied from the average runtime, enter a percentage of deviation. For example, if you enter 15%, the Good Morning report includes the jobs that varied from their average runtime by at least 15 percent. The default value, *NONE, includes all jobs in the Good Morning report.

6. Select the job information you want to include in the report:

   - Jobs Outside Deviation: Include the jobs that ran outside the deviation from their average runtime, based on the percentage specified above.
   - Error Messages: Include error message in the report.
   - Jobs Ended Abnormally: Include the jobs that ended abnormally.
   - Warning Messages: Include warning messages.
   - Job Monitor Events: Include job monitor events that occurred on each system.

   The Consolidated Good Morning report also produces additional reports that provide more detailed information for each of the job information categories you select. If you do not select any of the options, only the summary report is produced.

7. Specify an output queue for the report.

8. Click **Schedule** to schedule the report to run regularly or **Submit** to submit the report immediately.

Identity Map

Identity maps display relationships among the systems in a network. The Identity Map window displays the node systems of the host to which you currently are connected. You can enter a user ID and password for each system listed

in the identity map. This allows you to connect to the systems without having to enter login information.

If host visibility is enabled in Robot NETWORK, the identity map includes other host systems and their nodes. Host visibility defines the ability of a host system to communicate with other hosts and their nodes. Host visibility must be defined in Robot NETWORK.

- The System column of the Identity Map window displays each system to which you are currently connected.
- The Profile column lists the user profile defined for that system.

Note: The user profile must be a valid user profile on the selected system.

Editing Identity Maps

You can specify user profile information that is stored in the identity map.

To enter user profile information in the identity map, select a system and click **Edit**. Enter a user name and password for the selected system on the Maintain Identity window and click **OK**.

Note: You cannot edit the user profile information for the host system to which you currently are connected.

To remove user profile information for a system, select the system and click **Clear**.

Maintain Identity

Use the Maintain Identity window to enter user profile information for a system in the identity map. The system name displays at the top of the window.

1. Enter a user name and password for the selected system.
2. Enter the password again to confirm it.
3. Click **OK** to save your changes, or **Cancel** to exit without making any changes. The user profile name displays on the Identity Map window.

Server Properties

The IBM i Server Properties window displays the following host system information:

- Operating System
- Operating System Level
- Total Auxiliary Storage
- Processor Type
- Number of Processors
- Serial Number
- Model
- Processor Feature Code
- PTF Level

SYSTEM SETUP

Entering the Product License Code

You can enter and display the Robot SCHEDULE product license code from the system control options menu. You must be connected to a system to work with its license code.

To enter a product license code:

1. Right-click the system name.
2. Select **License** to display the Robot SCHEDULE Product License window. Information for your IBM i system displays on the Product License window.
3. Enter the Robot SCHEDULE license code in the License Code field. Select **View 1** to display the License Code field in data entry mode. Select **View 2** to display the field in copy-and-paste mode, which allows you to paste your permanent security code into the field.
4. Select **Display License Agreement** to display the HelpSystems license agreement. You can copy this information and save it to your PC.

System Setup

You can tailor Robot SCHEDULE to support the operations at your site. This process begins with system setup. Using the Robot SCHEDULE System Setup options, you can:

- Change security for the following:
  - the product
  - specific Robot SCHEDULE jobs
  - the agent properties*
  - the agent environments*
  - the FTP Server identity maps*
  - the SQL Server identity maps*

* You must have Robot SCHEDULE Enterprise installed for these options to appear.

● View or save your audit log files for troubleshooting or archival purposes.

● Change the general system defaults that determine how Robot SCHEDULE operates.

See also:
Entering the Product License Code
Robot SCHEDULE Security

Robot SCHEDULE Security

Your IBM i server provides a security system that restricts the rights to system objects. Robot SCHEDULE also provides an optional security system that can restrict the rights to change various Robot SCHEDULE functions or job data. You select to use the Robot SCHEDULE security system on the System Defaults window.

Robot SCHEDULE allows you to secure objects in the following areas:

● Product Security - for securing objects such as menus, GUI objects, the Job Schedule List, and schedule override codes.
● Job Security - for securing jobs.
● Agent Properties Security* - for securing agents.
● Agent Environment Security* - for securing agent environments.
● FTP Server Identity Map Security* - for securing FTP servers.
● SQL Server Identity Map Security* - for securing SQL Servers.

* You must have Robot SCHEDULE Enterprise installed for these options to appear.

Robot SCHEDULE security uses a powerful, hierarchical system. For example, you can secure each menu. When a user profile is restricted at the menu level, it automatically restricts each option under that menu. If you have group profiles and authorization lists set up, you can copy them on the Edit User Authorities window. In situations involving multiple objects with different security restrictions, the most restrictive rules apply.

The job security system allows you to set user authority to specific jobs. For example, you can secure any job that involves sensitive data, such as payroll and accounting jobs. **Note:** Whoever originally sets up a job is automatically granted all authority to the job, but your security officer can edit this authority after the job is created.

Product Security

Robot SCHEDULE security allows you to restrict the use of different product functions and data to specific users. You can define separate security restrictions for each object listed on the Product Security window. Right-click the secured object for which you want to change user authority, then select **Properties**. The Edit User Authority window displays.

Note: The security you set here is used by Robot SCHEDULE only if you activate Robot SCHEDULE security (see System Defaults).

Job Security

Use the Job Security Settings window to add or remove job security. You also use this window to edit the user authority for the job. You can define separate user security restrictions for each job listed on the Job Security Settings window. Right-click the secured job for which you want to add or change user authority, then select Properties. The Edit User Authorities window displays.

- Click **Add** to select from a list of jobs to add to the Job Security Settings window.
- Click **Remove** to remove a job from the Job Security Settings window.
- Select a job and click **Edit** to change the user authority for the job. The Edit User Authority window displays.

Agent Properties Security

Use the Agent Properties Security Settings window to authorize users to run jobs on specific agents.

- From System Setup, right-click **Agent Properties Security** and select **Properties**. The Agent Properties Security Settings window displays.
- Click **Add** to select an agent to add to the list.
- Select an agent and click **Remove** to remove an agent from the list.
- Select an agent and click **Edit** to edit the user authorities for that agent. See Editing User Authorities for information on modifying the user authorities.

Agent Environment Security

Use the Agent Environment Security Settings window to authorize users to use specific agent environments.

- From System Setup, right-click **Agent Environment Security** and select **Properties**. The Agent Environment Security Settings window displays.
- Click **Add** to select an agent environment to add to the list
- Select an agent environment and click **Remove** to remove an agent environment from the list.
- Select an agent environment and click **Edit** to edit the user object authorities for that agent environment. See Editing User Authorities for information on modifying the user authorities.

Editing User Authorities

Use the Edit User Authorities window to secure Robot SCHEDULE objects, jobs, agents (only for Robot SCHEDULE Enterprise).

1. Under System Setup, right-click the security item and click **Properties**. The window that displays depends on which item you're working with.

   Used by Product Security, Job Security, Agent Properties Security, Agent Environment Security, FTP Server Identity Map Security, and SQL Server Identity Map Security,

2. Right-click the object you want to work with and select **Properties**. The Edit User Authorities window displays,

allowing you to specify the users who can access the object and their security privileges.

Note: Different objects can have different authorities that can be edited.

3. The *PUBLIC line defines the authorizations for every user profile that is not listed in this window. If you want to restrict access to an object, set *PUBLIC to **Exclude**.

4. You can select to secure an object using an IBM authorization list. If user profile names in the authorization list are duplicates of names on this window, the authorizations defined in the window are given to the user. For more information about authorization lists, see your IBM documentation.

5. If you enter an authorization list, the Use *PUBLIC Authority from Authorization List option becomes active. Select it to use the *PUBLIC authority from the authorization list. If you don't select this option, the authorization for *PUBLIC defined on this window is used.

6. Click **Add** to select a user profile to add to the list. Then, specify the authorizations that user profile should have to the object.

7. Select the authorization for each user profile in the window (selected authorizations display a check mark).

   - Exclude: The user is denied all access to the secured object.
   - Display Only: The user can display the secured object.
   - Change: The user can change an existing object.
   - Delete: The user can delete an existing object.

8. To delete a user profile, select the profile and click **Remove**.

Securing FTP Server Identity Maps

Use the FTP Server Identity Map Security option to add extra security to your identities. Secure identities ensure that users don't use unauthorized accounts to run FTP jobs.

1. Click **System Setup** from the Tree view.

2. Double-click **FTP Server Identity Map Security** from the List view. The FTP Server Identity Map Security Settings window displays.

3. Click **Add** to add security to an existing identity.

4. Select an identity and then click **Select**. The identity is added to the list in the FTP Server Identify Map Security Settings window.

5. Click **Edit** to modify the security settings of an identity. The Edit User Authorities window displays.

   You can secure an object using an IBM authorization list. If user profile names in the authorization list are duplicates of names on this window, the authorizations defined in the window are given to the user. For more information about authorization lists, see your IBM documentation.

6. If you enter an authorization list, the Use *PUBLIC Authority from the Authorization List option becomes active. Select it to use the *PUBLIC authority from the authorization list. If you don't select this option, the authorization for *PUBLIC defined on this window is used.

7. Click **Add** to select a user profile to add to the list. Then, specify the authorizations that user profile should have to the object. To delete a user profile, select the profile and click **Remove**.

8. Select the authorization for each user profile in the window. (Selected authorizations display a check mark.)

9. Click **Close** to return to the Robot SCHEDULE Explorer.

Securing SQL Server Identity Maps

Use the SQL Server Identity Map Security option to add extra security to your identities. Secure identities ensure that users don't use unauthorized accounts to run SQL Server jobs.

1. Click **System Setup** from the Tree view.

2. Double-click **SQL Server Identity Map Security**. The SQL Server Identity Map Security Settings window displays.

3. Click **Add** to add security to an existing identity.

4. Select an identity and then click **Select**. The identity is added to the list in the SQL Server Identify Map Security Settings window.

5. Click **Edit** to modify the security settings of an identity. The Edit User Authorities window displays.

   You can secure an object using an IBM authorization list. If user profile names in the authorization list are duplicates of names on this window, the authorizations defined in the window are given to the user. For more information about authorization lists, see your IBM documentation.

6. If you enter an authorization list, the Use *PUBLIC Authority from the Authorization List option becomes active. Select it to use the *PUBLIC authority from the authorization list. If you don't select this option, the authorization for *PUBLIC defined on this window is used.

7. Click **Add** to select a user profile to add to the list. Then, specify the authorizations that user profile should have to the object. To delete a user profile, select the profile and click **Remove**.

8. Select the authorization for each user profile in the window. (Selected authorizations display a check mark.)

9. Click **Close** to return to the Robot SCHEDULE Explorer.

Auditing

Robot SCHEDULE auditing allows you to create a log of modifications made to your job schedule. Every job addition, change (including override codes), and deletion is included in the log. The name of the user who made the change and the time and date of the change also display. Use the audit log to document your job schedule and help comply with privacy laws and legislation, such as Sarbanes-Oxley (SOX) and HIPAA.

Note: When Robot SCHEDULE is inactive, all transactions are queued and are not posted to the audit log. When Robot SCHEDULE becomes active again, the monitor job, ROBOTAUDIT, records the changes to the audit log.

Displaying the Audit Log

You display the contents of all audit logs or use a filter to display only selected information from the audit log.

To display the audit log, select System Setup, right-click **Auditing** and select **View Audit Log**. The Audit Log window displays the entries in the Audit Log based on the filter selected to limit the display. Use the filter drop-down menu to change which entries appear in the log.

Clearing the Audit Log

You can specify the number of days to keep audit logs to retain on the Clear Audit Log dialog box. (You also can specify this value on the Auditing Properties dialog box.) The audit log can become quite large if you retain data for a long

period of time, so you should clear the audit log periodically, based on your record-keeping needs.

To clear the audit log:

1. Right-click **Auditing** and select **Clear Audit Log**. The Clear Audit Log dialog displays.
2. Enter the number of days of logging to retain. You can enter any value between 1 and 999 days. Any logs older than the number of days you specify will be deleted automatically from Robot SCHEDULE.
3. Click **Submit**.

Setting Auditing Properties

You can determine whether auditing currently is active and specify the number of days to retain audit logs on the Auditing Properties dialog box. Audit logs are retained for the number of days you specify and then deleted automatically. Robot SCHEDULE must be active through midnight for audit logs to be deleted automatically. Otherwise, the logs are not deleted until the next time Robot SCHEDULE is started.

To set auditing properties:

1. Right-click **Auditing** and select **Properties**. The Auditing Properties dialog displays.
2. The Auditing Properties dialog box indicates if auditing is active. You can specify the number of days to retain audit logs. Enter any number between 1 and 999 days.
3. Click **OK**.

Starting and Stopping Auditing

To start or stop auditing, right-click **Auditing** and select either **Start Auditing** or **Stop Auditing**:

- If you select Stop Auditing when auditing is active (or Start Auditing while auditing is inactive), a
- If you select Stop Auditing when auditing is inactive (or Start Auditing when auditing is active), an error dialog box displays.

Audit Log Viewer

Use the Audit Log Viewer to display and work with the Audit Log entries. Use the Data Filter to sort the display by All Entries, Control Actions, Delete Entries, Insert Entries, Last Hour's Entries, Last Two Days' Entries, Omit RBTADMIN, Omit RBTUSER, Schedule Overrides, Today's Entries, Update Entries, and User Action Entries.

The Type column displays the type of audit log entry: insertions, updates, deletions, and user actions (for example, adding schedule override codes such as DO, DO Special, Hold, Release, Omit, and so on).

Right-click an audit log entry and select **Details** to display detailed information about the entry, for example which schedule override code was used on the job.

Auditing Properties

Robot SCHEDULE allows you to create an audit log of modifications made to your job schedule. Every job schedule addition, change (including override codes), and deletion is included in the log. The name of the user who made the change and the time and date of the change also appears. The audit log can be displayed or printed.

Use the Auditing Properties dialog to determine whether auditing in active or inactive and to specify how long to keep audit log records.

Auditing is:

Displays whether the auditing function is active or inactive. **Note:** To activate or deactivate auditing, select **System Setup** in the Tree view, right-click **Auditing** in the List view, and select the appropriate option.

Number of Days to Keep Audit Logs:

Enter the number of days you want to keep audit logs. Audit logs are kept for the number of days you specify and then deleted automatically. For example, if you specify 16 days to keep audit logs, when a log is 17 days old, it is deleted automatically from the system.

For audit logs to be deleted automatically, Robot SCHEDULE must be active through midnight. Otherwise, audit logs are not deleted until the next time Robot SCHEDULE is started after midnight. **Note:** This value also is controlled on the Clear Audit Log dialog (regardless of where you enter the value, it displays on both dialogs.)

Clear Audit Log

Use the Clear Audit Log window to specify the number of days to keep the audit log. After the number of days you enter, the audit log is cleared automatically. This value also is controlled on the Auditing Properties dialog (regardless of where you enter the value, it displays on both dialogs.)

System Defaults

The General System Defaults window allows you to display and edit the default product settings for Robot SCHEDULE. These settings determine how Robot SCHEDULE operates.

Right-click **System Defaults** in the Tree view and select **Properties** to display the General System Defaults window.

The General System Defaults window contains three tabs that allow you to define Robot SCHEDULE default values:

- Default Options
- Job History Options
- Default Values
- Enterprise Options (if you have Robot SCHEDULE Enterprise installed)

Each of these options are discussed in more detail below.

Default Options

Use the Default Options tab to specify if you want to use Robot SCHEDULE security; use Robot SCHEDULE submit-delay jobs; run missed jobs; and capture job logs.

- Select **Use SCHEDULE's security system** if you want to use the Robot SCHEDULE security system. (See Robot SCHEDULE Security for more information.)
- Select **Use SCHEDULE's submit-delay** to use Robot SCHEDULE's submit-delay jobs feature. (See Exception Scheduling for a complete explanation of submit-delay jobs.)

- Robot SCHEDULE doesn't run jobs while it is stopped. Select **Run Autowork at startup of SCHEDULE** if you want Robot SCHEDULE to automatically run jobs it missed whenever it is restarted after stopping. Robot SCHEDULE will run the jobs missed since midnight.
    - It will run each job only once, even if the job has missed multiple run times.
    - If a job with multiple runs ran once that day before Robot SCHEDULE stopped, it will not run again.
    - Every job scheduled to run after Robot SCHEDULE is restarted will run as scheduled.
- Select one of the following **Job Log Capture** options if you want Robot SCHEDULE to capture job logs so you can display them on the Job Completion History.
    - Abnormal only: Capture the job log only if the job terminates abnormally.
    - All: Capture job logs for all jobs.
    - None; you will control: Capture the job log if directed by the job description.

History Options

Use the History Options tab to specify defaults for job history, job monitor event, and event monitor history.

- Select **Automatically delete Job History** to have Robot SCHEDULE automatically purge the job history of runs beyond the number you have requested to retain.
    - Specify the number of runs to retain in the job's completion history. The job history is used to calculate the average run time of the job for schedule forecasts (see Schedule Forecasting).
- Select **Automatically delete Job Monitor events** to have Robot SCHEDULE automatically purge job monitor events beyond the number you request to retain.
    - Specify the number of job monitor events to retain.
- Select **Automatically delete Event Monitor History** to have Robot SCHEDULE automatically purge event monitor history after a specified number of days.
    - Specify the number of days of event monitor history to retain. If you do not check this option, event history will be stored until a purge is completed using the RBT655 command.

Default Values

Use the Default Values tab to specify values for the operation of Robot SCHEDULE.

- Enter a delay time in minutes. When Robot SCHEDULE starts, it waits the specified number of minutes before it begins submitting jobs. This gives you time to stop Robot SCHEDULE if you need to handle the aftermath of an abnormal powerdown.
- Enter a two-character prefix to be added to the Robot SCHEDULE job name to create the submitted job name. This prefix helps you identify Robot SCHEDULE jobs. Leave the prefix blank if you want Robot SCHEDULE to use just the Robot SCHEDULE job name for the submitted job name. For example, you might want to do this if you are using a job accounting package to track CPU usage.
- Enter the message queue where a message is sent if a Robot SCHEDULE job terminates abnormally. Typically, this is the message queue of the system operator. Click the prompt button to select from a list of message queues on the system.
- Enter a user profile for OPAL objects. Any OPAL objects created for your Robot SCHEDULE jobs will be owned by this profile. We recommend you use the RBTUSER user profile.
- Enter the initial ASP group to be used by Robot SCHEDULE. Specify *NONE if there is no initial ASP group.

Enterprise Options

Use the Enterprise Options tab on the General System Defaults window to set agent event history options. You can select whether to delete history automatically and how long to retain agent event history. The number that you set on this

panel is the default when you create a new agent event. You must have Robot SCHEDULE Enterprise installed to use this option.

- To automatically delete agent event history after a specified number of days, check **Automatically delete agent event history**. If you do not check this option, agent event history will be stored until a purge is completed using the RBT655 command.
- Set the default number of days you want to retain agent event history.
- Select **'Run without Password' enabled for agents** to allow for specific jobs to be set up so that they can run on a specific agent without providing a password for that agent. **Note:** There are two other areas where you must enable this: Agent Properties for the agent and on the Agent Environment tab of the Job Properties window for job you want to allow to run on that agent without a password. Additionally, you must edit the user authorities for both Agent Properties Security and Job Security under System Setup to identify the users you want to allow to run the job on that agent without a password.

INDEX