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Overview of AQM Resource Manager

AQM Resource Manager is the graphical user interface for AQM. It allows you to easily manage all of the AQM services on your network from one location.

The Main Window

The AQM Resource Manager main window is divided into two panes. The left pane displays the queues in the queue system, and the right pane displays all jobs contained in the currently selected queue. The window caption displays the title "AQM Resource Manager" and the name of the AQM server computer you are connected to. If the local computer is an AQM server computer and you are connected to it, then "Local" is displayed in the caption instead of the computer name. All actions that you perform in AQM Resource Manager are performed on the AQM server computer that you are connected to. AQM Resource Manager may only be connected to one AQM server computer at a time. However, you may start several instances of AQM Resource Manager, each connected to a different AQM server computer. At the bottom of the window is a status bar containing a text area and two clocks. The clock on the left displays the current time on the server that you are currently connected to the local computer, then these clocks should be in sync. If you are connected to a remote AQM server, these clocks may be a bit off. All job scheduling times refer to the time on the AQM server computer, not the local computer.

Argent Technical Support

Argent Technical Support is available 24 hours a day, 7 days a week. Please don't hesitate to call or write if you have any questions or comments about AQM.

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Job Exit Codes

When a job completes, it returns an exit code. If a job is set so that a user is notified upon the job's completion, this exit code is reported to the user. The job's exit code is also recorded in the job's log file and the product log file.

Job exit codes are typically used to indicate whether or not a job completed successfully. Although there are no strict standards for exit codes, the convention is that an exit code of zero indicates successful completion and a non-zero exit code indicates that an error occurred.

The exit code from an executable (.EXE) job written in C is determined by the value returned from the **main** function, or the value passed to the **exit** or **ExitProcess** function. Other programming languages have similar methods for setting a program's exit code.

The exit code from a command procedure is determined by the exit code returned from the last command executed. The exit codes from many Windows NT commands are documented in Windows NT Help, and can be used to implement error-handling in your command procedures.

How Permissions Are Evaluated

When a user attempts to perform some action on an object, AQM checks if the user has permission to perform the action. For example, if a user tries to submit a job to a queue, then AQM would check if the user has "Submit" access to the queue.

To perform the access check, AQM scans the object's permissions. If the user, or any group that the user is a member of, is explicitly denied access, then the user cannot perform the action. If the user is not explicitly denied access, then AQM determines which types of access the user has, by combining the access types granted to both the user's account and any groups that the user is a member of.

Connect To Server

Use this dialog box to establish a connection with the AQM service on a remote computer. You may enter a computer name or select one from the list.

Options
Server Name
Refresh

Server Name

In this combo box, you may enter a computer name or select a computer name from the list. If the local computer is an AQM server, then you may also select "<Local>" to connect to the local computer.

Refresh

Click this button to refresh the list of server names in the combo box.

System Startup Jobs

Use this dialog box to set startup jobs for the AQM service. Up to four different jobs may be defined. When the AQM service starts, the jobs are executed in order, in the account under which the AQM service is running. While the startup jobs are being executed, the AQM service is up and running, but the queues will not start any pending jobs which may defined, until the last startup job has completed.

Options

Job Shown

- Job file
- Job time limit
- Abort job if time limit exceeded
- Execute this job...
- Every time the AQM service starts
 - When the AQM service starts at system boot
- When the AQM service starts after a non-orderly shutdown

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Job Shown

This set of buttons controls which startup job is currently shown in the dialog box.

Job file

This edit box contains the batch or executable file which constitutes the startup job.

Job time limit

This edit box contains the time limit, in seconds, for the startup job. If the job exceeds this time limit, then AQM moves on to the next startup job and, optionally, aborts the job which timed out. The minimum time limit that may be specified is 30 seconds.

Abort job if time limit exceeded

If this check box is checked, then AQM aborts the startup job if it exceeds the time limit specified for the job. If this box is not checked, and the startup job times out, then AQM moves on to the next startup job without aborting the job which timed out.

Execute this job group

The options in this group determine under what conditions the startup job is executed.

Execute this job every time the AQM service starts

If this option is selected for a startup job, then the job is executed every time the AQM service starts, both when the service is started automatically at system boot and when a user starts the service manually.

Execute this job when the AQM service starts at system boot

If this option is selected for a startup job, then the job is executed when the AQM service is started automatically at system boot time. The startup job is not executed when a user starts the AQM service manually.

Execute this job when the AQM service starts after non-orderly shutdown

If this option is selected for a startup job, then the job is executed only when the AQM service is started after a non-orderly shutdown of the AQM service. This would apply, for example, when Windows NT reboots after a system crash due to a hardware or operating system failure.

Clear

Click this button to clear the currently selected startup job.

System Permissions

Use this dialog box to view and/or modify the permissions on the system that you are currently connected to. The term **system** in this context refers to the AQM service on the AQM server computer. It is a container object that contains all queues and jobs managed by the AQM service on that computer.



See Also
System Access Types
How permissions are evaluated

Owner

This line displays the owner of the system.

Permissions

This box displays the permissions on the system. Each line contains the name of a user or group, followed by the types of access granted to that user or group. See also: <u>System Access Types</u>

Add

Click this button to add an entry to the system permissions.

Change

Click this button to change the access granted by the currently selected permissions entry.

Remove

Click this button to remove the currently selected entry from the system permissions.

Add System Permission

Use this dialog box to add an entry to the permissions on the system. Select a domain or computer name in the "List names from" field, and then select a user or group account in the list box. Select the types of access to grant to this particular user or group, and then click "OK".

See Also

Change System Permission
Use this dialog box to change the access granted by the currently selected permissions entry.

See Also

System Access Types

System Access Types

The following access types are defined for systems:

Create Queue Control Set Permissions

See Also

 Queue Access Types

 Job Access Types

 How permissions are evaluated

Create Queue

Users granted this access type may create queues on the AQM server.

Control

Users granted this access type may change any options that apply to the entire queue system on the AQM server.

Set Permissions

Users granted this access type may set the permissions for the AQM system.

General System Settings Use this dialog box to view the general settings of the system.

More Information

- Default queue
- Default queue
 System log file
 Primary and backup settings files
 Priority quantum
 Log size limit
 Job number wraps after
 System boot threshold
 Checkpoint save interval
 Maximum executing iobs

- Maximum executing jobs Maximum job processes

Default queue

If a user submits a job with the QSUBMIT command, without specifying a queue name, then the job is submitted to this queue.

System log file

This is the filename of a plain-text log file which records events in the queue system. The filename shown is relative to the AQM server computer.

Primary and backup settings files

These are the filenames of the file in which AQM service saves the queue system settings. The system settings are saved when the service is shut down or stopped. Checkpoint saves also occur regularly. The filenames are relative to the AQM server computer.

Priority quantum

The AQM service periodically adjusts the priorities of all executing jobs, to regulate their consumption of resources, such as CPU time, according to the queue priorities. This value shows the time interval between each priority adjustment.

Log size limit

This field shows that size limit for the system log file. When the system log file reaches this size limit, the AQM service renames it and starts a new log file.
Job number wraps after

This field shows the highest possible job number. Once this job number is used, the next job number wraps back to 1.

System boot threshold

AQM uses this value to determine whether the AQM service was started automatically at system boot time, or whether it was started manually by a user. If the Windows NT has been running for less time than this threshold when the AQM service is started, then AQM considers the start a "system boot start". This distinction is used to determine whether to run startup jobs that specify "Execute this job when AQM starts at system boot".

Checkpoint save interval

This field shows the interval at which the AQM service performs a checkpoint save of all queues and jobs in the AQM system. The default value is 300 seconds, or every 5 minutes.

Maximum executing jobs

This field shows the maximum executing jobs value for the AQM server. The AQM service will not start any new jobs if this number of jobs are currently executing.

Maximum job processes

This field shows the maximum job processes value for the AQM server. The AQM service will not start any new jobs if this number of processes exist among all currently executing jobs. Each job typically has two or three processes at any one time. Note that the actual number of job processes may exceed this limit. This is because although the AQM service will not start any new jobs when this limit is reached, currently executing jobs may create more processes.

AQM Resource Manager Options
 Use this dialog box to configure AQM Resource Manager options for your user account.

Options Timeout for AQM actions Connect to local AQM server on startup Text Editor Start Editor Maximized Additional domains...

Timeout for AQM actions

This value is the number of seconds which AQM Resource Manager will wait before displaying a timeout error when you try to perform any action such as submitting a job or creating a queue.

Connect to local AQM server on startup

If this box is checked, then AQM Resource Manager connects to the local AQM server when it is run. This checkbox is not available if the local computer is not an AQM server.

Text Editor

This field specifies the text editor which is invoked for viewing or editing files, such as job files or log files.

Start Editor Maximized

If this box is checked, then the editor is started with its window maximized.

Additional domains to list in permissions dialogs

This field specifies the names of additional domains from which you may select users when adding permissions entries or setting a job's user account. This field should only be needed in special setups which use one-way trust relationships.

Create Queue
Use this dialog box to create a new queue.

Options
Name Name
Description
Priority
Max pending jobs
Max executing jobs
Retain jobs for
Started, Stopped, Auto
Open, Closed, Auto
•

Name

Enter a name for the queue in this box. Queue names must be in uppercase and may not contain spaces.

Description

Enter a description for the queue in this box.

Priority

Enter the priority for the new queue in this box. The priority of a queue determines how much CPU time is allocated to jobs which run in the queue, relative to jobs in other queues. Queue priorities range from 0 to 255.

Max pending jobs

In this box, enter the maximum number of jobs that may be pending in the queue at any time. When this number of jobs is pending in the queue, the queue is full and no jobs may be submitted to it until a job starts or is canceled.

Max executing jobs

In this box, enter the maximum number of jobs that may execute concurrently in the queue. This value is the "width" of the queue, comparable to the number of CPU's in a multiprocessor computer, or the number of teller windows open in a bank.

Retain jobs for

In this box, enter the length of time that completed jobs are to be retained in the queue before they are automatically discarded. This value is in the form of **hh:mm**.

Started, Stopped, Auto...

This group of buttons determines whether the queue is initially started, stopped, or set for auto start/stop. When the **Auto...** button is clicked, a dialog box appears to let you enter the auto start/stop times.

Open, Closed, Auto...

This group of buttons determines whether the queue is initially open, closed, or set for auto open/close. When the **Auto...** button is clicked, a dialog box appears to let you enter the auto open/close times.

Auto Start/Stop Times

Use this dialog box to set the auto start/stop times for a queue. A queue with auto start/stop set will automatically start each day at the auto start time, and automatically stop each day at the auto stop time. The times are specified in a 24-hour **hh:mm** format.

This feature can be used to create a queue that will accumulate jobs during the day and execute them during off-hours, providing a very simple mechanism for workload balancing.

Auto Open/Close Times Use this dialog box to set the auto open/close times for a queue. A queue with auto open/close set will automatically open at the auto open time, and automatically close at the auto close time. The times are specified in a 24-hour hh:mm format.

Queue Properties Use this dialog box to view and/or modify the properties of a queue.

More Information

Description Description
 Priority
 Max pending jobs
 Max executing
 Retain jobs for
 Started, Stopped, Auto...
 Open, Closed, Auto...
 Jobs completed
 Total CPU time

Description

This box shows the queue's description.

Priority

This box shows the queue's priority. The priority of a queue determines how much CPU time is allocated to jobs which run in the queue, relative to jobs in other queues. Queue priorities range from 0 to 255.

Max pending jobs

This box shows the maximum number of jobs that may be pending in the queue at any time. When this number of jobs is pending in the queue, the queue is full and no jobs may be submitted to it until a job starts or is canceled.

Max executing jobs

This box shows the maximum number of jobs that may execute concurrently in the queue. This value is the "width" of the queue, comparable to the number of CPU's in a multiprocessor computer, or the number of teller windows open in a bank.

Retain jobs for

This box shows the length of time that completed jobs are retained in the queue before they are automatically discarded. This value is in the form of **hh:mm**.

Started, Stopped, Auto...

This group of buttons shows whether the queue is started, stopped, or set for auto start/stop. When the **Auto...** button is clicked, a dialog box appears which lets you view and/or change the auto start/stop times.

Open, Closed, Auto...

This group of buttons shows whether the queue is open, closed, or set for auto open/close. When the **Auto...** button is clicked, a dialog box appears which lets you view and/or change the auto open/close times.

Jobs completed

This field shows the total number of jobs completed in the queue. This includes aborted jobs and jobs which returned an exit code defined as failure. It does not include jobs which were canceled or which failed to start.

Total CPU time

This field shows the total CPU time used by all jobs which have run in the queue since the queue was created. When a job completes, its CPU time is added to this total.

Queue Permissions

Use this dialog box to view and/or modify the permissions on a queue.



See Also
Queue Access Types
How permissions are evaluated

Owner

This line displays the owner of the queue.

Permissions

This box displays the permissions on the queue. Each line contains the name of a user or group, followed by the types of access granted to that user or group. See also: <u>Queue Access Types</u>

Add

Click this button to add an entry to the queue's permissions.
Change

Click this button to change the access granted by the currently selected permissions entry.

Remove

Click this button to remove the currently selected entry from the queue's permissions.

Add Queue Permission

Use this dialog box to add an entry to the permissions on the queue.

Select a domain or computer name in the "List names from" field, and then select a user or group account in the list box. Select the types of access to grant to this particular user or group, and then click "OK".

See Also

Change Queue Permission
Use this dialog box to change the access granted by the currently selected permissions entry.

See Also

Queue Access Types

Queue Access Types

The following access types are defined for queues:

- Submit Control Set Permissions Delete

See Also



Submit

Users granted this access type may submit jobs to the queue.

Control

Users granted this access type may start, stop, open, close, or modify the properties of the queue.

Set Permissions

Users granted this access type may set the queue's permissions.

Delete

Users granted this access type may delete the queue.

Submit Job

Use this dialog box to submit a job to a queue.

You must provide the name of the job file. If the job needs to access any network resources, then you must also provide a password. Defaults are generated for any other fields which you leave blank.

Options
Queue Job File New and Edit <u> Log File</u> Append job number to log file Parameters Job Name Username and From **Use** Password Password Notify user when job starts Notify user when job completes 📃 User Abort job if it is waiting for keyboard input

See Also

Scheduling... Exit Code Handling...

Queue

In this list box, select the queue to which you want to submit the job.

Job File

Enter the name of a job file in this edit box. The job file must be either an executable or command procedure file. You can also click the browse button to browse for a job file.

New and Edit

These buttons appear to the right of the "Job File" edit box. If the edit box is empty, "New" appears. Click this button to create and edit a new command procedure file. If the edit box contains the name of a file, "Edit" appears. Click this button to edit the job file. The "Edit" button is disabled if an executable file is selected as the job file.

Log File

Enter the filename for the job's log file in this edit box. If you leave this item blank, then the log file will have the same filename as the job file, except with the extension ".LOG".

Append job number to log file

If this box is checked, then AQM appends the job number to the filename of the log file. This results in different log filenames for jobs, even if the base log filenames are the same. This feature cannot be used if the log file is located on a volume using the FAT file system, because the job number is appended as a second filename extension, for example **D:\TEST\JOB.LOG.294**.

Parameters

Enter any command-line parameters for the job in this edit box. When the job is executed, these parameters are appended to the job file to create the command line for the job.

Job Name

Enter a name for the job in this edit box. If you leave this field blank, then the job's name will automatically be generated from the job's filename.

Username and From

These controls specify the user account under which the job runs. If you specify a user account other than your own, then you must provide the password for the alternate account in the **Password** edit box. If you leave these fields blank, then your username and domain name are used.

Use Password

Check this box if you want a password to be associated with the job. If you provide a password for the job, then the job will be able to access network resources.

Password

If you wish to provide a password for the job, enter it in this box. The characters you type will appear as asterisks. A password is required if you are submitting the job to run under a user account other than your own. You should also enter a password if the job accesses any network resources, such as shared directories.

Notify owner when job starts

If this check box is set, AQM attempts to notify a user (by default, the user who submitted the job) when the job starts. Notification is performed via the Windows NT Messenger Service.

Notify owner when job completes

If this check box is set, AQM attempts to notify a user (by default, the user who submitted the job) when the job completes. Notification is performed via the Windows NT Messenger Service.

User

This edit box specifies the user to be notified when the job starts and/or completes, depending on the state of the check boxes above it. If this box is left blank, then the user who submitted the job is notified.

Abort job if it is waiting for keyboard input

If this item is selected, AQM will scan the job while it is executing to determine whether it is waiting for keyboard input. If the job is found to be waiting for input, AQM will automatically abort the job and attempt to notify the job's owner.

Note: If a job contains any 16-bit code, then AQM is unable to detect whether the job is waiting for input, and this feature is automatically turned off.

Exit Code Handling

Use this dialog box to set exit code handling options for a job. These options let you define what exit codes constitute failure for the job and what should be done based upon whether the job fails or succeeds.

Options Exit code handling enabled Job fails if...
 Notify user if job fails
 Report event to System Event Log if job fails El Failure Job Success Job

See Also Job Exit Codes

Exit code handling enabled

Check this box to enable the exit code handling features for the job. When this box is not checked, the other controls are disabled.

Job fails if...

The controls on this line let you define what exit codes constitute failure for the job. From the list box, select a relation type, such as "less than" or "equal to". In the edit box, enter a number for the relation to operate on. See also: <u>Job Exit Codes</u>

Notify user if job fails

If this box is checked, then AQM notifies the specified user if the job fails. In the edit box, type the username of the user to notify, or leave it blank to notify the job's owner (the user who submits the job).

Report event to System Event Log if job fails

If this box is checked, then AQM reports an error event to the System Event Log on the AQM server computer if the job fails.

Failure Job

If this box is checked, then the specified job is executed if the job exits with an exit code defined as failure. In the edit box, type the filename to execute, or click **Browse** to browse for a file. The file may be an executable or command procedure file.

Success Job

If this box is checked, then the specified job is executed if the job exits with an exit code defined as success. In the edit box, type the filename to execute, or click **Browse** to browse for a file. The file may be an executable or command procedure file.

Scheduling Use this dialog box to set scheduling options for a job.



After

This options lets you specify a time after which the job may start. If a time is specified, then the job's status will be "Holding" until the specified time, when it will become "Pending", and available to be started. See also: <u>Absolute Time Format</u>

Absolute Time Format

Absolute time values may be given in several formats. Some examples are: +2:00 = Two hours in the future 18:00 = 6:00 P.M. today 12-OCT-97:18:00 = October 12, 1997 at 6:00 P.M.

Every

This option lets you specify a time interval at which the job will recur. This option may only be specified if an "After" time is also specified.

If you submit a job with this option, then AQM resubmits the job if it completes successfully. The new job receives its own job number, and the old job remains in the queue with "Completed" status. The new job receives an "After" time that is the sum of the old job's "After" time and the job's "Every" time. For example, if you submit a job with an "After" time of 9:00 and an "Every" time of 24:00, then the job would, in effect, be scheduled to start at 9:00 A.M. every day. This assumes that the queue is not stopped and the AQM service is running at 9:00 A.M.

Requeue Job Uset this dialog box to requeue a job, by selecting the queue to which you want to requeue the job, and then clicking **OK**.
Job Properties This dialog box shows the properties of a job.

More Information

🖻 <u>Status</u> Job File Job File
 Log File
 Time Submitted
 Time Started
 Time Completed
 CPU time used
 User account User account
 Use password
 Start after
 Start every
 Status Details
 Edit Job File
 View Log File
 Scheduling...
 Exit Code Handling...

Status Details

Click this button to view status details for the job. Status details are available for certain conditions. For example, if a job completes due to an exception, the job's status details would indicate the type of exception that occured in the job.

Edit Job File

Click this button to edit the job file. This button is disabled if the job file is an executable. This button is also disabled if the job file is not accessible by the local computer.

View Log File

Click this button to view the job's log file. This button is disabled if the job has not yet started, since the log file is not created until the job is started. This button is also disabled if the log file filename is not accessible by the local computer.

Status

This line shows the job's status.

Job File

This line shows the job file. This is the executable or command procedure file which constitutes the job. This file is executed when the job starts.

Log File

This line shows the filename of the job's log file. This is the file that is created when the job is started. This file contains a header, a footer, and the job's output.

Time Submitted

This line shows the time at which the job was submitted, either by a user or by a recurring job.

Time Started

This line shows the time at which the job was started. No time is shown if the job has not yet started.

Time Completed

This line shows the time at which the job completed. No time is shown if the job has not yet completed.

CPU time used

This line shows the CPU time used by the job. This value is not shown if the job has not yet started.

User account

This line indicates the user account for the job. The job runs under this account.

Use password

This line indicates whether the job has a password. If it does, then the password is associated with the job's logon session when the job is started, and it will enable the job to access restricted network resources, such as sharepoints.

Start after

This field shows the time after which the job may start. If this field has a value, it may have been set by a user when the job was submitted, or, if the job also has a "Start every" time, it may have been set when the job was automatically resubmitted.

Start every

If this field has a value, then the job is a recurring job. This means that when it completes, a new job is automatically resubmitted. This new job has a "Start after" time obtained by adding the "Start every" time to the previous job's "Start after" time. This value is in **hh:mm** format.

Exit Code Handling Properties This dialog box displays exit code handling properties for a job. These properties define what exit codes constitute failure for the job and what actions AQM takes if the job fails or succeeds.

Options

Job fails if... Notify user if job fails
 Report event to System Event Log if job fails
 Failure Job Success Job

See Also Job Exit Codes

Job fails if...

This line shows what range of exit codes is defined as failure for the job. See also: <u>Job Exit Codes</u>

Notify user if job fails

If this box is checked, then AQM notifies the specified user if the job fails.

Report event to System Event Log if job fails

If this box is checked, then AQM reports an error event to the System Event Log on the AQM server computer if the job fails.

Failure Job

If this box is checked, then the specified job is executed if the job exits with an exit code defined as failure.

Success Job

If this box is checked, then the specified job is executed if the job exits with an exit code defined as success.

Scheduling Properties This dialog box shows the scheduling options for a job.

Options	
🖻 After	
Every	

After

This line shows the time that the job is held until.

Every

This line shows the time interval at which the job will recur. When a job has an "Every" time, AQM resubmits the job after it completes. Then new job has an "After" time obtained by adding the job's "Every" time to the previous job's "After" time. For example, a job with an "After" time of 9:00 A.M. tomorrow and an "Every" time of "24:00" would be started at 9:00 A.M. tomorrow and at 9:00 A.M. every day thereafter.

Select User Account

This dialog box allows you to select a user account for a job to run under. Select a domain or computer name in the "List Names From" control, and then select a user account from the list box.

Job Permissions

Use this dialog box to view and/or modify the permissions on a job.



See Also ■<u>Job Access Types</u> ■<u>How permissions are evaluated</u>

Owner

This line displays the owner of the job.

Permissions

This box displays the permissions on the job. Each line contains the name of a user or group, followed by the types of access granted to that user or group. See also: <u>Job Access Types</u>

Add

Click this button to add an entry to the job's permissions.

Change

Click this button to change the access granted by the currently selected permissions entry.

Remove

Click this button to remove the currently selected entry from the job's permissions.

Add Job Permission

Use this dialog box to add an entry to the permissions on the job.

Select a domain or computer name in the "List names from" field, and then select a user or group account in the list box. Select the types of access to grant to this particular user or group, and then click "OK".

See Also

Change Job Permission
Use this dialog box to change the access granted by the currently selected permissions entry.

See Also

Job Access Types

Job Access Types

The following access types are defined for jobs:

Control

Abort Pause/Unpause Cancel Set Permissions

- See Also

 Queue Access Types

 System Access Types

 How permissions are evaluated

Control

Users granted this access type may modify any properties of the job, such as scheduling options.

Abort

Users granted this access type may abort job while it is executing. This access type is separated from the "Cancel" access type because aborting a job is a potentially dangerous action. When a job is aborted, all of the job's processes are terminated, and unsaved data may be lost or corrupted.
Pause/Unpause

Users granted this access type may pause and unpause the job while it is executing.

Set Permissions

Users granted this access type may set the job's permissions.

Cancel

Users granted this access type may cancel the job, or discard it from the queue if it has already completed.