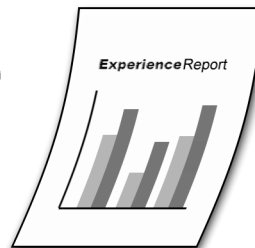iSeries

Subsystem configuration
Managing server jobs

Experience Report

iSeries

Subsystem configuration
Managing server jobs

IBM

Contents

Subsystem Configuration Managing Server Jobs

The default subsystem configuration shipped with i5/OS[(R)] is a basic subsystem configuration that works well for small systems. However, as the number of users increases on the system, it is desirable to split the work into multiple subsystems to better manage the work on the system. In turn, when you have multiple subsystems configured, you need to have better control over the server jobs that run in a given subsystem. iSeries[(TM)] Navigator provides many different interfaces for locating and managing server jobs. After a server job is located, there are a variety of functions that can be used to control and manage these jobs.

This experience report includes the following information:

"Managing server jobs"
This information describes how to manage server jobs and see who is using a server job.

Managing server jobs

With the ability to customize server subsystems comes a desire to have better control over the server jobs that run in a given subsystem. iSeries[(TM)] Navigator provides many different interfaces for locating and managing server jobs. After a server job is located, there are a variety of functions that can be used to control and manage these jobs.

This experience report includes the following information:

"All server jobs"
This section describes how to find all server jobs using iSeries Navigator.

All server jobs

The iSeries[(TM)] Navigator allows you to look at all server jobs that are not on an output queue. It can be beneficial to see all server jobs, regardless of which server they belong to. This aids in finding a specific server job if the owning server is unknown.

While there are green screen interfaces for server jobs, the following information uses iSeries Navigator. For more information on server jobs and green screen interfaces to them, see the identifying server jobs on the iSeries server information located in the iSeries Information Center.

The following steps show how to view all server jobs using the iSeries Navigator.

1. Open **iSeries Navigator**.

2. Expand **My Connections**.

3. Expand your **iSeries Server**.

4. Expand **Work Management**.

5. Select **Server Jobs**. A list of all server jobs is presented in the right pane.
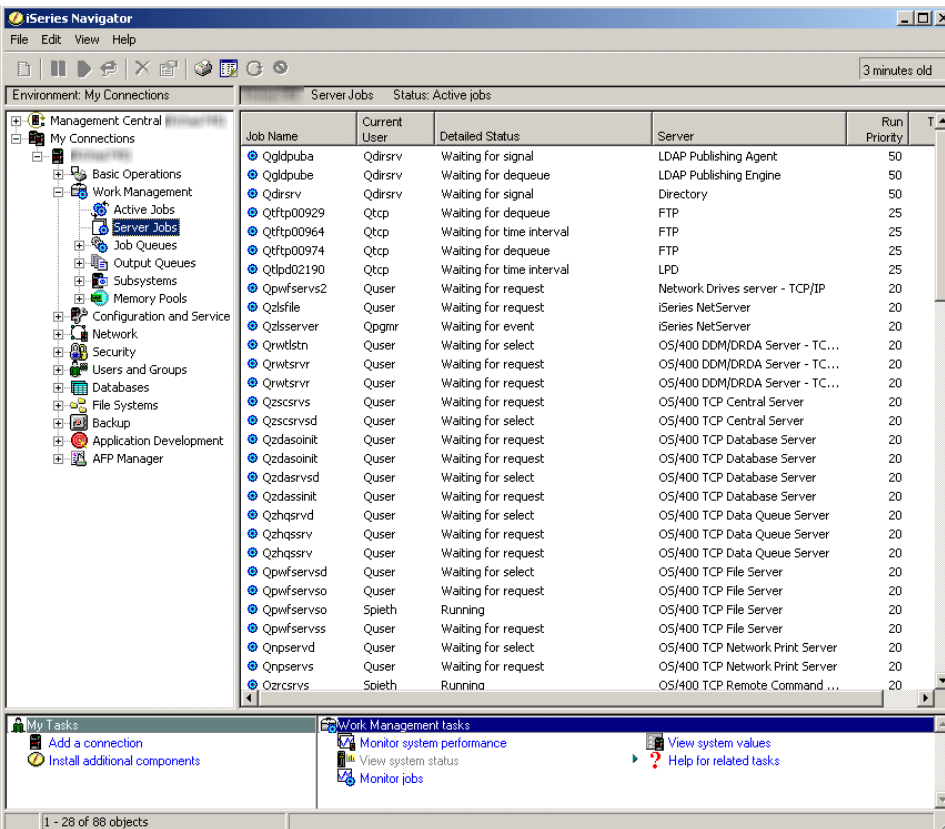
6. **Find** the server job you want to manage.

7. Right-click the **Job Name**

8. Select a **Menu Option**

Server jobs by server

The following steps show how to view all server jobs for a specific server using the iSeries$^{(TM)}$ Navigator.

1. Open **iSeries Navigator**.

2. Expand **My Connections**.

3. Expand your **iSeries Server**.

4. Expand **Network**.

5. Expand **Servers**.

6. Select **TCP/IP** or **iSeries Access**. The specific servers will show in the right pane.

   The option you select is determined by the specific server you want to manage server jobs for.
   TCP/IP servers include the DDM and iSeries NetServer servers. **iSeries Access** servers include the
   Central, Database, Data Queue, Files, Net Print, Remote Command, and Sign On servers.

The remaining steps use an iSeries Access server.

7. Right-click the **Server Name** then select **Server Jobs**.

8. Another window opens from which server jobs can be managed.

From this window, server jobs can be managed and information customized just as it can be from the right pane on the main window of the iSeries Navigator.
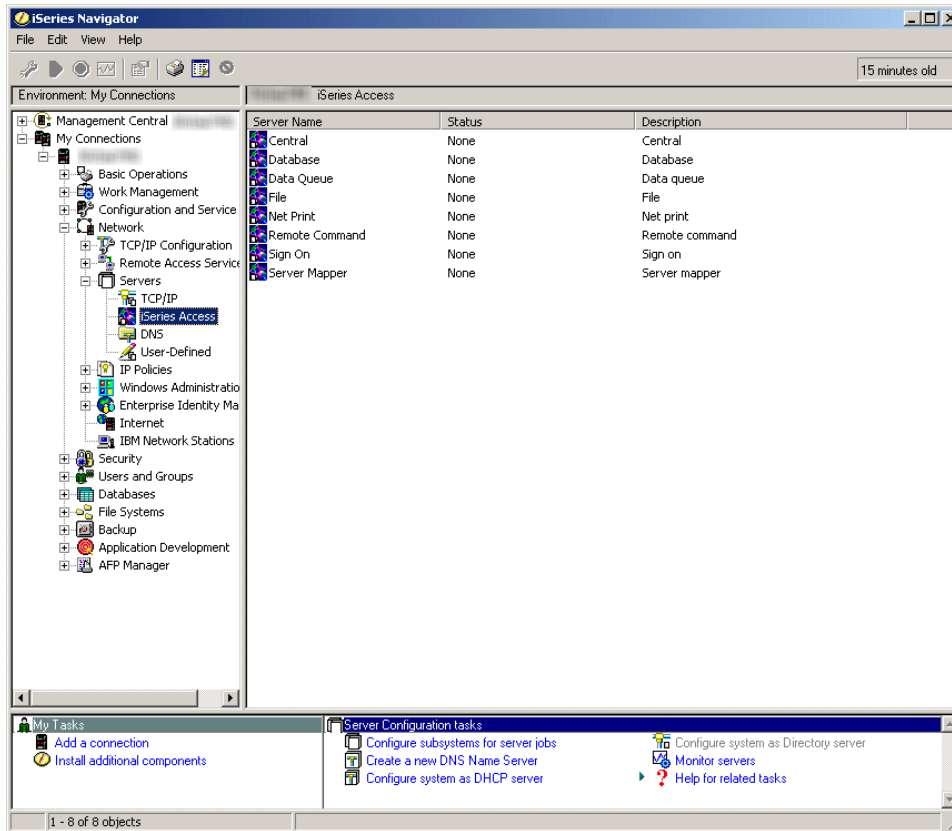
9. **Find** the server job you want to manage.

10. Right-click the **Job Name**

11. Select a **Menu Option**

Server jobs by user

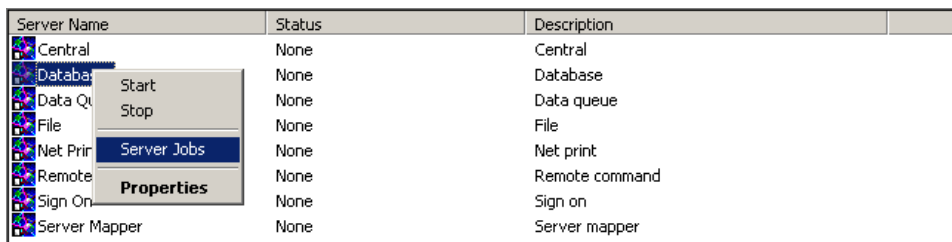The following steps show how to view all server jobs for a specific user using the iSeries[TM] Navigator. The server jobs retrieved for a given user profile will be those server jobs that are actually running under the given user's profile. This is not necessarily the same user profile that the server job was initiated under. Keep this in mind when determining which user profile to select to see server jobs that are running for that user.

1. Open **iSeries Navigator**.

2. Expand **My Connections**.

3. Expand your **iSeries Server**.

4. Expand **Users and Groups**.

5. Select **All Users**.

6. Right click the **Profile** of the user for which you want to see server jobs and select **User Objects** then **Server Jobs**.

7. Another window opens from which server jobs for this user can be managed.

Ptest Server Jobs -

File   Edit   View   Help

0 minutes old

Status: Active jobs   Current User: Ptest

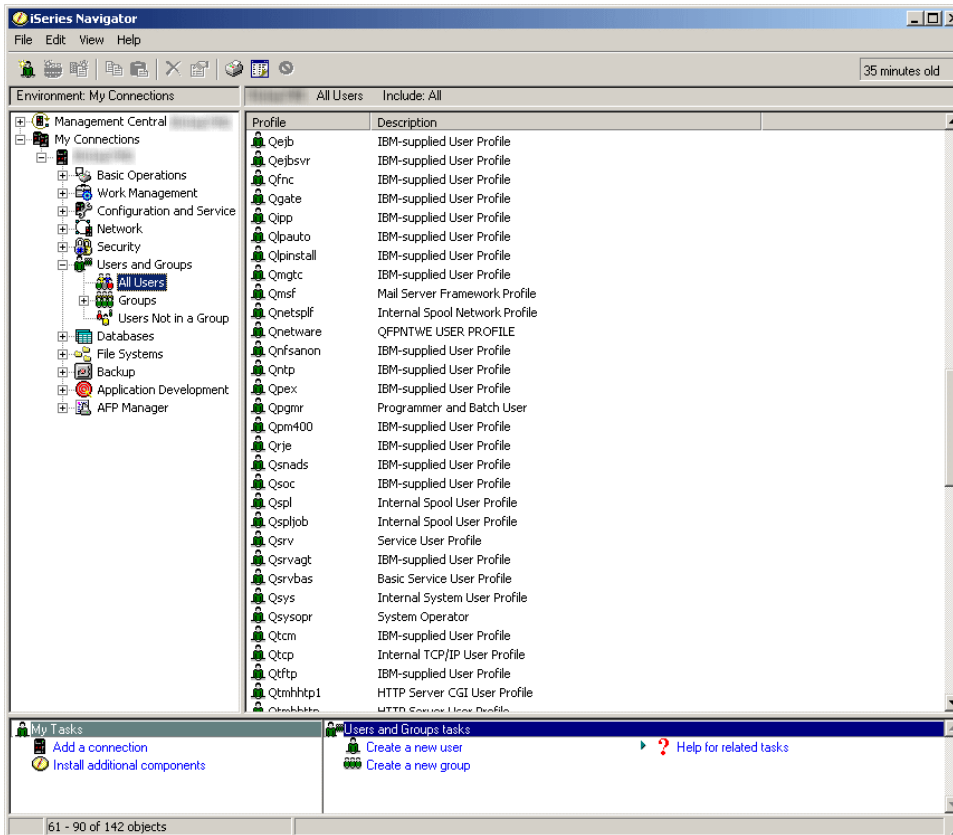| Job Name	Current User	Detailed Status	Server	Run Priority	Thread Count
Qpwfservso	Ptest	Running	OS/400 TCP File Server	20	1
Qpwfservso	Ptest	Running	OS/400 TCP File Server	20	1
Qzrcsrvs	Ptest	Waiting for time interval	OS/400 TCP Remote Command ...	20	1
Qzdasoinit	Ptest	Waiting for time interval	OS/400 TCP Database Server	20	1
Qzrcsrvs	Ptest	Running	OS/400 TCP Remote Command ...	20	1
Qgyserver	Ptest	Waiting for dequeue	OS/400 Open List Server	20	1

1 - 6 of 6 objects

From this window, server jobs can be managed and information customized just as it can be from the right pane on the main window of the iSeries Navigator.

8. **Find** the server job you want to manage.

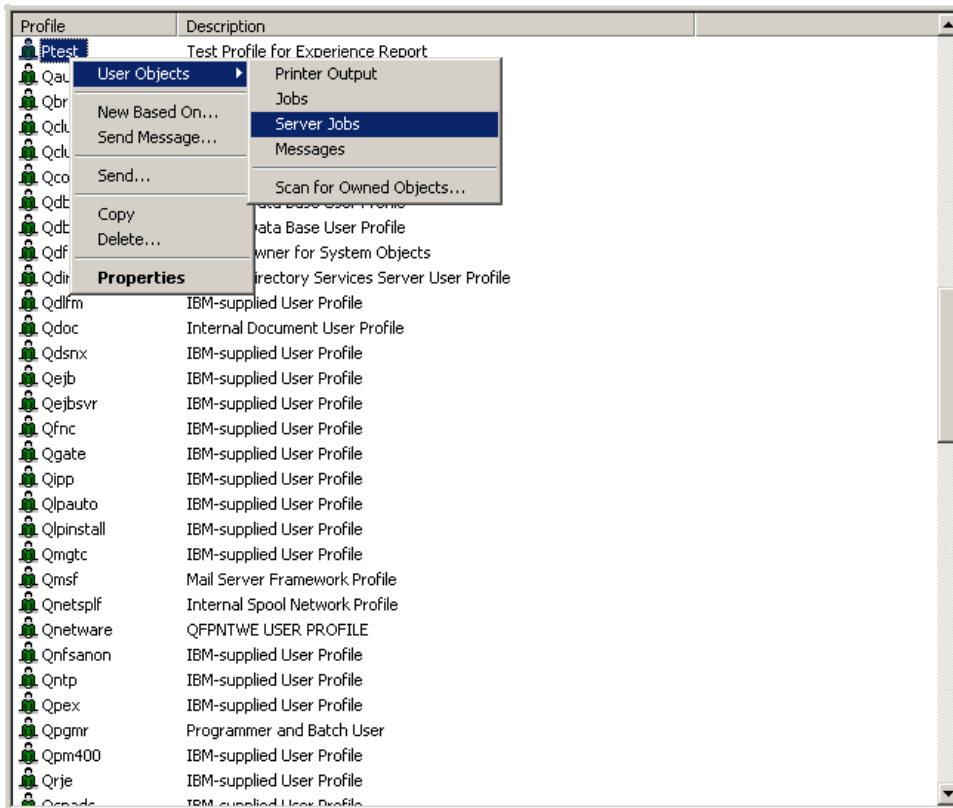9. Right-click the **Job Name**

10. Select a **Menu Option**

Ended server jobs

When a server job that has spooled output has ended, the job remains on the system and can be viewed. The following steps describe how to find ended server jobs with spooled output using the iSeries[(TM)] Navigator.

1. Open **iSeries Navigator**.

2. Expand **My Connections**.

3. Expand your **iSeries Server**.

4. Expand **Work Management**.

5. Right-click **Server Jobs** and select **Customize this View** then select **Include**.
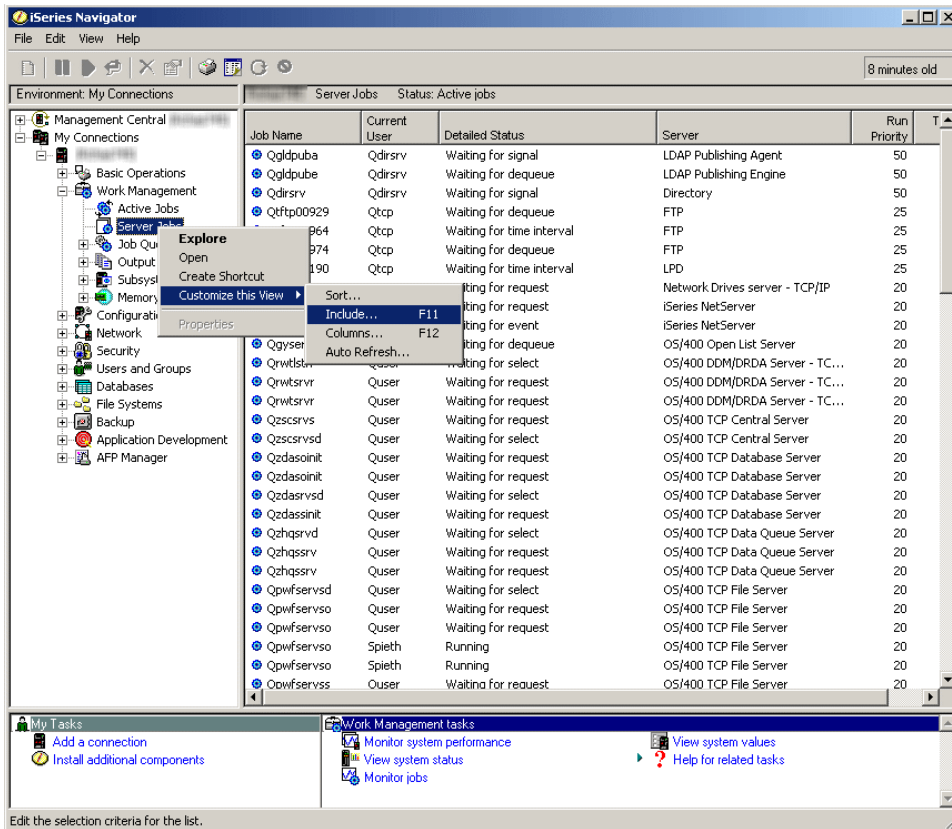
The Server Jobs -Include (see 8) dialog box is displayed.

6. Select **Completed Jobs with Output** and click **OK**.
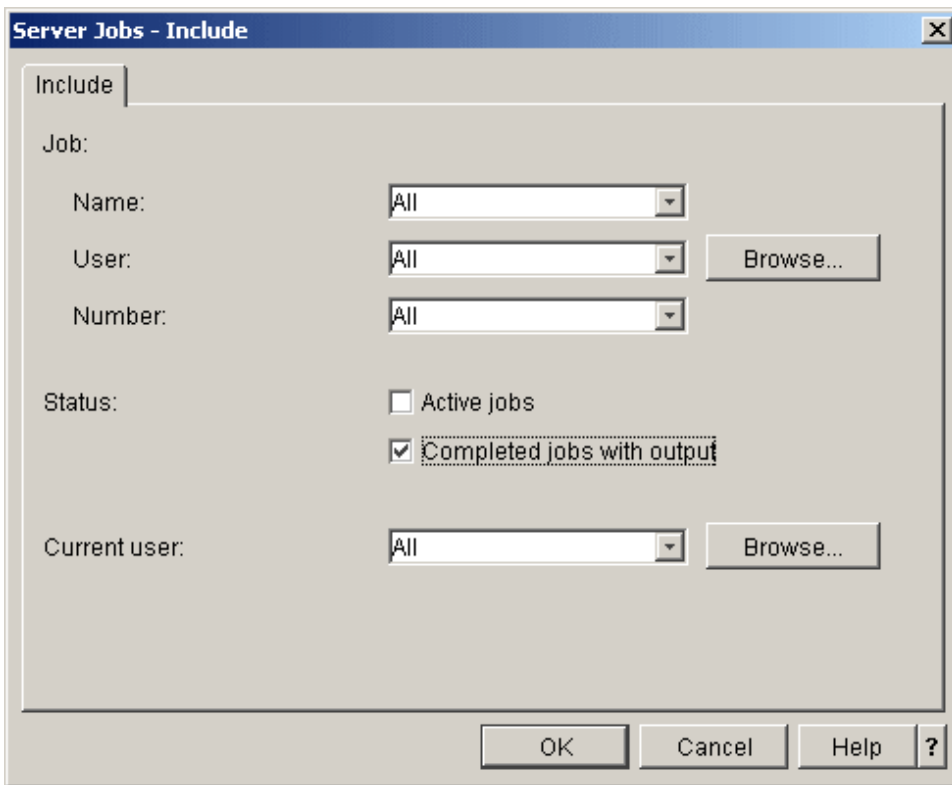
The server job list will be changed to show only completed jobs with output.

7. **Find** the completed server job you want to manage.

8. Right-click the **Job Name**
9. Click a **Menu Option**

See "Server job details and properties" on page 9 for more information about each menu option that is available for managing a server job.

Server Jobs - Include

Use the Server Jobs - Include dialog to limit the list of server jobs displayed in the iSeries Navigator window to those that meet the criteria you specify. The following will describe each section of this dialog.

- **Job**

  Specify the following criteria to be used to limit the list of jobs displayed in the iSeries Navigator window.

  – **Name**

    Names of jobs to include in the list. Select from the following values:

    - **All** - All job names are allowed. The job name is not used to subset the list.
    - **Specific name** - Jobs currently running under a specific job name are included. For example, if you enter the name QZDASOINIT, only jobs with this name will show.
    - **Generic name** - Jobs beginning with the characters specified are included. Enter one or more characters followed by a trailing asterisk (*). The asterisk cannot be entered between characters.

  – **User**

    Users whose jobs should be included in the list. Possible values are:

    - **All** - All user names are allowed. The user name is not used to subset the list.
    - **Current signed on user** - Jobs belonging to the current user that is signed on are included. This option will look for server jobs with user profiles that match the profile for the current signed on user as part of the qualified server job name. In many instances this option will not apply for server jobs.
    - **Specific name** - Jobs currently running under a specific user are included. Enter a valid user profile name, or select Browse... to select from a list of users.
    - **Generic name** - User names beginning with the characters specified are included. Enter one or more characters followed by a trailing asterisk (*). The asterisk cannot be entered between characters.
    - **Browse** - Click Browse to bring up the Browse User dialog. Select a **user** from the list and click **OK**.

  – **Number**

    System-generated job numbers for jobs to include in the list. Possible values are:

    - **All** - All job numbers are allowed. The job number is not used to subset the list.
    - **Specific number** - Jobs with specific job number are shown. Enter a six-digit job number from 000000-999999.

- **Status**

  Jobs of the specified status are included in the list. The status of a job tells where the job is in the system in relation to when it will run. Possible options are:

  – **Active Job** - Select to include jobs that have started running but have not completed running.
  – **Completed jobs with output** - Select to include jobs that have finished running and have spooled output.

- **Current user**

  Jobs running under the current user are included in the list. Possible options are:

  – **All** - Jobs for all users are included.
  – **Specific name** - Jobs currently running under a specific user are included. Specify a valid user profile name, or select Browse... to select from a list of users.

– **Browse** - Click Browse to bring up the Browse User dialog. Select a **user** from the list and click **OK**.

Server job table

For more detailed information on the job names of the server jobs that run on the system, including server jobs that run in QSYSWRK, see the server table in the iSeries$^{(TM)}$ Information Center. This table shows you the subsystem and the job name so that you can find the active job and its job logs. The table also shows the job description each server job uses. By default most server jobs do not generate a job log when the job ends (the LOG parameter is set to 4 0 *NOLIST), which means that the job log is not created. If you want a job log to be generated with all the messages sent to the job log, the LOG parameter needs to specify 4 0 *SECLVL.

Server job details and properties

Regardless of how you find a job on the iSeries$^{(TM)}$ server, once a job is located there are several things that can be done to that job to manage it, either to control the job or view job information. The following section is designed to highlight those server job details and properties that can be managed using the iSeries Navigator.

The following steps show how to view server job details and properties for a server job using the iSeries Navigator.

1. **Find** the server job you want to manage.
2. Right-click the **Job Name**
3. Select a **Menu Option**

Job Name	Current User	Detailed Status	Server	Run Priority	T
Qtvdevice	Qtcp	Waiting for time interval	TELNET Device Manager	20	
Qtvdevice	Qtcp	Waiting for time interval	TELNET Device Manager	20	
Qtvdevice	Qtcp	Waiting for time interval	TELNET Device Manager	20	
Qtvdevice	Qtcp	Waiting for time interval	TELNET Device Manager	20	
Qtvc	Monitor...	Waiting for time interval	TELNET Device Manager	20	
Qtvc	Printer Output	Waiting for time interval	TELNET Device Manager	20	
Qtvc	Job Log	Waiting for time interval	TELNET Device Manager	20	
Qtvc	Details ▸	Call Stack	TELNET Device Manager	20	
Qtvc		Library List	TELNET Device Manager	20	
Qtvt	Reply...	Locked Objects	TELNET	20	
Qtvt	Hold...	Open Files	TELNET	20	
Qtvt	Release	Threads	TELNET	20	
Qtvt		Transactions	TELNET	20	
Qtvt	Move...		TELNET	20	
Qtvt	Delete/End...	Elapsed Performance Statistics	TELNET	20	
Qtvt			TELNET	20	
Qtvt	**Properties**	Last SQL Statement	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtvtelnet	Qtcp	Waiting for time interval	TELNET	20	
Qtcpip	Qtcp	Waiting for dequeue	TCP/IP interface daemon	20	
Qiwvppjt	Quser	Waiting for request	Virtual Printer server - TCP/IP	20	
Qtfpjtcp	Quser	Waiting for request	Transfer Function server - TCP/IP	20	

Each menu option is expanded on further:

*   Monitor (see 10)
*   Printer Output (see 11)
*   Job Log (see 11)

- Call Stack (see 12)
- Library List (see 12)
- Locked Objects (see 13)
- Open Files (see 14)
- Threads (see 14)
- Transactions (see 15)
- Elapsed Performance Statistics (see 15)
- Last SQL Statement (see 18)
- Hold (see 18)
- Delete/End (see 19)
- Properties (see 21)

Monitor

Select **Monitor**. The Monitor dialog opens in a new window.

You can use a job monitor to monitor a job or list of jobs based on job name, job user, job type, subsystem, or server type. For example, you might want to monitor a job's CPU usage, job status, or job log messages. The job monitor allows you to define commands to run when a specified threshold is met. The scenario: job monitor for CPU utilization in the iSeries Information Center gives a good example of how to properly establish and configure a job monitor.
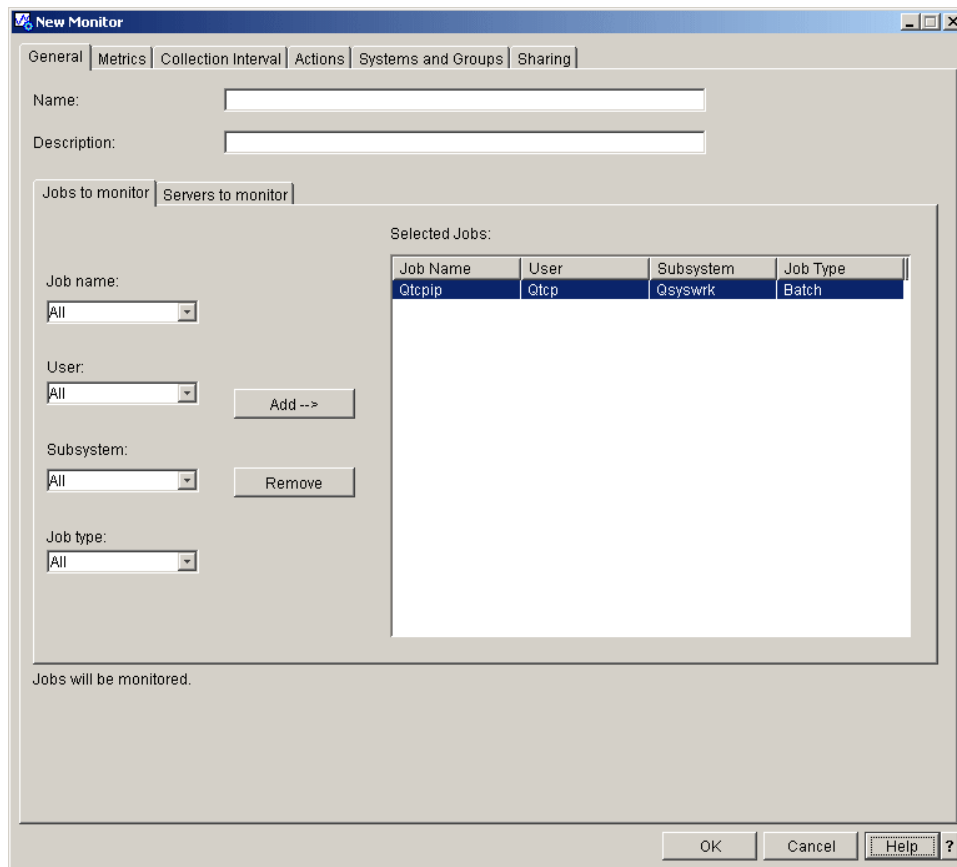
The General page for New Monitor or Monitor Properties allows you to view and change general information about the monitor. The general information includes the name of the monitor, a brief description of the monitor, and the jobs and servers to monitor. See the create a new monitor information

in the iSeries Information Center for more information on how to create a new monitor. Additionally see the Management Central topic in the iSeries Information Center for more information.

Printer Output

Select **Printer Output**. A new window opens from which the job's printer output can be viewed.

The following can be used to access and customize the displayed information:
- Display, Open, Hold, Release, Print Next, Send, Cut, Copy, Move, or Delete printer output.
- Change printer output properties
- Tailor the printer output display
- Drag and drop printer output

Job Log

Select **Job Log**. A new window opens from which the job's job log can be viewed.

The following can be used to access and customize the displayed information:

- Tailor the job log display
- Sort the job log display

Call Stack
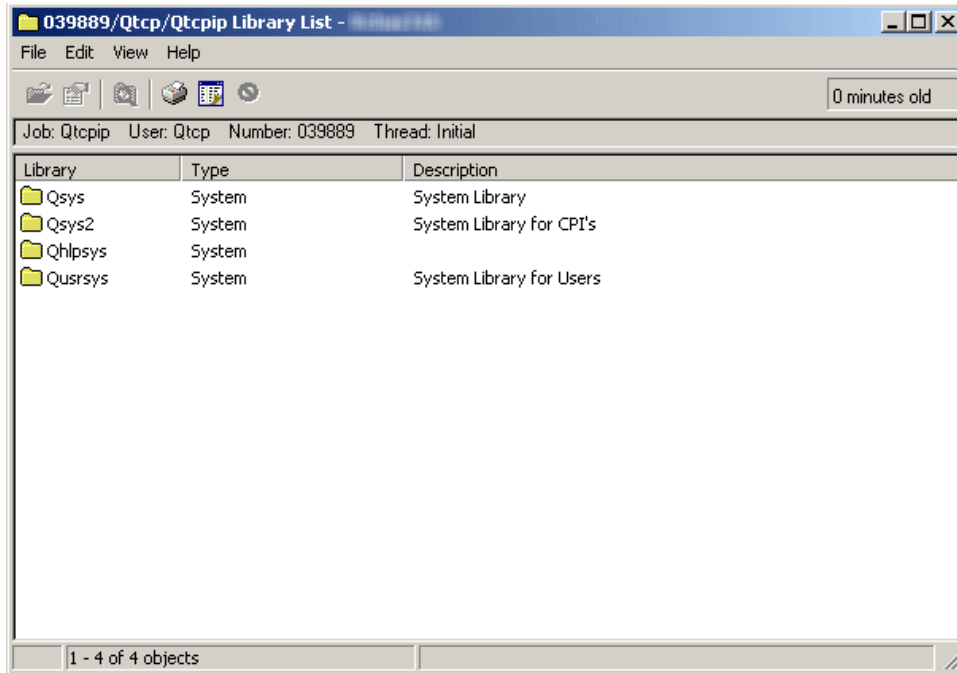
Select **Details** then **Call Stack**. A new window opens from which the job's call stack can be viewed.

The call stack can be printed but it can not be modified.

Library List

Select **Details** then **Library List**. A new window opens from which the job's library list can be viewed.
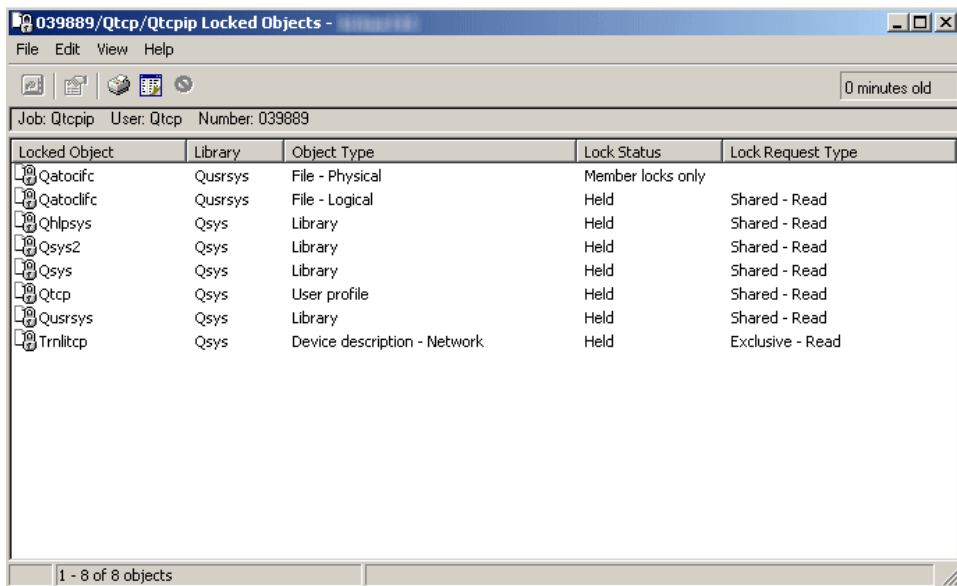
Select a library from the library list. After selecting a library you can do the following:

- Open the library
- Display the library properties
- Search the library list

Locked Objects

Select **Details** then **Locked Objects**. A new window opens from which objects locked by the job can be viewed.
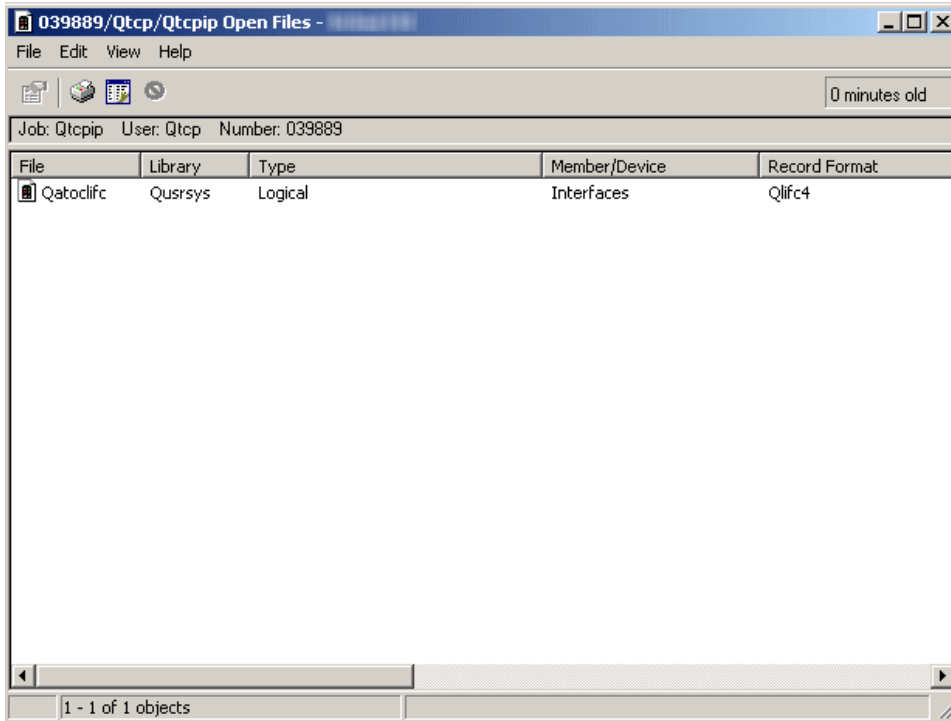

Select a locked object from the list. After selecting a locked object you can do the following:

- View the lock holders
- View the locked members

- View the lock properties

Open Files

Select **Details** then **Open Files**. A new window opens from which files opened by the job can be viewed.
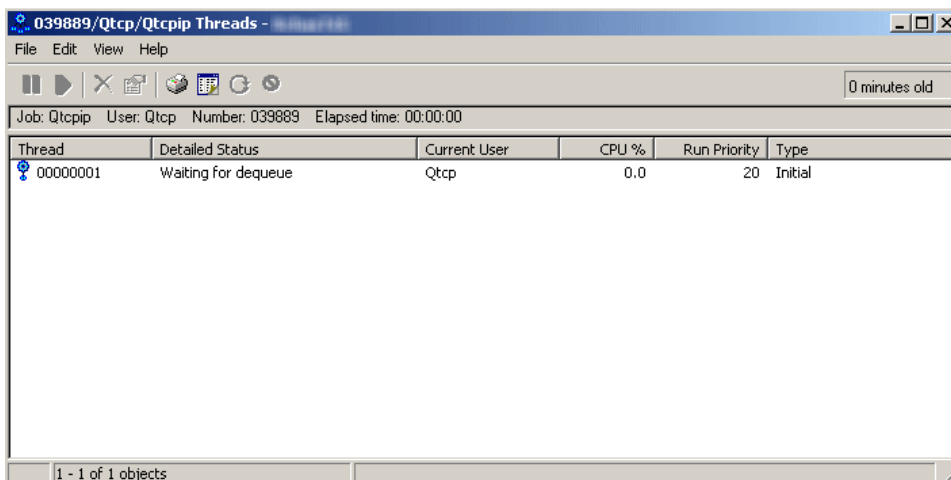

Select an open file from the list. After selecting an open file you can do the following:

- Display the file properties

Threads

Select **Details** then **Threads**. A new window opens from which job threads can be viewed.

A thread can be considered an independent unit of dispatchable work within a job. See threads information from the Work Management topic in the iSeries Information Center for more information.

Select a thread from the list. After selecting a thread you can do the following:
- Hold the thread
- Release the thread
- Delete/End the thread
- View the thread's properties
- View the thread's call stack, library list, locked objects, transactions, and elapsed performance statistics
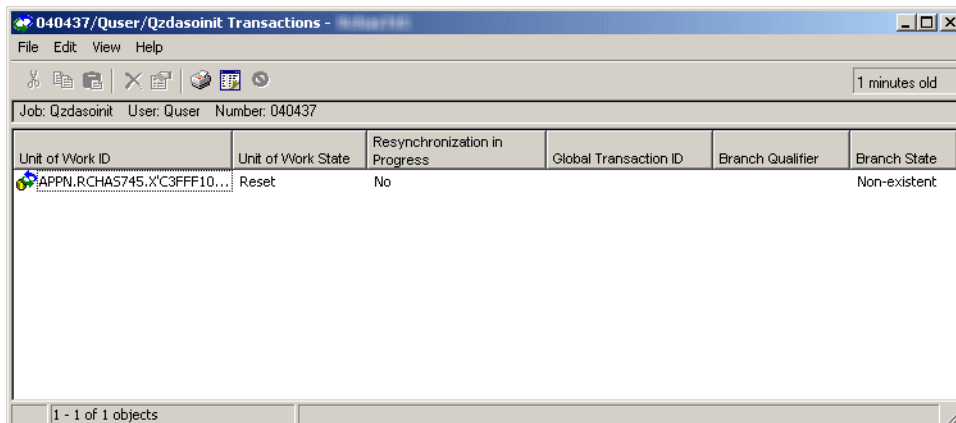- Reset thread statistics

Transactions

Select **Details** then **Transactions**. A new window opens from which job transactions can be viewed.

A transaction is defined as a group of individual changes to objects on the system that should appear as a single atomic change to the user. A transaction is sometimes called a logical unit of work (LUW). Commitment control is used to ensure that either the entire group of individual changes occur on all systems that participate or that none of the changes occur.

iSeries server supports two different types of transactions: Global transactions and Database transactions. A Global transaction may contain changes both outside and within DB2 UDB for iSeries. A Database Transaction contains only DB2$^{(R)}$ UDB for iSeries$^{(TM)}$ changes.

For more information about Commitment Control and transactions, see commitment control in the iSeries Information Center

Select a Unit of Work ID (transaction). After selecting a transaction you can do the following:
- View transaction properties
- View the transaction's jobs
- View resource statistics for the transaction
- Force a commit of the transaction
- Force a rollback of the transaction
- Cancel resynchronization for the transaction

Elapsed Performance Statistics

Select **Details** then **Elapsed Performance Statistics**. The elapsed performance statistics dialog opens in a new window.
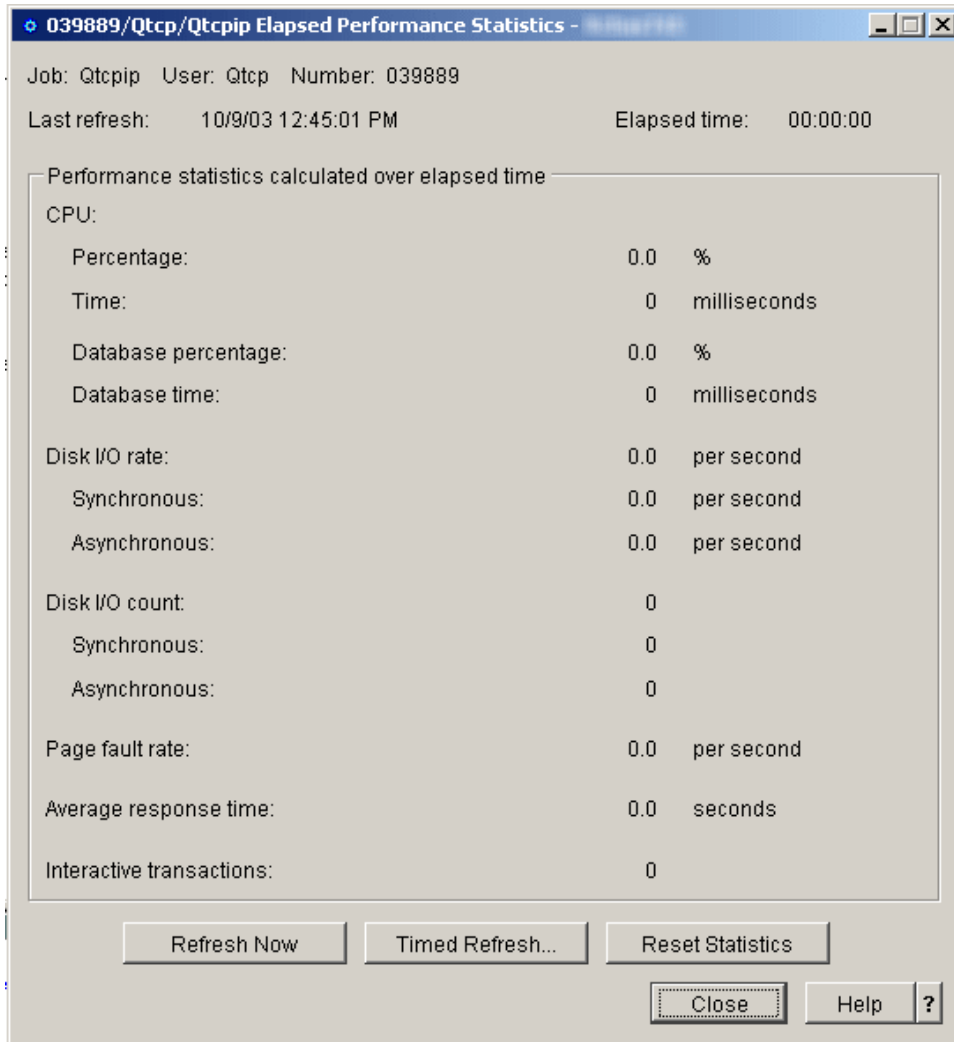
Use the **Elapsed Performance Statistics** page to view detailed performance information for a job or thread such as: Job name, CPU statistics, Disk I/O rates and counts and Page fault rates. Elapsed performance statistics are calculated over the time interval identified in the Elapsed time field. Use the Refresh Now or Timed Refresh buttons to update the data. You can find more detailed help on the following elements of this window:

- **Job**

  Name of the job under which the thread is running.
- **User**

  User name of the job under which the thread is running.
- **Number**

  System-assigned number of the job under which the thread is running.
- **Thread**

  Identifies the specific thread within the job. Note: The Thread field only appears when the elapsed performance statistics are being shown for a thread.
- **Last refresh**

  The date and time the elapsed performance statistics were last updated.
- **Elapsed time**

  The time interval over which the elapsed performance statistics have been calculated.
- **Performance statistics calculated over elapsed time**

- **CPU**

  The following performance statistics related to the central processing unit usage are displayed:

  - **Percentage**

    The percentage of available processing unit time that is used by the job or thread during the elapsed time. For multi-processor systems, this value is the average across all processors.

  - **Time**

    The amount of processing unit time that is used by the job or thread during the elapsed time, in milliseconds.

  - **Database percentage**

    The percentage of total processing unit that is used for database processing during the elapsed time. For multi-processor systems, this value is the average across all processors.

  - **Database time**

    The amount of processing unit time that is used for database processing during the elapsed time, in milliseconds.

- **Disk I/O rate**

  The average number of disk input/output operations performed by the job or thread during the elapsed time, per second. This value is the sum of the asynchronous and synchronous disk input/output operations.

  - **Synchronous**

    The average number, per second, of synchronous(physical) disk I/O operations performed by a job or thread during the elapsed time. This value is the sum of the synchronous database and nondatabase reads and writes.

  - **Asynchronous**

    The average number of asynchronous disk input/output operations performed by the job or thread during the elapsed time, per second. This value is the sum of the asynchronous database and non-database reads and writes.

- **Disk I/O count**

  The number of disk input/output operations performed by the job or thread during the elapsed time. This value is the sum of the asynchronous and synchronous disk input/output operations.

  - **Synchronous**

    The number of synchronous (physical) disk I/O operations performed by the job or thread during the elapsed time. This value is the sum of the synchronous database and nondatabase reads and writes.

  - **Asynchronous**

    The number of asynchronous (physical) disk I/O operations performed by the job or thread during the elapsed time. This value is the sum of the asynchronous database and nondatabase reads and writes.

- **Page fault rate**

  The average number of times, per second, that an active program references an address that is not in main storage during the elapsed time.

- **Average response time**

  The average interactive transaction response time for the job during the elapsed time, in seconds.

- **Interactive transactions**

  The number of user interactions for the job during the elapsed time. For example, the number of times a person pressed a function key. Note: The Average response time field and the Interactive transactions field will not display when the elapsed performance statistics are shown for a thread.

- **Refresh Now**

  Click this to refresh the elapsed performance statistics and extend the time period that the statistics are calculated.

- **Timed Refresh...**

  Displays a dialog allowing the user to set up automatic refresh of the elapsed performance statistics.
- **Reset Statistics**

  Clears the elapsed performance statistics and resets the time period over which the statistics are calculated. Resetting the elapsed performance statistics has no impact on the threads container. Only the current dialog is reset.

Last SQL Statement

Select **Details** then **Last SQL Statement**. The run SQL script window opens if the job has run any SQL statements.
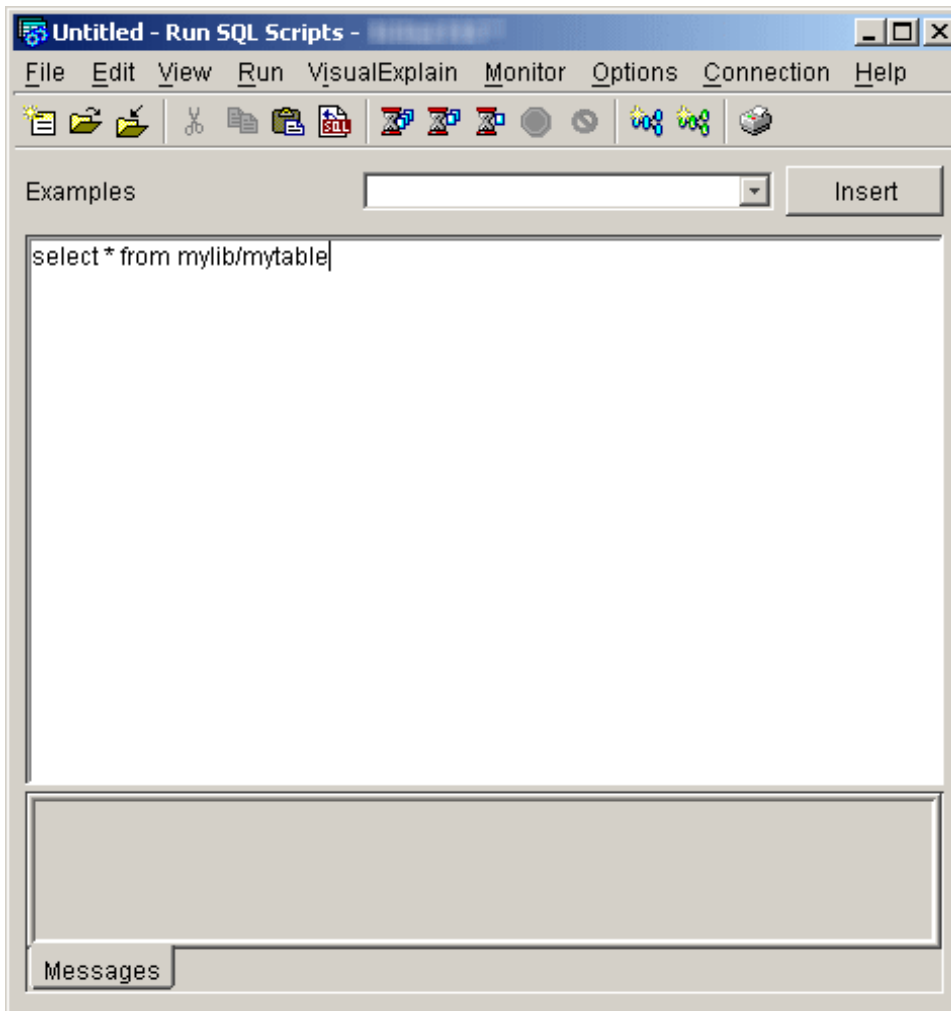
Use the Run SQL Scripts window to create, edit, run, and troubleshoot scripts of SQL statements. When you have finished working with the scripts, you can save them to your PC. See the Run SQL Scripts help topic from the iSeries Navigator for more information.

Hold

Select **Hold**. The Hold Jobs dialog opens in a new window.
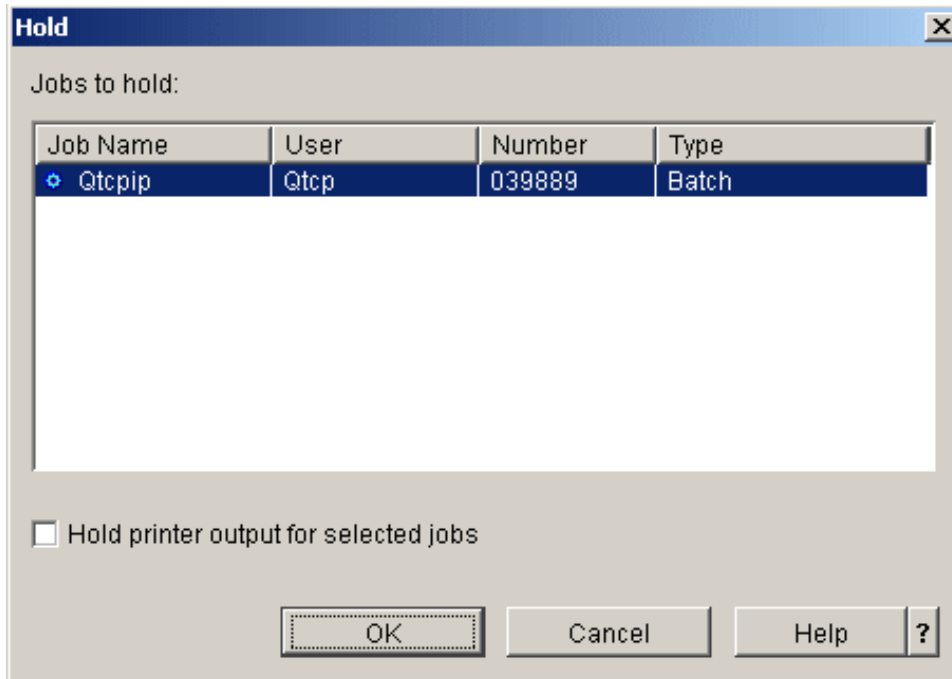
Use the **Hold Jobs** dialog to hold the selected jobs. Holding a job suspends it and prevents it from doing any more work. You can find more detailed help on the following elements of this window:

- **Jobs to hold**

  The jobs you selected to hold are displayed. If the selections are not correct, click Cancel or change the selections by deselecting any items displayed. Hold the Ctrl key down and click on the left mouse button to deselect an item in the list.

- **Hold printer output for selected jobs**

  Specifies whether the printer output that is created by the job being held is also held. Holding printer output means that the files are held on the output queue and are not printed. Possible options are:
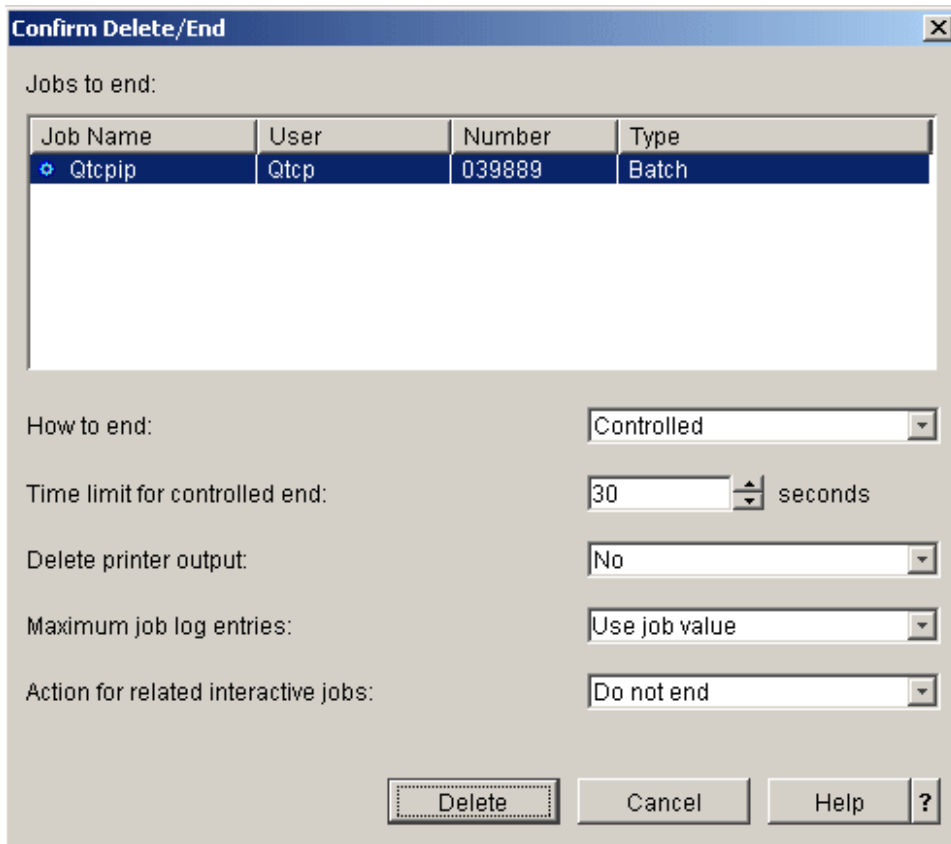
  - **Yes**

    The printer output for the job being held is also held.

  - **No**

    The printer output for the job being held is not held and is available for printing.

Delete/End

Select **Delete/End**. The Confirm Delete/End dialog opens in a new window.

Use the **Confirm Delete/End** dialog to delete selected jobs. To delete a job means the job's processing is ended. The jobs are ended when you click **Delete**. You can find more detailed help on the following elements of this window:

- **Jobs to end**

  The jobs you selected to end or delete are displayed. If the selections are not correct, click Cancel or change the selections by deselecting any items displayed. Hold down the Ctrl key and click on the left mouse button to deselect an item in the list.

- **How to end**

  Specifies how you want the job to end. Possible options are:

  - **Controlled**

    The job is allowed to end in a controlled manner within the time limit you specify. The job allows the application program to perform end-of-job processing.

  - **Immediately**

    The job is ended immediately with no delay time. The application program does not get a chance to perform end-of-job processing as it does when a Controlled end is specified. Note: This option may cause undesirable results if data has been partially updated. Therefore, this option should be used only after a controlled end has been attempted unsuccessfully.

- **Time limit for controlled end**

  Specify the amount of time the application program has to perform end-of-job processing. Possible values are 1-999999 seconds.

- **Delete printer output**

  Select whether printer output created by the job and not yet printed should also be deleted. Possible options are:

  - **Yes**

    The printer output for the job being ended is deleted and not printed.

    – **No**

      The printer output for the job being ended is kept and is available for printing.

- **Maximum job log entries**

  Select the maximum number of entries you want written to the job log of the job being ended. Possible options are:

    – **Number**

      Specify the maximum number of messages that are written to the job log. This value is the maximum only if it is entered before the job log contains that many messages. Otherwise, the limit stops only the process of writing any more messages to the job log. If 0 is specified before any messages are written to the job log, no job log is produced. Possible values are 0-2147483647.

    – **Use job value**

      The maximum job log entries value does not change. All jobs are started with a value of No maximum, which will be the current job value unless it was subsequently changed, for example, by a previous delete.

    – **No maximum**

      There is no limit to the number of messages that are written to the job log.

- **Action for related interactive jobs**

  Specify how related additional interactive jobs are handled when the selected jobs are ended. Possible choices are:

    – **Do not end**

      Only the selected jobs are ended.

    – **End for group jobs**

      If the selected job is a group job, all jobs for the group are ended. If the job is not a group job, the selected job is ended.

    – **End all**

      All interactive jobs running on the workstation for the selected job are ended, including group jobs and secondary jobs.

Properties

Select **Properties**. The Job Properties dialog opens in a new window.

Qtcpip Properties -

| Messages | Job Log | Server | Security | International | Threads | Other |
| General | | Performance | | | Printer Output | |

Job name: Qtcpip

User: Qtcp

Number: 039889

Type: Batch - Server

Job user identity: Qtcp

Detailed status: Waiting for dequeue from internal system queue /qtoctcpip

Function:

Entered system: 10/2/03 10:08:12 AM

Started: 10/2/03 10:08:12 AM

Subsystem: Qsyswrk

Library: Qsys

Job description name: Qtoctcpip

Library: Qsys

OK   Cancel   Help ?

References and resources

iSeries^(TM) Information Center

- Work Management
- System Values

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