Queue Manager

The main function of the Queue Manager is to send instructions to instruments. You can access the Queue Manager in either Acquire or Tune and Calibrate modes. The Queue Manager shows queue, batch, and sample status and allows you to manage samples and batches in the queue.

The queue runs one by one through the sample list, running each sample with the selected acquisition method. After all the samples have been acquired, the queue stops and the instrument goes into Standby mode. In Standby mode, the LC pumps are turned off and some instrument voltages are turned off.

You can modify the length of time the queue runs after the last acquisition has finished, before it puts the instrument into Standby mode.

Topics in this section:

Managing the Queue

The Queue Manager provides various functions to help you manage and maintain a queue. Which functions are available depends on your security level. See your System Administrator for more information.

Topics in this section:

About Queue States

The queue states indicate the status of the system. The system is comprised of the mass spectrometer, LC devices, and the queue.

- **Not Ready:** The hardware profile is deactivated and the queue is not accepting any sample submissions.
- **Standby:** The hardware profile has been activated but all devices are in an idle condition (for example, pumps are not running, gases on the mass spectrometer are turned off, and so forth).
- **Warming Up:** The instrument and devices are equilibrating (columns being conditioned, autosampler needle being washed, column ovens reaching temperature, and so forth). The period of equilibration is specified by the user. From this state, the system is able to transition to the Ready state.
- **Ready:** The system is ready to start running samples and the devices have been equilibrated and are ready to run. At this state, the queue will receive samples and will run once initiated by the user.
- **Waiting:** The system will automatically begin acquisition for the next sample that is submitted.
- **Prerun:** A period during which the method is being downloaded to each device and device equilibration is occurring. This state occurs before the acquisition of each sample in a batch.
- **Acquiring:** Data is being collected by the mass spectrometer and any analogue detectors or analogue-to-digital converters in the system.
- **Paused:** The instrument has been paused while acquiring data.

In the Acquisition Method Editor, there is also an autoequilibration feature that can be engaged when specifying a method. Autoequilibration is the automatic insertion of an equilibration between compounds. If you select Autoequilibration on the Method Properties tab in the Method Editor, the equilibration period will be longer than the duration specified if the methods are different and shorter if the methods are the same.

Initiating Ready Mode

Before using an instrument that is in standby or equilibrate mode, you need to put it in ready mode.

- **Click Acquire > Ready.**

  The Queue Server status icon on the Queue Manager (Local) dialog changes to Ready. At this point, you can begin acquisition of samples in the queue.

Starting an Acquisition

When you submit a batch of samples to be acquired, the Batch Editor passes it to the Queue Manager. You must start the processing in the Queue Manager. You also use this procedure after aborting a sample acquisition, or stopping a sample acquisition or a queue.

Note: It is recommended that the user runs the sample again in the event of an abnormal termination during sample acquisition.

1. **Submit a batch in the Batch Editor.**

   The Queue Manager (Local) dialog appears.
2. **Click Acquire > Ready.**

   The Queue Server status in the Queue Manager(Local) window changes to Ready.
3. **Click Acquire > Start Sample.**

Stopping a Sample Acquisition

If necessary, you can stop sample acquisition before a batch is completed. The Stop Sample function stops the acquisition after the current scan is completed, and then saves the data collected to that point.

Note: It is recommended that the user runs the sample again in the event of an abnormal termination during sample acquisition.

1. **Click the sample in the queue where you want to stop acquisition.**
2. **Click Acquire > Stop Sample.**

The queue stops at the after the current scan in the sample you selected. The sample Status on the Queue Manager (Local) window changes to Terminated and all samples following in the queue are Waiting.

3. When you are ready to continue processing the batch, click **Acquire > Start Sample**.

Stopping the Queue

If you see a need to make an adjustment to the queue, you can stop the queue before it has completed processing all the samples. All batches in the queue are stopped.

Note: It is recommended that the user runs the sample again in the event of an abnormal termination during sample acquisition.

1. Click the sample at the point where you want processing to stop.
2. Click **Acquire > Stop Queue**.

   The queue stops acquiring samples after the current sample has been acquired. The Status of the sample where you stopped the queue on the Queue Manager (Local) window changes to Acquired and all other samples following in the same batch are Waiting.
3. To continue the queue, click **Acquire > Start Sample**.

   The Queue Manager continues to the next sample in the queue.

Initiating Standby Mode

When you have finished using an instrument, you can put it on standby.

- Click **Acquire > Standby**.

  The Queue Server status icon on the Queue Manager (Local) dialog changes to Standby.

Equilibrating an Instrument

When you start a system from standby or shutdown, or when you need to clear the LC system before you begin a new run, you should equilibrate the LC instrument and spectrometer. This is a type of warm-up that prepares the instruments for the next sample or batch.

1. On the Navigation bar, click **Acquire**.

   From the toolbar, select a project from the list. If no project is selected, then the current project is listed.
2. Click **View > Sample Queue**.
3. Click **Acquire > Equilibrate**.

   The Equilibrate dialog appears.
4. Select an **Acquisition Method** from the list that contains the equilibrate settings. Only the method of the current project is available in the equilibrate method list.
5. To equilibrate, enter a time in minutes in the **Time [Min.]** field and then click **OK**.

Note: Selecting the Auto-Equilibration option on the **Acquisition Method Properties** tab of a Data Acquisition Method results in an automatic equilibration when that method is run in a batch.

Showing or Hiding the Columns in the Queue

You can use the Queue Manager to specify which of the available columns you want to see in your project.

1. Right-click in the column and then click **Choose Column Settings**.

   The Column Settings dialog appears.
2. Select the check box beside a column to show it; clear the check box to hide it.

Moving the Columns in the Queue

- Select the column and then drag the column to the new location.

  A red mark between columns indicates the location to which the column has been moved.

Attaching to an Instrument Workstation

If you are working on one instrument, you can attach to a remote workstation and check the status.

1. In either **Acquire** mode or **Tune and Calibrate** mode, click **View > Sample Queue for instrument**.
2. Select an instrument workstation from the list and then click **Connect**.

Detaching from an Instrument Workstation

- Close the window or pane displaying the status or queue.

  The instrument workstation is automatically detached.

Deleting the Contents of the Cache Folder

Whenever you acquire data to a network location, a cache is created to store the data locally until backup to the network is complete and verified. The backup process runs at the end of each sample as a low priority process in the background. This process transfers the cached data to the network at a rate that reduces effects on the Analyst® software performance, and it accommodates a wide range of network performance. When acquisition is complete, the backup process confirms that the network data file is identical to the cached file, optimizes the network data file size, and then deletes the cached file.

While the cached file is present, it appears on the acquisition station. A remote workstation can see the network copy, which is updated after the sample is totally acquired.

You can delete, or clean up, the contents of the cache folder. Clean the cache folder when a batch is stopped and will not be restarted. This synchronizes the cache folder and the network folder.

1. Click **Acquire > Stop Sample**.

   The batch is stopped and data is not acquiring.
2. Click **Acquire > Standby**.

   The contents of the cache folder are deleted.

Monitoring Instrument Status

The Queue Manager allows you to view the sample queues on any instrument stations to which you are directly connected and to view the sample queue on instruments to which you are attached. You can also request detailed information about a particular sample in a queue.

Topics in this section:

Detailed Status Overview

You might want to view the detailed status of an LC pump to check if the LC pump pressure is appropriate, or view the detailed status of the instrument to check the temperature of the source.

Status is a component of the Analyst® software that provides access to displays of the detailed status of each instrument and peripheral device to which you are connected. Status is available in all modes. You can view the detailed status of an instrument or device by double-clicking its icon in the task bar at the bottom right of the computer screen.

Detailed status dialogs are device-dependant, so there is a different dialog for each device from each manufacturer and model supported.

The possible status of devices and the corresponding icon colors are as follows:

Status	Icon Color	Description
Idle	Yellow or Green	The device is not running. If the icon color is yellow, the device should be equilibrated before it is ready to run. If the icon color is green, the device is ready to run.
Equilibrating	Yellow or Green	The device is equilibrating.
Waiting	Green	The device is waiting for a command from the Analyst software or for some action by the operator or LC devices.
Running	Green	The device is running.
Aborting	Green	The device is aborting a run.
Downloading	Green	A method is being transferred to the device.
Ready	Green	The device is not running, but is ready to run.
Error	Red	The device has encountered an error which should be investigated.

Viewing Details of Samples in the Local Queue

You can see detailed information about any sample at any time. You can see additional details about samples in the queue on your instrument station, or you can check the status of a queue on another machine before connecting to it.

1. Right-click the sample and then click **Sample Details**.

   The Sample Details dialog appears. Information in this dialog is supplied by the Queue Server and can only be viewed not changed.
2. Click **OK** when you have finished looking at the information.

Viewing Details of Samples in Other Queues

You can see detailed information about any sample at any time. You can see additional details about samples in the queue on your instrument station, or you can check the status of a queue on another machine before connecting to it.

1. Click 

   The Select Remote Instrument window appears.
2. Select an instrument from the list in the dialog and then click **Connect**.
   Detailed information about the chosen queue appears in the Queue Manager (Local) dialog.

Viewing the Detailed Status of Instruments to which you are Connected

You can view the current status of any mass spectrometer and peripheral devices to which you are directly connected. For each device there is a Detailed Status dialog. An icon representing each device in your configuration, including the mass spectrometer, is displayed on the Analyst® software task bar, as well as the status of the devices. Double-clicking an icon displays the detailed status for that device.

- Double-click the icon representing the device you want to display.

  The Instrument Status dialog appears. The device status is indicated by both the color of the icon, with one word, for example, Ready, or Idle, and in the Method field of the dialog, for example Ready, or Idle.

Viewing the Detailed Status of Network Instruments

You can view the current status of instrument stations on the network. For each device there is a Detailed Status dialog. An icon representing each device in your configuration, including the mass spectrometer, is displayed on the Analyst® software task bar, as well as the status of the devices. Double-clicking an icon displays the detailed status for that device.

1. Click **View > Status for Remote Instrument**.

   The Select Remote Instrument Station dialog appears.
2. Select an instrument station from the list, or click **Computer** and type an instrument name.
3. Click **Connect**.

   The Remote Instrument Status window appears.
4. Double-click a device icon to see the **Detailed Status** dialog for that device.

Viewing the Detailed Status of the DAD

The Agilent DAD Detailed Status dialog displays information about the current operation of the Diode Array Detector (DAD). To open the Agilent DAD Detailed Status dialog, double-click the  icon in the task bar at the lower right corner of the screen.

- **Model**: The model number of the DAD (for example, G1315A or G1315B). The model number is auto-detected.
- **Method**: Displays the current device state.
- **Lamp Status**: Displays the status of the UV (ultraviolet) or VIS (visible) lamps by indicating if either or both are turned on.

SelexION Technology Status

When the SelexION™ technology is installed on the instrument, the Analyst® software displays SelexION technology-related information in the Detailed Status dialog. You can open this dialog by double-clicking the Mass Spec icon on the status bar on the lower-right of the Analyst software window.

The following SelexION technology-related information is displayed in the Detailed Status dialog:

Parameter	Status
DMS Status	• Ready — ON: The SelexION technology is installed on the instrument, and the SelexION controller module is switched on. • Ready — OFF: The SelexION technology is installed on the instrument but acquisition is occurring in the DMS Off mode. • Not installed: The SelexION technology is not installed on the instrument. • Not Ready: The SelexION technology is installed on the instrument but a fault has been detected. Resolve the fault or contact your service representative for more information.
Purge	• Purging: The modifier is being purged from the modifier line. • Not Active: The modifier is not being purged from the modifier line. • n/a: The SelexION technology is not installed on the instrument.
DMS Temperature (deg C)	• Displays the DMS temperature in real-time at the time when the Detailed Status is being checked. • n/a: The SelexION technology is not installed on the instrument.
Setpoint Reached/Not Reached	• Displays the DMS temperature specified in the DMS Temperature field on the DMS tab in a method. • Displays "Reached" if the SelexION ion mobility cell has attained the specified DMS temperature. • Displays "Not Reached" if the SelexION ion mobility cell has not attained the specified DMS temperature.
DMS Resolution (psi)	• Displays the resolution of the SelexION device in psi. • n/a: The SelexION technology is not installed on the instrument.
Modifier Pump Flow Rate (µL/min)	• Displays the flow rate of the modifier pump. • n/a: The SelexION technology is not installed on the instrument.

Working with Samples and Batches

The Queue Manager provides a number of functions for managing samples and batches.

Topics in this section:

Continuing a Paused Sample Acquisition

After you have paused a sample acquisition, you can begin processing the sample again.

- Click anywhere in the paused sample and then click **Acquire > Continue Sample**.

  The sample status shown in the Queue Manager (Local) window changes to Acquiring and the queue continues.

Deleting a Sample

1. Right-click the sample you want to delete. To choose multiple samples for deletion, hold down the Shift key while selecting the samples.
2. In the **Delete** dialog, click **Delete Sample(s)** and then click **OK**.

Pausing a Sample Acquisition

There are two types of pauses in Queue Manager. You can insert a delay between samples in a queue or you can put the currently acquiring sample in **Pause** mode. You would do this if you need time, for example, to agitate the sample tray if it has been standing too long. Pausing the acquisition activates the **Continue** ( ) button.

- Click the sample currently being acquired and then click **Acquire > Pause Sample Now**.

  The sample status changes to Paused in the Queue Manager (Local).

Aborting a Sample Acquisition

If necessary, you can abort a sample acquisition in the middle of the processing of that sample. Abort Sample stops acquisition immediately and saves the data collected to that point.

1. Click the sample and then click **Acquire > Abort Sample**.

   The Queue Manager stops acquiring the current sample immediately, tags it with Partial status, and stops the queue. All samples following in the queue are Waiting.
2. To continue sample acquisition, click **Acquire > Start Sample**.

   The Queue Manager continues to the next sample in the queue.

Reacquiring a Sample

After a sample has been acquired, you may reacquire it at the end of the batch. The need for this usually occurs during method development, or when a problem is detected with a sample while it is being acquired. Both data files are kept, so it is similar to adding another sample to the batch.

- Right-click the sample and then click **Reacquire**.

  The sample is added to the end of the batch. Its status changes to Acquiring.

Skipping to the Next Sample

You can skip a sample in the queue and move on to the next one, provided that the machine has begun acquiring it. This applies only to the current sample.

- Click **Acquire > Next Sample**.

  When processing reaches this sample, it skips it and goes to the following one in the queue.

Adding a Batch

You can use the Queue Manager to access the Batch Editor so that you can add a batch to a queue without leaving the Queue Manager.

1. Click **Acquire > Add Batch**.

   The appears as a pane below the Queue Manager window.
2. Prepare a in the Batch Editor (New Batch) window.
3. When the batch is complete, on the **Submit** tab, click **Submit**.

Deleting a Batch

You can delete a batch from the queue if you are the user who submitted it.

1. Right-click the batch you want to delete and then click **Delete batch**.

   The Delete dialog appears.
2. Click **Delete Batch**, and then click **OK**.

Inserting a Pause

You can insert a pause between each sample in a batch or between a group of samples in a batch or between batches. This does not affect sample acquisition, but does add time to the total queue. You do this if you need time; for example, you need to agitate samples in the autosampler if they have been sitting too long.

1. Select the samples between which you want to insert a pause.
2. Click **Acquire > Pause Before Next Sample**

   The Insert Pause dialog appears.
3. Type the number of seconds you want the pause to be and click **OK**.

Moving a Batch

You can change the position of a batch in a queue.

1. Right-click any column in the batch and then click **Move Batch**.

   The **Move Batch** dialog appears.
2. Select and drag the batch to the new location.

   The dialog confirms that the batch was moved and what its new position is in the queue.
3. Click **OK**.

Extending the Current Period

Each sample is scanned a number of times, and each scan has a number of periods. You can extend the current period; this increases the acquisition time of the sample.

1. Select the sample currently being acquired.
2. Click **Acquire > Extend Period**.

   Sample acquisition time increases if you extend the current period.

Skipping a Period Within Sample Acquisition Time

Each sample is scanned a number of times and each scan has a number of periods. You can skip a period within a sample scan. This decreases the time it takes to acquire the sample. It also eliminates any applicable data that would have been collected in the skipped period.

1. Select the sample that is currently being acquired.
2. Click **Acquire > Next Period**.

   The Queue Manager skips to the next period in the experiment.

Sorting a Batch or a Queue

You can sort an individual batch or an entire queue in either ascending or descending order for viewing. The default order for processing is the time of submission in the Batch Editor.

- Right-click in the column and then click **Sort**.