

## **AXIS Queue Monitor**

## **User Manual**

# AXIS Queue Monitor

## Table of Contents

---

<b>Solution overview</b> .....	3
AXIS Queue Monitor .....	3
<b>How to mount the camera</b> .....	4
<b>Find the device on the network</b> .....	5
Access the device .....	5
Secure passwords .....	5
Install the application on the camera .....	5
<b>Additional settings</b> .....	7
How to set date and time .....	7
How to set up a user account .....	7
How to set up queue areas .....	7
How to trigger an event .....	8
How to set up a schedule .....	9
How to anonymize people .....	9
How to copy the application settings to another camera .....	9
<b>About the statistics</b> .....	10
About the different charts .....	10
Connect a camera to a folder in AXIS Store Data Manager .....	12
How to download statistics .....	12
<b>Troubleshooting</b> .....	13
How to restart the application .....	13
How to reset the application .....	13
How to backup the settings .....	13
How to restore the settings .....	13
How to generate a log report .....	13
How to manage your license .....	13
<b>Queue monitor API</b> .....	15
Common examples .....	15
API specification .....	16

# AXIS Queue Monitor

## Solution overview

---

### Solution overview

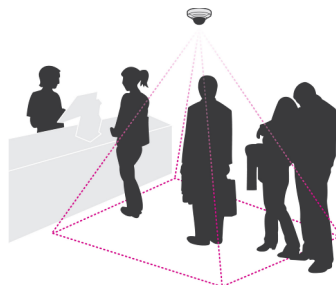


*An overview of the different devices, applications, and tools needed for a complete system.*

### AXIS Queue Monitor

AXIS Queue Monitor is an analytic application that can be installed on a network camera. The application monitors the number of people waiting in line.

AXIS Queue Monitor is intended for retail and other environments where you want to detect the number of people in a queue or monitor the intensity of movement in an area for further analysis or actions.



#### How does it work?

Together with the network camera's event system, the application can trigger a notification when a queue is too long. The trigger can for example go off when three or more people are standing in line for more than 10 seconds. The trigger then activates an event in the camera that in turn sends an email or triggers an audio output.

One application can handle up to three queue lines simultaneously and trigger alarms if the queue becomes too long. The capacity depends on the installation situation, the camera height, and the view of the scene.

# AXIS Queue Monitor

## How to mount the camera

---

### How to mount the camera

For the AXIS Queue Monitor to work as expected, the camera should be installed at a high position with a good overview of the scene. A slight angle is okay as long as the object measured is about the same size in every position in the live view.

# AXIS Queue Monitor

## Find the device on the network

---

### Find the device on the network

To find Axis devices on the network and assign them IP addresses in Windows®, use AXIS IP Utility or AXIS Device Manager. Both applications are free and can be downloaded from [axis.com/support](http://axis.com/support).

For more information about how to find and assign IP addresses, see the document *How to assign an IP address and access your device* on the device page at [axis.com](http://axis.com).

### Access the device

1. Open a browser and enter the IP address or host name of the Axis device.  
  
If you have a Mac computer (OS X), go to Safari, click Bonjour and select the device from the drop-down list. To add Bonjour as a browser bookmark, go to **Safari > Preferences**.  
  
If you do not know the IP address, use AXIS IP Utility or AXIS Device Manager to find the device on the network.
2. Enter the username and password. If you access the device for the first time, you must set the root password. See *Set a new password for the root account* on page 5.
3. The live view page opens in your browser.

### Secure passwords

#### Important

Axis devices send the initially set password in clear text over the network. To protect your device after the first login, set up a secure and encrypted HTTPS connection and then change the password.

The device password is the primary protection for your data and services. Axis devices do not impose a password policy as they may be used in various types of installations.

To protect your data we strongly recommend that you:

- Use a password with at least 8 characters, preferably created by a password generator.
- Don't expose the password.
- Change the password at a recurring interval, at least once a year.

### Set a new password for the root account

#### Important

The default administrator username is **root**. If the password for root is lost, reset the device to factory default settings.

1. Type a password. Follow the instructions about secure passwords. See *Secure passwords* on page 5.
2. Retype the password to confirm the spelling.
3. Click **Create login**. The password has now been configured.

### Install the application on the camera

#### Note

- The license is only valid for one camera. You cannot activate the license on another camera without a new registration key.
- To install applications on the camera you need administrator rights.

# AXIS Queue Monitor

## Find the device on the network

---

1. Install the camera on your network..
2. Go to the camera's webpage in your browser, see the User Manual for the camera.
3. For products with firmware 7.10 or later, go to **Settings > Apps**.

For products with firmware 6.50 or previous, go to **Setup > Applications** .

4. Upload the application file (.eap) to the camera.
5. Activate the license. If you're online, enter the license code. The application automatically activates the license.

### How to activate the license when you're offline

To activate the license when you're offline, you need a license key. If you don't have a license key on the computer, do the following:

1. Go to [www.axis.com/applications](http://www.axis.com/applications)
2. Go to **License key registration**. You need the license code and the Axis device serial number.
3. Save the license key file on the computer and select the file when the application asks for it.

### Access the application settings

1. In the camera's webpage, go to **Settings > Apps**, select the application and click **Open**.

# AXIS Queue Monitor


## Additional settings

---

### Additional settings


#### How to set date and time

The date and time settings are important for your camera to keep the correct time for a longer period of time, and for the statistics to be attributed to the correct time.

1. To set the date and time you need to go to the camera's webpage.
  - For products with firmware 7.10 or later, go to **Settings > System > Date and time**.
  - For products with firmware 6.50 or previous, go to **Setup > System Options > Date & Time**.
2. For detailed instructions about the user account, go to the product's built-in help .
1. In the camera's webpage, go to **Setup > System Options > Date & Time**.
2. In the application, go to **Settings > General** and select the correct time zone.

#### How to set up a user account

In the camera you can set up different account privileges so that unauthorized personnel can view statistics but not change any settings of the counter.

1. To set up a user account, go to the camera's webpage.
  - For products with firmware 7.10 or later, go to **Settings > System > Users**.
  - For products with firmware 6.50 or previous, go to **Setup > System Options > Security > Users**.
2. For detailed instructions about the user account, go to the camera's built-in help .

#### How to set up queue areas

1. Go to the webpage for AXIS Queue Monitor.
2. Go to **Settings > Queue areas**.
3. To facilitate the drawing you can enable a grid by clicking in the image.
4. Select the **Empty regions 1** and draw the first queue area.

Hold the shift key down when drawing your region to get a larger brush
5. Continue with **Empty regions 2** and **3** if you want more than one queue area.
6. Click on **Live calibration** to configure the number of people that fits in the queue area, i.e. your definition of a queue situation.

#### About level of intensity

There are three different levels of intensity in a queue area: **Low**, **Mid**, and **High**. These categories are used in the statistical charts to show how long a queue has had low, mid, or high intensity.

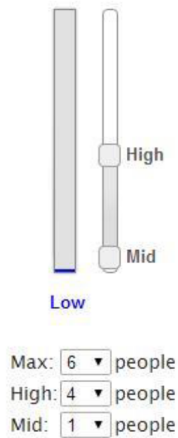
1. Low: No queue
2. Mid: 1 person
3. High: 4 people

# AXIS Queue Monitor

## Additional settings

---

4. Max: The maximum number of people that can fit in the queue area at the same time, approximately 6 in this example.



### How to set the level of intensity

#### Note

To make the setup and fine-tuning of the queue area easier, we recommend placing people under the camera to form an actual queue.

1. Start by defining how many people represent **Mid** and **High**.
2. Set the **Max** number of people that fits in the queue area.
3. Adjust the slider to fine-tune the representation for **Low**, **Mid**, and **High** queue.
4. Click **Submit**.
5. Go to live view to verify the settings.

### How to trigger an event

1. Go to **Settings > Triggers**.
2. Select **Enable**.
3. Select the amount of time before the trigger should go off.
4. Select the queue area.
5. Select how many people should be in the queue for the trigger to go off.
6. Click **+** to add more triggers.
7. Click **Submit**.
8. Go to the camera's webpage to access the event system.
9. In the event setup, use the trigger **Application > QueueEvent**.
10. Follow the built-in instructions to set up an event.



# AXIS Queue Monitor

## Additional settings

---

### How to set up a schedule

To avoid unwanted detection during the night or during holidays, we recommend that you set up a schedule.

1. Go to **Settings > Schedule**.
2. Select start and stop times by moving the slider. You can set individual schedules for each day of the week by selecting **Per day schedule** and then move the corresponding slider.

#### How to disable the application on a specific day of the week

Deselect the checkbox next to the slider.

#### How to disable the application during holidays

Select the holiday dates in the calendar under **Holidays**.

### How to anonymize people

You can configure the application so that people can no longer be identified from the camera. There are two levels of anonymization; soft and hard.

#### Anonymize soft

This feature blocks all video streams and images from the camera. The live view still shows a blurred image which means you can still see what is going on but you can't identify people.

1. Go to **Maintenance > Anonymize**.
2. Click **Anonymize soft**.
3. To go back to normal mode, click **Reset anonymization**. Only users with an administrator account can do this.

#### Anonymize hard

##### Important

Anonymize hard removes all administrator users, locks the root password, and can only be reversed by doing a reset to factory default on the camera.

1. Go to **Maintenance > Anonymize**.
2. Click **Anonymize hard**.

### How to copy the application settings to another camera

Use the copy functionality if you want to copy the application settings to, for example, other cameras in the same store with the same mounting height. Camera-specific settings, such as the application license and camera name, are not included.

1. To copy the application settings, go to **Maintenance > Parameter backups**.
2. Click **Copy**. The computer saves the file in your browser's default folder for downloads.

# AXIS Queue Monitor

## About the statistics

---

### About the statistics

There are several ways to use the statistics from the counter:

- In the application's webpage, view real-time counting data in the built-in graphs.
- View built-in graphs in day and week view from the statistics page. The data is updated in real time.  
Data is available on the camera for up to 90 days and updated every minute.
- View graphs of historical data directly on the camera.
- Download data through an open API.
- Use AXIS Store Data Manager, a software package that acts as a central point to store and manage data collected from all cameras. See *Connect a camera to a folder in AXIS Store Data Manager on page 12*.
- Use AXIS Store Reporter, a statistical web-based solution, for managing and monitoring historical data.
- Download statistics to your computer, see *How to download statistics on page 12*.

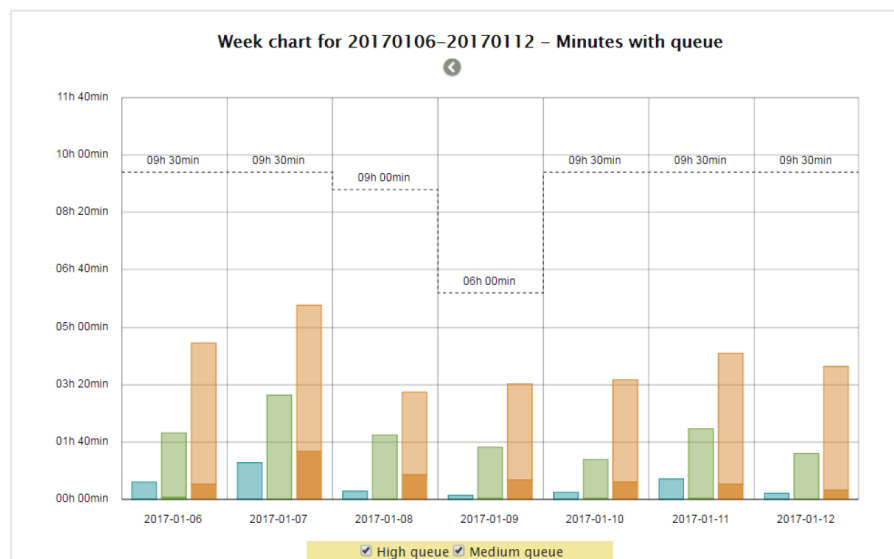
### About the different charts

#### Week chart

In the **Statistics** menu, you can find a week chart containing information about the amount of time in which there has been **Medium** and **High** queue levels during the last seven days.

In this scenario, **Medium queue** equals two people and **High queue** equals three or more people.

- Queue area 1 (blue) did not have any minutes with **High queue** value.
- Queue area 2 (green) had barely any minutes with **High queue** value.
- Queue area number 3 (orange) had the most minutes with **High queue** value (three or more people).



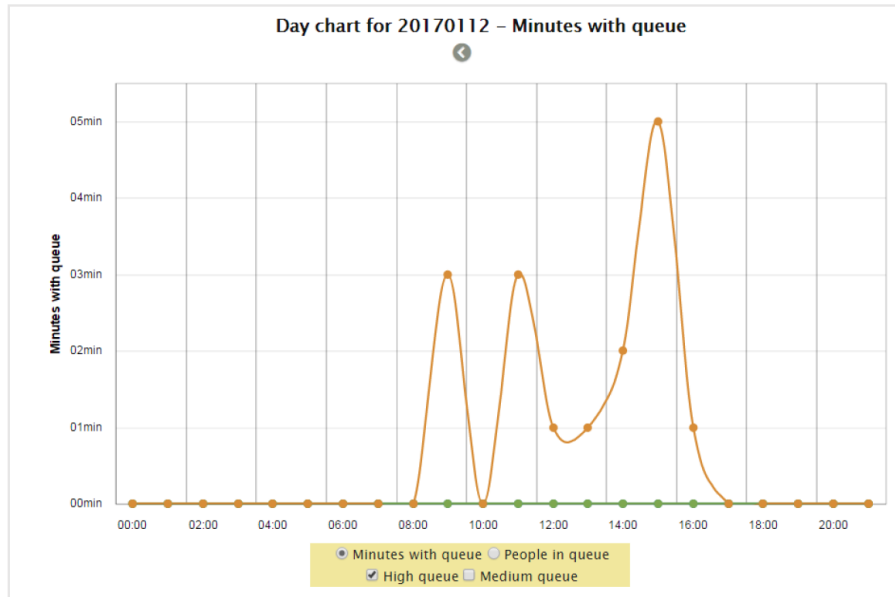
*The High queue value shows up as a darker shade of color. The Medium and High values depend on the values that were assigned to each queue area during the calibration process.*

# AXIS Queue Monitor

## About the statistics

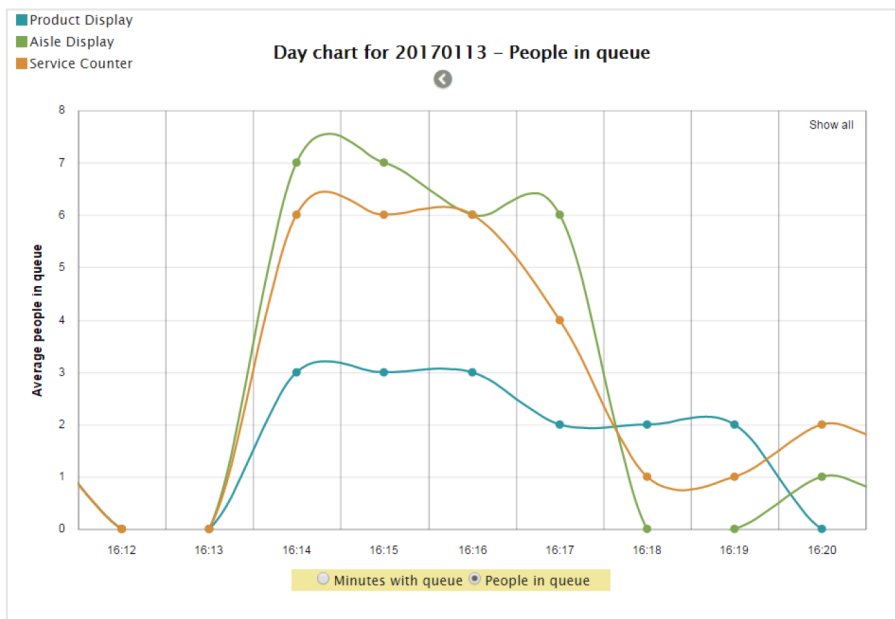
### Day chart (Minutes with queue)

In the day chart you will get information about the minutes of Mid and High queue for each queue area. By looking at the chart we can see that queue 1 (purple line) have over 20 minutes of high queue at twelve o'clock. In this example high queue equals about three to four people.



### Day chart (People in queue)

You can also get information about the average of people in the queue during the day. By looking at the chart below we can see when people starts to queue and get an estimate of how many people queue during different time intervals for each queue area.



# AXIS Queue Monitor

## About the statistics

---

### Connect a camera to a folder in AXIS Store Data Manager

To perform this task, the application must be installed on the camera.

1. In AXIS Store Data Manager, go to **Sources** and get the **Folder connection identifier** and the **Folder connection password** for the folder you want to connect to.
2. In the camera's webpage, go to **Settings > Apps** and open the application's webpage.
3. In the application's webpage, go to **Settings > Reporting**.
4. To enable pushing data to a server, select **Enabled**.
5. Enter the web address for AXIS Store Data Manager, for example `http://[systemintegrator1].asdm.axis.com/datamanager` where [systemintegrator1] is replaced by a unique name.
6. Enter the **Folder connection identifier** and **Folder connection password**.
7. To test the connection, click **Run test**.
8. Click **Submit**.

### How to download statistics

You can download the data directly from the camera in .csv format.

1. Go to **Statistics > Download statistics**.
2. Select between **Minutes with queue** or **People in queue**.
  - **Minutes with queue** data is stored for 90 days in the camera and the shortest time interval is 15 minutes.
  - **People in queue** data is stored for 90 days in time intervals of 15 minutes or 30 days in time intervals of one minute.
3. Select the date in the calendar. The browser saves the file in the default download folder.

If you want to download all available data for the 90- or 30-day period, click **Download all** next to the file format.

# AXIS Queue Monitor

## Troubleshooting

---

### Troubleshooting

If you can't find what you're looking for here, try the troubleshooting section at [axis.com/support](https://axis.com/support).

Issue	Action
The software does not upload to AXIS Store Data Manager.	The most common reason is network communication problems. Run the connection test under <b>Settings &gt; Reporting</b> to get information about the root cause for the problem.

### How to restart the application

If the counting is inaccurate or the web interface unusually slow, you can try restarting the running services or restart the camera.

Go to **Maintenance > Restart**.

### How to reset the application

Go to **Maintenance > Reset** and do one of the following:

- To clear all counting data from the camera, click **Clear data**.
- To restore all settings of the application to default, click **Restore settings**.

### How to backup the settings

1. To backup the application settings, go to **Maintenance > Parameter backups**.
2. Click **Backup**. The computer saves the file in your browser's default folder for downloads.

### How to restore the settings

1. Go to **Maintenance > Parameter backups**.
2. Browse to select the previously saved backup file and then click **Restore**.

### How to generate a log report

If you have any trouble with your camera you can generate a log report.

1. Go to **Maintenance > Logs**.
2. Click **Generate logs**.
3. The browser saves the file on the default download browser on the computer.
4. Attach the log report when submitting an issue to support.

### How to manage your license

Go to **Maintenance > Registration**.

- To register a license, click on the **Registration page**.
- If you want to remove you license from this product, click **Clear registration**.

# AXIS Queue Monitor

## Troubleshooting

---

- If you have an updated license, click Renew license.

# AXIS Queue Monitor

## Queue monitor API

---

### Queue monitor API

#### Common examples

##### Example

Request the number of people standing in queue at this moment.

##### Request

`http://<servername>/local/queue/.api?live-sum-people.json`

##### Return

```
{
  "serial": "ACCC8E20F09B",
  "name": "Service Counter",
  "timestamp": "20170113181132",
  "region1name": "Product Display",
  "region1people": 1,
  "region2name": "Aisle Display",
  "region2people": 0,
  "region3name": "Service Counter",
  "region3people": 3
}
```

See *Get real time people in queue data on page 16* for more information.

##### Example

Request historical minutes of queue data in CSV format for the 1st and the 3rd of May 2017 with a 5 hour resolution.

##### Request

`http://<servername>/local/queue/.api?export-csv-minutes&date=20170501,20170503&res=5h`

##### Return

```
Interval start,Interval stop,Camera serial number,Name,Region1 High,Region1
Mid,Region1 Low,Region2 High,Region2 Mid,Region2 Low,Region3 High,Region3
Mid,Region3
Low
2017-05-01 00:00:00,2017-05-01 05:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,0,300
2017-05-01 05:00:00,2017-05-01 10:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,20,280
2017-05-01 10:00:00,2017-05-01 15:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,174,126
2017-05-01 15:00:00,2017-05-01 20:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,109,191
2017-05-01 20:00:00,2017-05-02 01:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,0,300
2017-05-03 00:00:00,2017-05-03 05:00:00,00XXXXXXXXXX,Camera1,0,0,300,0,0,300,0,0,300
2017-05-03 05:00:00,2017-05-03
10:00:00,00XXXXXXXXXX,Camera1,0,34,266,0,17,283,8,67,225
```

See *Request CSV minute data on page 16* for more information.

##### Example

Request historical people in queue data, in CSV format, for the 4th of April and the 3rd of May 2017 with a 120 minute resolution.

##### Request

`http://<servername>/local/queue/.api?export-csv-people&date=20170428,20170503&res=120m`

##### Return

```
Interval start,Interval stop,Camera serial number,Name,People in Region1,People in
Region2,People in Region3
2017-05-03 00:00:00,2017-05-03 02:00:00,00XXXXXXXXXX,Camera2,0,0,2
2017-05-03 02:00:00,2017-05-03 04:00:00,00XXXXXXXXXX,Camera2,1,1,1
2017-05-03 04:00:00,2017-05-03 06:00:00,00XXXXXXXXXX,Camera2,1,0,1
2017-05-03 06:00:00,2017-05-03 08:00:00,00XXXXXXXXXX,Camera2,1,0,2
2017-05-03 08:00:00,2017-05-03 10:00:00,00XXXXXXXXXX,Camera2,1,0,1
```

# AXIS Queue Monitor

## Queue monitor API

---

See *Request CSV people data on page 17* for more information.

### API specification

#### Get real time people in queue data

##### Request

`http://<servername>/local/queue/.api?live-sum-people.json`

##### Return

```
{
  "serial": "<camera-serial>",
  "name": "<counter-name>",
  "timestamp": "<timestamp>",
  "region1name": "<name1>",
  "region1people": <people1>,
  "region2name": "<name2>",
  "region2people": <people2>,
  "region3name": "<name3>",
  "region3people": <people3>
}
```

##### Return value descriptions

Value	Description
<camera-serial>	camera serial number
<counter-name>	name of the counter
<timestamp>	time in the camera in the format YYYYMMDDhhmmss
<region1name>	name of region 1
<region1people>	number of people standing in region 1

#### Request CSV minute data

##### Request

`http://<servername>/local/queue/.api?export-csv-minutes [&date=<date>] [&res=<res>]`

##### Request parameter descriptions

Parameter	Description
<date>	a date of the form YYYYMMDD
	a date interval of the form YYYYMMDD-YYYYMMDD
	comma separated dates of the form YYYYMMDD, [ . . ], YYYYMMDD
	all (default) for all available data
<res>	15m (default) for data in 15 minute bins
	1h for data in 1 hour bins
	24h for data in 1 day bins

##### Return

This script returns data in plain text, comma-separated values. The first line is a comma-separated header describing each column. Each integer value states the number of minutes for which there has been a certain amount of queue (High/Mid/Low) for a certain region.



# AXIS Queue Monitor

## Queue monitor API

---

### Request CSV people data

#### Request

`http://<servername>/local/queue/.api?export-csv-people [&date=<date>] [&res=<res>]`

#### Request parameter descriptions

Parameter	Description
<date>	a date of the form YYYYMMDD
	a date interval of the form YYYYMMDD-YYYYMMDD
	comma separated dates of the form YYYYMMDD, [ . . ], YYYYMMDD
	all (default) for all available data
<res>	1m for data in 1 minute bins
	15m (default) for data in 15 minute bins
	1h for data in 1 hour bins
	24h for data in 1 day bins

#### Return

This script returns data in plain text, comma-separated values. The first line is a comma separated header describing each column. Each integer value states the average number of people within a certain region of interest.

### Clear local queue data

#### Request

`http://<servername>/local/queue/.apioperator?clear-data`

#### Return

OK

### List application parameters

#### Request

`http://<servername>/local/queue/.api?params.json`

#### Return

A JSON object of all the application related parameters.

### Set application related parameters

The post format has a format where pairs and values need to be specified, best described by an example:

`&p1=Counter.Enabled&v1=1&p2=WebReportUpload.Enabled&v2=1`

#### Request

`http://<servername>/local/queue/.apioperator?setparams`

#### Return

OK

### Show the system log

#### Request

`http://<servername>/local/queue/.apioperator?show-logs`

#### Return

# AXIS Queue Monitor

## Queue monitor API

---

Displays the system logs.

### **Generate a log archive**

#### **Request**

`http://<servername>/local/queue/.apioperator?generate-logs`

#### **Return**

A log archive

