

VERSION 1.0

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INTRODUCTION

The RayV Channel Monitoring (RVCM) application is a monitoring system for RayV Broadcasters and Gateways.

RVCM detects and reports on problems before the end users are aware that a problem exists. RVCM monitors the basic health of RayV Broadcasters and Gateways constantly, keeping monitoring their CPU utilization, memory usage and their audio/video throughput.

RVCM is more than just the data that shows how RayV Broadcasters and Gateways are performing technically. Information such as connectivity status, video and audio upload, video and audio frame rate and related statistics contrasted against each other can also show which Broadcasters or Gateways, or portions thereof, have consistently good (or bad) performance. Management reports generated from RVCM can provide insights on the system health and provide real-time or offline information for further analysis and troubleshooting.

This document is a comprehensive user guide that explains how to use RVCM for monitoring, control and troubleshooting of the RayV Broadcasters and Gateways, which are key components in the RayV Grid service.

STARTING RVCM OPERATION

After installing the RVCM (as described in the *RayV Channel Monitoring Setup Guide*), you can start RVCM operation.

To start RVCM operation:

■ In your browser, enter the address for accessing the RVCM.

RVCM opens to the Channels screen (Figure 2).

You can now view the monitoring information displayed in the RVCM.

Note: To enable RVCM to monitor the broadcaster applications, each broadcaster application must be configured to send its monitoring information to RVCM.

LOGGING IN AS AN ADMINISTRATOR

RVCM enables you to perform certain actions on broadcasters. However, you can perform those actions only if you are logged in as an RVCM administrator, with a username and password supplied by RayV.

To login as an RVCM administrator:

 Click Login at the top right of the RVCM screen. The RVCM Login window appears.



Figure 1: RVCM Login Window

- 2. Enter the Admin username and password supplied by RavV, in the relevant fields.
- 3. Click **Login**.

The RVCM application opens to the Channels screen (Figure 2). Note that two additional tabs appear: the **Control** tab and the **Admin** tab, enabling you to perform various operations on broadcasters.



Note: To enable RVCM administrators to perform actions on broadcasters, also the broadcasters must be configured to allow RVCM remote control. Refer to the RayV Channel Monitoring Setup Guide for information.



MONITORING BROADCASTERS

RVCM enables you to monitor broadcasters and view their vital statistics in real time.

To monitor broadcasters:

1. Select the **Channels** tab.

The Channels screen appears, providing real time information about the current broadcasters that are being monitored.

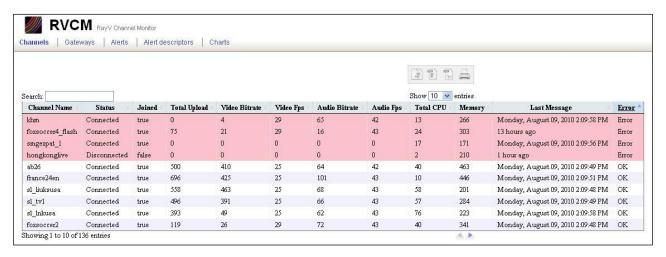


Figure 2: Channels Screen

The red background color in the channels list indicates whether a broadcaster is in a state of alert, that is, at least one of the broadcaster health parameters is not within the configured bounds. In this case, you can view a detailed description of the alert in the Alerts tab (refer to *Viewing Detailed Alerts Information* on page 9).



The following table describes the information provided in the Channels screen.

Table 1: Channels Screen Fields

Column	Description
Channel Name	The unique broadcaster channel ID supplied by RayV.
Status	Whether the Broadcaster is connected or disconnected from the grid server.
Joined	Whether the broadcaster is joined (True) or not joined (False) to the channel.
Total Upload	The total data that has been uploaded to the primary satellite.
Video Bitrate	The bit rate of the video data being encoded by the broadcaster, in Kbps.
Video FPS	The rate at which video frames are being encoded by the broadcaster, in frames per second.
Audio Bitrate	The bit rate of the audio data being encoded by the broadcaster, in Kbps.
Audio FPS	The rate at which audio frames are being encoded by the broadcaster, in frames per second.
Total CPU	The percentage of CPU being used by the broadcaster.
Memory	The amount of memory being used by the broadcaster, in MB.
Last Message	The date and time when the broadcaster last sent a message to the RVCM.
Error	Indicates whether the Broadcaster is in a state of alert (Error), or not (OK).

You can perform the following additional operations in the Channels screen:

- Sort the channels table by column headers Clicking a column header in the channels table sorts the whole table by that column. It is generally recommended to sort the table by the Error column header. This ensures that all the broadcasters that are in a state of error are displayed first and easily monitored.
- **Filter the channels list** You can use the **Search** field to filter the channels list. As you enter characters in the field, the broadcaster channel ID display changes to show only the broadcaster channel IDs whose names begin with the characters you entered.
- **Print or output the channels list** You can use icons the appearing at the top right of the screen to print or output the list of channels, as follows:
 - Click to save the channel list to the clipboard.
 - Click to save the channel list as an Excel file.
 - Click to save the channel list as a CSV file.
 - Click to send the channel list to print.

CREATING STATUS CHARTS

You can create charts to graphically view past behavior of a broadcaster.

To graphically view a broadcaster behavior:

1. Select the **Charts** tab. The Charts screen appears.

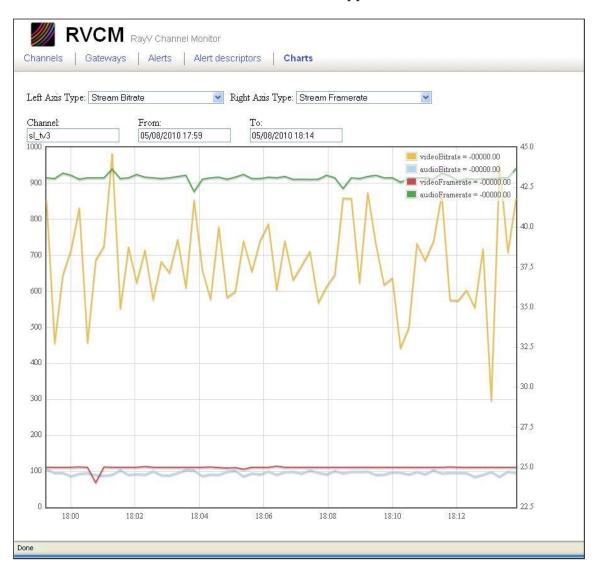


Figure 3: Charts Screen

2. Enter a broadcaster channel ID in the **Channel** field.



- 3. In the **From** and **To** fields, enter the starting date and time and ending date and time of the period you would like to review.
- 4. In the **Left Axis Type** field, select a category of graphs to display. These graphs correspond with the left vertical axis and determine its scale.
 - **Stream Bitrate** Display the bit rate of the audio and video data that were encoded by the broadcaster of this channel, in Kbps, during the specified time period.
 - Stream Framerate Display the rate at which audio and video frames were encoded by the broadcaster of this channel, in FPS, during the specified time period.
 - **CPU and Memory Consumption** Display the CPU and memory consumption of this broadcaster during the specified time period.
 - None No graph is displayed for this axis.
- 5. In the **Right Axis Type** field, select a category of graphs to display, as you did in the previous step. These graphs correspond with the right vertical axis and determine its scale.

The screen displays the graphs you selected, for the specified broadcaster of that channel and the time period.

VIEWING DETAILED ALERTS INFORMATION

If a red background appears in the Channels screen, some alert has been raised for the broadcaster of that channel. That is, one or more of the broadcaster health parameters are out of the bounds defined in RVCM. However, the Channels screen does not indicate which of these health parameters are out of bounds. The Alerts tab, which displays all the alerts in the system, enables you to determine the exact problem. To pinpoint a problem, you can filter the alerts to show only alerts for a specific broadcaster.

Note: The rules determining when an alert is triggered are set by RayV. You can view them in the Alerts Description tab. It is recommended not to change or edit these rules without first consulting with RayV.

To view detailed alerts information:

1. Select the **Alerts** tab. The Alerts screen appears.

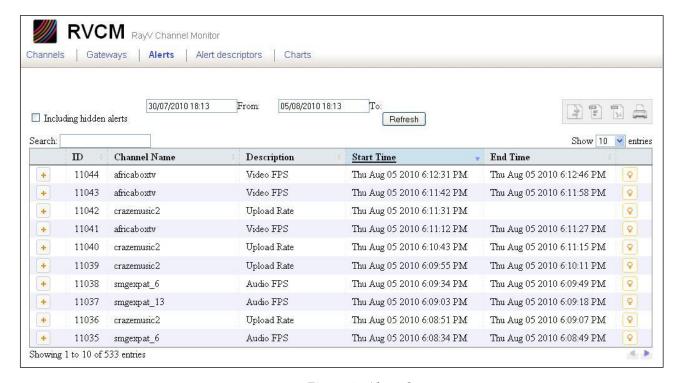


Figure 4: Alerts Screen



Each line in the alerts table describes an alert, and provides information about the alert:

- The **Channel Name** (i.e., the channel ID) of the broadcaster that triggered the alert.
- A **Description** of the problem.
- The **Start Time** and **End Time** of the problem.
- 2. Optionally, filter the list of alerts to display alerts for certain broadcaster channels only, by entering a channel ID or part of the channel ID in the **Search** field.
- 3. Optionally, filter the list of alerts to display alerts for a specific time period only, by entering a date and time in the **From** and **To** fields and clicking **Refresh**.
- 4. Optionally, click to the right of an alert in order to hide the alert. To undo, check the **Including hidden alerts** option.

CREATING ALERT REPORTS

You can create a report that includes the entire list of alerts, or a select subset.

To create an alerts report:

- 1. Select the **Alerts** tab. The Alerts screen appears (Figure 4).
- 2. Optionally, filter the list of alerts to display alerts for certain broadcasters only, by entering the broadcaster channel ID or part of the channel ID in the **Search** field.
- 3. Optionally, filter the list of alerts to display alerts for a specific time period only, by entering a date and time in the **From** and **To** fields.
- 4. Select how to output the list of alerts:
 - Click to save the list of alerts to the clipboard.
 - Click to save the list of alerts as an Excel file.
 - Click in to save the list of alerts as a CSV file.
 - Click is to send the list of alerts to the printer.

RESTARTING BROADCASTERS

An RVCM administrator can perform a broadcaster restart.

To restart a broadcaster:

1. Select the **Control** tab. The Control screen appears.

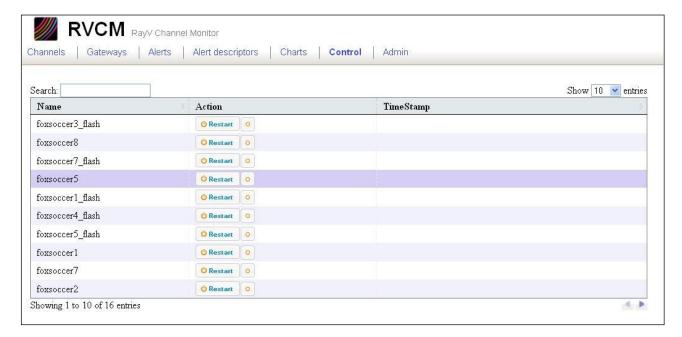


Figure 5 : Control Screen

- 2. Optionally, filter the list of displayed broadcasters by entering a broadcaster's channel ID or part of the channel ID in the **Search** field.
- 3. Select the broadcaster you wish to restart, and click Pestart.
- In the confirmation window that appears, click Yes.
 The broadcaster restarts.



REMOVING BROADCASTERS FROM RVCM

An RVCM administrator can delete a broadcaster from the RVCM application. This is useful if it is not broadcasting any more.

If a broadcaster has not stopped broadcasting completely but is only temporarily not broadcasting, it may be advisable to stop monitoring it for a while rather than delete it (refer to page 14).

To delete a broadcaster from RVCM:

- 1. Select the **Admin** tab. The Admin screen appears; with the Logs tab selected (Figure 8).
- 2. Select the **Channels** tab. The Channels tab of the Admin screen appears.

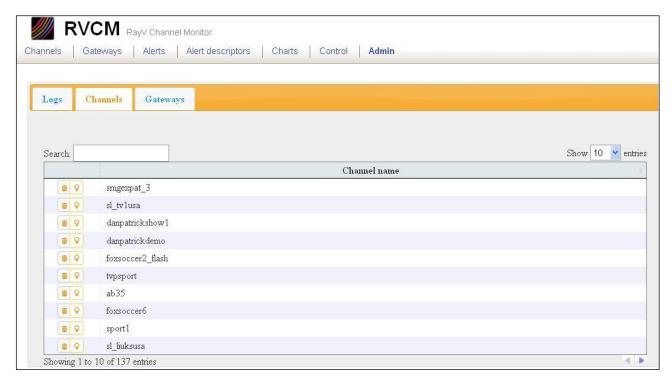


Figure 6: Admin Screen - Channels tab

- 3. Optionally, filter the list of displayed broadcaster channels by entering a broadcaster channel ID or part of a channel ID in the **Search** field.
- 4. Select a name and click .



5. In the confirmation window that appears, click **Yes**.

The broadcaster is deleted from the RVCM application.

STOPPING AND RESUMING MONITORING OF BROADCASTERS

An RVCM administrator can instruct RVCM to stop monitoring a broadcaster, or to start monitoring it again. You may wish to stop monitoring a broadcaster if it is currently not broadcasting a program.

To stop the monitoring of a broadcaster:

- 1. Select the **Admin** tab. The Admin screen appears; with the Logs tab selected (Figure 8).
- 2. Select the **Channels** tab. The Channels tab of the Admin screen appears (Figure 6).
- 3. Optionally, filter the list of displayed broadcaster channels by entering a channel ID or part of the channel ID in the **Search** field.
- 4. Select a name and click 💡

RVCM stops monitoring the broadcaster, and the broadcaster channel ID does not appear in the Channels screen.

To resume monitoring of a broadcaster:

■ In the Channels tab of the Admin screen (Figure 6), click ♀ adjacent to the broadcaster's channel ID you wish to monitor.

RVCM resumes monitoring the broadcaster, and it appears in the Channels screen.



RECORDING BROADCASTER STREAMS

An RVCM administrator can record the live stream from a broadcaster and store it as a video file for VOD.

To record a stream:

1. Select the **Control** tab. The Control screen appears.

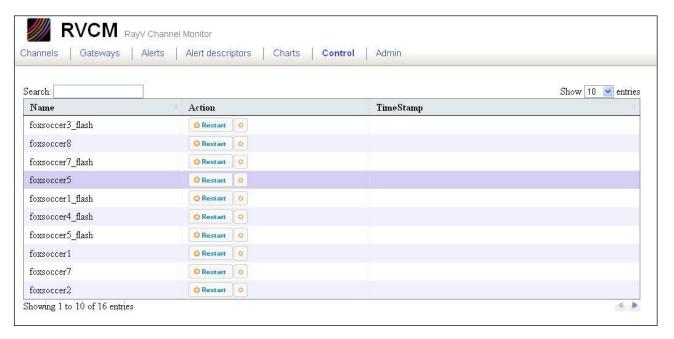


Figure 7: Control Screen

- 2. Optionally, filter the list of displayed channels by entering a broadcaster channel ID or part of a broadcaster channel ID in the **Search** field.
- Select the stream you wish to record, and click .
 RVCM starts recording the stream. The **TimeStamp** column shows a time stamp of when recording started.
- 4. To stop recording, click the record icon again.

VIEWING RVCM LOGS

An RVCM administrator can view the RVCM logs. The following two logs are available:

- Website log The log of the RVCM management application that is used for viewing the monitoring alerts.
- Service log The log of the RVCM service, which listens to incoming messages from the broadcasters.

To view the RVCM logs:

1. Select the **Admin** tab. The Admin screen appears, with the Logs tab selected.



Figure 8: Admin Screen - Logs Tab

2. In the dropdown list above the log, select the type of log you wish to view: **Website** or **Service**.

The screen refreshes to display the log you selected.