Video Processing

RX1 Content Processing mS v10.6

User Guide
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CHAPTER 1

Quick start
Connect to the Controller

1. Open a Web browser.
2. Enter the access URL, then press **Enter**.
   
   **NOTE** Your access is either HTTP or HTTPS depending on your security settings.
   
   **Example HTTP**: http://[IP-Address]:8080 (or http://[IP-Address]:30020 for Containerized Solutions)
   
   **Example HTTPS**: https://[IP-address] or https://[IP-address]:8443 (or http://[IP-Address]:30001 for Containerized Solutions).
   
   **Result**: The Login page displays if user authentication is activated and configured.

   ![Login Form]

3. When the Login page displays: Enter your **username** and **password**.
   
   **NOTE** Default admin user log in information:
   
   - **Username**: admin
   - **Password**: admin
   
   **Result**: The Home page displays.
Configure a service (basic service configuration)

This configuration context is a basic example configuration and does not cover a specific configuration context.

1. **Connect** to the MediaFirst video processing Web interface.
2. Click **Add service** and select **Receiver** to create and configure the service.
3. Set the **input source configuration**.
   - **NOTE**
     - If you choose ASI, select the TS packet size and the port number.
     - If you choose IP, enter the source stream IP address, port and network interface of where your input transport stream is present.
4. Set the **decoding configuration**.
   a. Open the **Audio** tab and click **Decode all input audio**.
   b. Open the **Data** tab and click **Decode all input**.
   c. Select the **Data type** (Ancillary or Teletext) for each component in the data input list
5. Set the **output configuration**.
   a. If you have **UHD video output**, then set the output link format to be either quadrant or interleaved.
   b. Open the **Audio** tab and select **Add all**
   c. Then, for each component in the audio output list, select the location in the output SDI where to embed.
   d. Open the **Data** tab and select **Add all**.
   e. Then, for each component in the data output list, select the line number in the output SDI where to embed.
Configure the clock reference

Prerequisites:
The studio feed must be of the same frequency as the video service being decoded by the RX1.
• If multiple services are being decoded they must all be of the same frequency:
  • 50 Hz (field timing for interlaced or frame timing for progressive).
  • 59.94 Hz (field timing for interlaced or frame timing for progressive).

The RX1 contains an external sync input BNC (located on the rear of the unit). This allows you to either:
• synchronize the unit to either a reference studio sync pulse so that the output video (either in UHD, HD or SD) aligns with the studio feed, or
• synchronize the SDI output clock frequency of the Content Processing to an external 10MHz studio reference clock.

IMPORTANT The RX1 automatically detects the type of external-sync applied and attempts to lock the SDI output to the external reference supplied. If the unit detects a signal mismatch then frame sync will not be acquired and the unit will continue to run using its own internal sync.

1. Display services.
2. Click to edit the service.
3. From the Parameters section, select to Output tab.
Example:

4. Select the Clock reference format required for the SDI output.
Options:
• Free running
• External sync

IMPORTANT External sync requires a specific cable installation (see Installation Guide).
Setting External Sync Offset

**Prerequisites:**
Rx1 has been set to External sync with a valid reference studio clock applied to the Sync input. The playout timing of each SDI output frame can be adjusted (advanced or delayed) in single pixel increments relative to the external frame sync.

1. Display services.
2. Click to edit the service.
3. From the **Parameters** section, select to **Output** tab.

**Example:**

4. Enter the offset required in pixels to be applied in the External sync offset field.
CHAPTER 2

Menus and navigation
Menus and navigation

There are multiple navigation options in the Controller. Some menu options depend on the MediaKind products that you have installed.

**IMPORTANT** Features, menus and options vary based on your solution and the MediaKind products installed.

**Home page and dashboard overviews**

The **Home** page displays a dashboard with overviews for services, servers and templates.

**TIP**
- Click an overview to link to the related page.
- The overview display may vary depending on the products you have installed.

**Collapse/expand button**

The button collapses or expands the **Menu panel** to either hide or display menu text.

**Menu panel**

Access information and configuration options.

**NOTE** Menu options may vary depending on the products you have installed.

Examples: Full / Collapsed
Breadcrumbs

Breadcrumbs are navigational links to previous pages. Breadcrumbs display above the viewing screen.

System center menu

The System Center menu drops down after clicking the 📈 in the upper right corner of the screen.

Alarms banner

The Alarms banner displays in the upper right corner of the screen, next to the system center menu icon 📈.
## Services and processing types

A service is a set of parameters required for a given processing type. Services require an assigned server to run. A service can run on 1 or several servers. Services can be manually started and stopped.

**NOTE** Access services from the **Home** page or the left-side menu panel.

### Service processing types

<table>
<thead>
<tr>
<th>Processing type</th>
<th>Required Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Encoding</td>
<td>MediaKind Encoding Live</td>
</tr>
<tr>
<td>On-Demand Encoding</td>
<td>MediaKind Encoding On-Demand</td>
</tr>
<tr>
<td>Live Packaging</td>
<td>MediaKind Packaging</td>
</tr>
<tr>
<td>On-Demand Packaging</td>
<td>MediaKind Packaging</td>
</tr>
<tr>
<td>Catalog</td>
<td>MediaKind Packaging</td>
</tr>
<tr>
<td>Multiplexing</td>
<td>MediaKind Stream Processing</td>
</tr>
<tr>
<td>Stream Personalization</td>
<td>MediaKind Stream Personalization</td>
</tr>
<tr>
<td>Manifest Conditioning</td>
<td>MediaKind Prisma</td>
</tr>
<tr>
<td>Stream Conditioning</td>
<td>MediaKind Prisma</td>
</tr>
<tr>
<td>Viewing Policy Manager</td>
<td>MediaKind Prisma</td>
</tr>
<tr>
<td>Receiver</td>
<td>MediaKind - Content Processing</td>
</tr>
</tbody>
</table>

### Server processing types

Additional processing types are available from the **Servers** page.

<table>
<thead>
<tr>
<th>Processing type</th>
<th>Required Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensing</td>
<td>Dedicated license server running the license manager</td>
</tr>
</tbody>
</table>

**NOTE** The license manager may also be installed on the MediaKind Controller server.
<table>
<thead>
<tr>
<th>Processing type</th>
<th>Required Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>Controller provides a centralized configuration and control interface, manages failover for Encoding Live, and offers a flexible licensing management for MediaKind applications.</td>
</tr>
</tbody>
</table>
The **Servers** view displays system information to monitor and manage servers. The statuses indicate server availability: *connected* or *connection lost*.

### Server Status

<table>
<thead>
<tr>
<th>Name</th>
<th>IP Address</th>
<th>Processing Type</th>
<th>Software</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>standalone</td>
<td>127.0.0.1</td>
<td>Controller, Licensing, Live Encoding</td>
<td>ericsson-license-manager 0.2.6-0, ericsson-encoding-live 10.0.7.5, ericsson-controller 10.0.6.30</td>
<td>connected</td>
</tr>
</tbody>
</table>

**NOTE**

- If the connection is lost when the server is in a failover group then check if failover occurred.
- You can also check alarms or alarm history to investigate possible causes.
- You can also check server information for licenses and IP configurations.
The **System Center** menu provides access to administration features. Administrators can manage users, system backups and restore options, as well as monitor servers, and manage settings.

**Access the System Center**

The **System Center** menu includes a number of options for system administration and monitoring. Features are available depending on your user rights.

<table>
<thead>
<tr>
<th>Group</th>
<th>Restore</th>
<th>Backup</th>
<th>User Management</th>
<th>Failover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>Yes</td>
<td>Yes</td>
<td>R+W</td>
<td>Yes</td>
</tr>
<tr>
<td>Monitoring</td>
<td>No</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Configuration</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Manage displays for Content Processing

The **Status** window displays when editing Service parameters: **Input**, **Decode**, **Output**

1. Display **Services**.
2. Edit a service.  
   **Result:** Service **Parameters** and **Status** display.

3. Click the items in the **Status** window to minimize or expand views.
   **Example:**

![Status window example](image-url)
Edit the number of rows displayed

You can display more rows in the table, or less rows, by selecting the number of rows to display.

1. Use the left-side **Menu** panel to display views.
2. Scroll to the bottom of the page and edit the number of rows to display per page.

**Example:**

![Rows per page selection](image)
Use the search bar

The **Search** bar displays in pages with table displays.

1. Use the left-side **Menu** panel to display views.
2. Enter one or several keywords in the **Search** bar to filter the table.

**Search requirements:**
- Keyword based
- Not case sensitive
- No wildcards

**Example:**

```
<table>
<thead>
<tr>
<th>Name</th>
<th>IP Address</th>
<th>Processing Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2_primary</td>
<td>213.246.134.114</td>
<td>Stream Processing (C2)</td>
</tr>
</tbody>
</table>
```
CHAPTER 3

Using Content Processing
Configure decoding

Decoding delay modes (latency)

The modes described here are used to configure decoding delay, or latency. The delay modes effect the delay between the PCR/PTS relationship and delaying picture display (when compared to the system clock reference).

Delay measurements per mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Delay (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatibility</td>
<td>650</td>
</tr>
<tr>
<td>Standard</td>
<td>400</td>
</tr>
<tr>
<td>Low</td>
<td>250</td>
</tr>
</tbody>
</table>

Compatibility

This mode has the longest delay. This mode ensures compatibility between all encoding units, in all modes.

Standard

This is the default value. Standard mode allows for using all current encoders, in all modes.

IMPORTANT Older encoders that have buffer models that are too aggressive may prevent you from being able to use Standard mode for all bit rates and/or all audio encoding schemes.

Low

This is the recommended setting for simple contribution links. You can also use this mode in any context where a low delay is required.

Related Tasks

Setting delay mode on page 55

Configure input for decoding (transport streams)

There are multiple types of transport stream configurations. Each type presents a different set of parameters.
Supported decoding formats

Video formats and decoding standards

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frame rate</th>
<th>Bit depth</th>
<th>Chroma</th>
<th>Codec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920 x 1080i</td>
<td>25 / 29.97 fps</td>
<td>8 / 10 bit</td>
<td>4:2:0 / 4:2:2</td>
<td>MPEG-2 H.264 H.265</td>
</tr>
<tr>
<td>1280 x 720p</td>
<td>50 / 59.94 fps</td>
<td>8 / 10 bit</td>
<td>4:2:0 / 4:2:2</td>
<td>MPEG-2 H.264 H.265</td>
</tr>
<tr>
<td>1920 x 1080p</td>
<td>50 / 59.94 fps</td>
<td>8 / 10 bit</td>
<td>4:2:0 / 4:2:2</td>
<td>MPEG-2 H.264 H.265</td>
</tr>
<tr>
<td>3840 x 2160p</td>
<td>50 / 59.94 fps</td>
<td>10 bit</td>
<td>4:2:0 / 4:2:2</td>
<td>H.265</td>
</tr>
</tbody>
</table>

Audio formats and decoding standards

**IMPORTANT** Decoding MPEG-H audio requires using all 16 audio output components.

<table>
<thead>
<tr>
<th>Codec</th>
<th>Sample Rate</th>
<th>Bit Depth</th>
<th>Output format</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPEG1-LII</td>
<td>48kHz</td>
<td>n/a</td>
<td>Decode</td>
</tr>
<tr>
<td>Dolby Digital</td>
<td>48kHz</td>
<td>n/a</td>
<td>Decode</td>
</tr>
<tr>
<td>Dolby Digital +</td>
<td>48kHz</td>
<td>n/a</td>
<td>Decode</td>
</tr>
<tr>
<td>MPEG-H</td>
<td>48kHz</td>
<td>24</td>
<td>Contribution Decode</td>
</tr>
<tr>
<td>MPEG-H</td>
<td>48kHz</td>
<td>16</td>
<td>Pass-through</td>
</tr>
<tr>
<td>LPCM</td>
<td>48kHz</td>
<td>16 / 20 / 24</td>
<td>Pass-through</td>
</tr>
<tr>
<td>Dolby-E</td>
<td>48kHz</td>
<td>16 / 20 / 24</td>
<td>Pass-through</td>
</tr>
<tr>
<td>Dolby Digital</td>
<td>48kHz</td>
<td>16</td>
<td>Pass-through</td>
</tr>
<tr>
<td>Dolby Digital+</td>
<td>48kHz</td>
<td>16</td>
<td>Pass-through</td>
</tr>
</tbody>
</table>
Data formats

<table>
<thead>
<tr>
<th>Format</th>
<th>Output format</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFD / BAR data</td>
<td>SMPTE 2016</td>
</tr>
<tr>
<td>Teletext</td>
<td>OP47 / SMPTE 2031</td>
</tr>
<tr>
<td>Closed Captions</td>
<td>SMPTE 334M for EIA-708-B</td>
</tr>
<tr>
<td>Time code</td>
<td>SMPTE 12M + RP188</td>
</tr>
<tr>
<td>Generic VANC</td>
<td>SMPTE 2038</td>
</tr>
</tbody>
</table>

Configure a transport stream input for Satellite demodulator

Prerequisites:
- Content Processing uses a satellite card.
- At least one Content Processing service is configured.

1. Display services.
2. Click 🖂 to edit the service.
3. Select **Satellite** for the **Current Input**.
   **Result:** Satellite input options display.
   **Example:**

   ![Parameters Table]

   - **Current Input**: Satellite
   - **Source**: RF 2
   - **Status**: Service has exclusive use of source

   ![LNB Settings]

   - **LNB Frequency**: 9750 MHz
   - **LNB Voltage**: 13V (vertical)
   - **22kHz**

   ![Tuner Settings]

   - **Frequency**: 11179 MHz
   - **Symbol Rate**: 30 MSym/s
   - **C/I Margin Alarm**: 2.2 dB
   - **MIS Enable**: Check
   - **MIS Stream ID**: 4
   - **Gold Code**: 131070

4. Set the **LNB** parameters.
   - **LNB Frequency**
   - **LNB Voltage**
   - **22kHz**

   **NOTE** 2 license key tokens (Max 4 inputs requires 8 tokens) are required to enable the higher order modulation schemes (16APSK and above) for each satellite input.
5. Set the **Tuner** parameters.
   - **Frequency**
   - **Symbol rate**
   - **C/N Margin Alarm**
   - **MIS enable**
   - **MIS Stream ID**
   - **Gold code**

6. Ensure that the **Source Status** is green (receiving) for existing sources, and that no errors occur. **Example:**

   ![Status Table]

   **Configuring the transport stream input for satellite**

   There are 4 independent satellite inputs. You can route a single satellite input to independent services, or to route a single input to multiple services.

   The satellite input option is compatible with:
   - **DVB-S (EN300-421)**
   - **DVB-S2 (EN302-307-1)**
• DVB-S2 extensions
• DVB-S2X (EN302-307-2)

DVB-S2 offers up to a 30% increase in data rate carriage for an equivalent link margin compared to what the older DVB-S standard can offer. This functionality is often partnered with MPEG-4 or HEVC compression to give bandwidth efficient distribution of high definition or ultra-high definition services.

DVB-S2X is an extension to the DVB-S2 standard and can provide up to 20% performance improvement compared to DVB-S2 and increase the efficiency of satellite links. This will enable an increase in video quality or an increase in the number of video services or a reduction in leased satellite bandwidth, bringing lower operational expenditure.

Configure transport stream input for ASI

Transport streams can be streamed into Content Processing over either Ethernet or ASI depending on the hardware fitted to the M1 server.

**Prerequisites:**
At least one service is configured.

1. Display services.
2. Click 
   to edit the service.
3. Select **ASI** for **Current input**.
   **Example:**

   ![Example](image)

   **NOTE** Packet size depends on the input format. For ASI options are either 188 or 204.

4. Configure the **TS packet size** and the **ASI** port.
5. Ensure that the **Source Status** is green (receiving) and that they're no errors (this only applies if the source currently exists).

Configure transport stream input for IP in unicast

Transport streams can be streamed into Content Processing over either Ethernet or ASI depending on the hardware fitted to the M1 server.

1. Display services.
2. Click 
   to edit the service.
3. Select **Unicast**.

   **Example:**

   ![Parameter Configuration Example](image1)

   **Result:** **Mcast IP address** is greyed out and a port parameter displays.

4. Enter the **UDP port** number for the incoming transport stream.

5. Select the Ethernet port for the **Interface** that the incoming transport stream is available on.

6. Ensure that the **Source Status** is green (receiving) and that they’re no errors (this only applies if the source currently exists).

### Configure transport stream input for IP in multicast

Transport streams can be streamed into Content Processing over either Ethernet (IP) or ASI depending on the hardware installation.

1. Display services.
2. Click ![Edit Service](image2) to edit the service.
3. Clear the **Unicast** check box and enter a **Mcast IP address**.

   **Example:**

   ![Parameter Configuration Example](image3)

   **NOTE** The Multicast parameter is greyed out if **Unicast** is selected.

4. Enter the **UDP port** number for the incoming transport stream.

5. Select the Ethernet port for the **Interface** that the incoming transport stream is available on.
6. Ensure that the **Source Status** is green (receiving) and that they’re no errors (this only applies if the source currently exists).

## Configure video decoding

Content Processing is designed to decode video, audio and data from an incoming transport stream.

**Prerequisites:**
**Inputs** are configured.

**NOTE** See **Decoding parameters** descriptions for additional information.

1. Display services.
2. Click ![edit service](image) to edit the service.
3. From the **Parameters** section, select the **Decoding** tab.
   **Example:**
   ```
   Parameters
   | Input | Decode | Output |
   -------------------------------
   | Selected Service | Service-1 |
   ```

4. Optional: Select a service from the **Selected Service** drop-down list to decode.
   **Result:** The first video and audio as listed in the service PMT are automatically decoded.

5. Check **Service Status**.
   **Example:**
   ```
   Status
<table>
<thead>
<tr>
<th>Service Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Service</td>
</tr>
<tr>
<td>PCR PID</td>
</tr>
</tbody>
</table>
   ```

   **Result:** The first video and audio as listed in the service PMT are automatically decoded. The service name and associated PCR PID are displayed in the Service status window.
6. Check the **Video Status**.
**Example:**

![Video Status Example](image)

**Result:** The video PID, component bit rate, codec being used, resolution, picture aspect ratio and frame rate are displayed in the **Video Status** window.

7. Check the **Input Monitor**.
**Example:**

![Input Monitor Example](image)

**Result:** A thumbnail of the decoded video is displayed in the **Input Monitor** window. The thumbnail is updated every 5 seconds.

8. Check the **Audio Status**.
**Example:**

![Audio Status Example](image)

**Result:** The audio PID, status and codec are displayed in the **Audio Status** window.

**TIP** Hover your cursor over the audio status to display the channel mode, language and component bit rate.
Configure audio decoding

Prerequisites:
• At least one service is configured.
• Video decoding is configured.

IMPORTANT A maximum of 16 audio components can be decoded simultaneously for each decoded video service.

1. Display services.
2. Click to edit the service.
3. From the Parameters section, select the Decode tab.
   Example:

4. Select Audio to display audio decode settings.
   Example:

Result: The first decoded audio is automatically given the reference name Audio 1. This reference is used when configuring the audio outputs.

5. Select an audio Input from the drop-down menu.
   Result: The PID and language of the audio being decoded are shown in the Input column once the configuration is saved.

6. Enter a PID value to be decoded.
   TIP You can choose to manually enter a PID.

Result: If the selected PID is present in the PMT then the Content Processing attempts to decode any available audio on the PID.

7. Optional: Add an audio to decode.
8. Select an **Output channel configuration** for each audio.

**NOTE** If the audio being decoded is an **MPEG-H audio component** then the **output channel configuration must be set to 16**. Otherwise all audio channels associated with the audio component are output as silence.

**Result:** Setting the output channel configuration also sets the number of embedded channels required for the SDI output. You can see the incoming audio stereo or 5.1 layout from the **Audio Status** window.

**IMPORTANT**
- 1 embedded channel for a Stereo pair.
- 3 embedded channels for a 5.1 service.
- If the audio being decoded is a **5.1 service** and **Stereo** is selected, then the audio will be down mixed to a Stereo pair.

---

**Add an audio to decode (optional)**

**Prerequisites:**
- At least one service is configured.
- **Video decoding** is configured.

**IMPORTANT** A maximum of **16 audio components** can be decoded simultaneously for each decoded video service.

1. Display services.
2. Click 🆕 to edit the service.
3. From the **Parameters** section, select the **Decode** tab.

**Example:**

<table>
<thead>
<tr>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
</tr>
<tr>
<td>Selected Service</td>
</tr>
</tbody>
</table>
4. Select Audio to display audio decoding parameters.
   **Example:**

   ![Audio decoding parameters](image)

   **Result:** The first decoded audio is automatically given the reference name Audio 1. This reference is used when configuring the audio components.

   **NOTE** See Decoding parameters descriptions for additional information.

5. Select an Input.
   **Result:** The PID and language of the audio being decoded are shown in the Input column.

6. Select an Output channel configuration.

### Decode all input audio (optional)

**Prerequisites:**
- At least one service is configured.
- At least one audio component is configured.

**IMPORTANT** A maximum of 16 audio components can be decoded simultaneously for each decoded video service.

1. Display services.
2. Click to edit the service.
3. From the Parameters section, select the Decode tab.
   **Example:**

   ![Decode tab](image)
4. Select Audio to display audio decoding parameters.
   Example:

   ![Audio Configuration](image)

5. Click Decode all input audio.
   **Result:** The audio components that are not currently being decoded are added in the order that they are listed in the PMT (up to a maximum of 16 decodes per service). The defaults channel configuration is Stereo.
   **NOTE** See Decoding parameters descriptions for additional information.

**Delete an audio from a decode configuration (optional)**

**Prerequisites:**
- At least one service is configured.
- Video decoding is configured.

**IMPORTANT** A maximum of 16 audio components can be decoded simultaneously for each decoded video service.

1. Display services.
2. Click 🍂 to edit the service.
3. From the Parameters section, select the Decode tab.
   **Example:**

   ![Decode Configuration](image)
4. Select the **Audio** tab to display audio decoding parameters.

   **Example:**

   ![Audio tab interface]

   - **Audio 1:** Name: 34 (eng), Input: Stereo
   - **Audio 2:** Name: Auto, Input: Stereo

5. Click to delete an audio component or click **Remove all decoded audio**.

   **Result:** The audio decode is now removed from both the list of decoded components and from any output configurations.

**Configure data decoding**

The section explains how to decode data in Content Processing that is carried on a separate PID.

Content Processing currently supports the following data types:

- Closed Captions
- Teletext
- Time code
- AFD
- Generic data

Data is carried within the transport stream in 1 or 2 possible ways, depending on the type of data.

1. Encapsulated in the video component as SEI (H.264 / H.265) or USER data (MPEG2)
2. On a separate data PID

   **IMPORTANT** A maximum of 8 data components can be decoded at any one time for each decoded video service.

1. Display services.
2. Click to edit the service.
3. From the **Parameters** section, select the **Decode** tab.

   **Example:**

   **NOTE** See **Decoding parameters** descriptions for additional information.
4. Select Data to display data decoding parameters.
   **Example:**
   
   ![Parameters Table]
   
   5. Optional: Add an additional data component to decode.
   6. Select an Input PID.
      
      **TIP** You can choose to manually enter a PID.
      
      **Result:** If the selected PID is present in the PMT then Content Processing attempts to decode any data on that PID.
   7. Select a Data type.

**Add a data decoding**

1. Display services.
2. Click to edit the service.
3. From the Parameters section, select the Decode tab.
   
   **Example:**
   
   ![Parameters Table]
   
   **NOTE** See Decoding parameters descriptions for additional information.
4. Select **Data** to display data decoding parameters.  
   **Example:**

   ![Parameters](image)

5. Click **Add data decode**.  
   **Result:** A new data displays in the list.  
6. Configure data decoding parameters.

### Decode all input data

**Prerequisites:**
- At least one service is configured.
- **Video decoding** is configured.

**IMPORTANT** A maximum of 16 audio components can be decoded simultaneously for each decoded video service.

1. Display services.  
2. Click to edit the service.  
   **Example:**

   ![Parameters](image)

   **NOTE** See [Decoding parameters](#) descriptions for additional information.
3. From the **Parameters** section, select the **Decode** tab.

   **Example:**
   
   ![Parameters section](image)

   - **Input**
   - **Selected Service**
   - **Video**
   - **Audio**
   - **Data**

   ![Add data decode](image)  ![Decode all input data](image)  ![Remove all input data](image)

   **Table:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Input PID</th>
<th>Data Type</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data 1</td>
<td>50</td>
<td>Teletext</td>
<td></td>
</tr>
</tbody>
</table>

4. Select **Data** to display parameters.

5. Click **Decode all input data**.

   **Result:** All the data components for the selected service that are not currently being decoded are added in the order that they are listed in the PMT (a maximum of 8 decodes per service). The default **Data type** is set to **Ancillary**.

### Delete data from a decoding configuration

**Prerequisites:**
- At least one service is configured.
- At least one data input is configured for decoding.

1. Display services.
2. Click ⌍ to edit the service.

   **Example:**
   
   ![Parameters section](image)  ![Decode all input data](image)  ![Remove all input data](image)

   **Table:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Input PID</th>
<th>Data Type</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data 1</td>
<td>50</td>
<td>Teletext</td>
<td></td>
</tr>
</tbody>
</table>
3. From the Parameters section select the Decode tab.

   Example:

   ![Parameters section](image)

   - Add data decode
   - Decode all input data
   - Remove all input data

4. Select **Data** to display data decoding parameters.
5. Click **X** to delete a data from the decoding or click **Remove all input data**.

**Configure Multichannel HD decoding**

Content Processing services can be set to either an HD or a UHD service type (other service types also exist).

**Functional Description**

- Each service is independently configured, and can be started, stopped, and edited without impacting other services.
- Any combination of HD video codec, frame rates or resolutions can be decoded (up to a maximum of 4 services).
- For a list of supported video standards see the **Supported decoding formats** section of this document.

**Set the Content Processing service type for a new service**

You can set the service type when you add a new Content Processing service.

---

**NOTE**

- Content Processing is capable of decoding either 1 UHD service, or up to 4 independent HD full bit rate services.
- If Content Processing is running a UHD service it cannot decode anything else at that time, even if the incoming video being decoded is an HD resolution.

1. Create new a Content Processing service.
2. Select the field for **Type** to display the menu options.

   Example:
   
   ![Type field example]

   **NOTE** See Decoding parameters descriptions for additional information.

3. Select a type, then click **OK**.

   **Result:** A new service is created with the selected service type.

**Edit a service type for an existing service.**

You can edit the service type for an existing Content Processing service.

**NOTE**

- Content Processing is capable of decoding either 1 UHD service, or up to 4 independent HD full bit rate services.
- If Content Processing is running a UHD service it cannot decode anything else at that time, even if the incoming video being decoded is an HD resolution.

1. Display services.
2. Click to edit a service.
3. Select the **Decoding** tab in the **Parameters** window.
4. Select the **Video** tab in the lower section of the **Parameters** window.

   **Example:**
   
   ![Parameters window example]

   **NOTE** See Decoding parameters descriptions for additional information.
5. Select the field for **Type** to display service type options.

**NOTE** If Content Processing is running multiple HD services, and one of the services is changed to UHD, then the UHD service will be stopped and blocked from restarting until all of the other HD services have been stopped.

### Set the SDI output port

When a new service is created the **SDI output interface** is always assigned to **SDI1**.

**IMPORTANT** If another service is already using this interface when you try to start the service then it will be blocked from starting until:

- an unused port is selected for the new service,
- or until the current running service is stopped,
- or until the service is reconfigured to avoid a clash.

If the service is blocked from starting for this reason, then the alarm icon displays the following alarm: **Insufficient Resources – SD 1 already in use**

1. Display services.
2. Click to edit the service.
3. Select the **Output** tab in the **Parameters** window.
4. Select the **Output interface** required from the drop down menu in the SDI window.

**Example:**

**NOTE** See **Decoding parameters** descriptions for additional information.

Result: Output interfaces that are already in use by other running services are listed in the drop down menu with the name of the service which is currently using them.

### Transport stream passthrough

The Rx1 supports up to a maximum of 4 independent ‘TS passthrough’ services. The incoming transport stream can be received via either the IP, ASI or Satellite interface and can be routed unaltered to the IP output interface. It is possible to decrypt up to 15 services from the incoming TS using BISS v1, BISS v2 or CAMs if fitted before the stream is routed to the output.
1. Display services.
2. Click **Add** service. 
   **Result:** A new window displays:

   ![Add Service](image)

   - **Name:** Passthrough 1
   - **Type:** TS passthrough
   - **Server:** Receiver1

3. Configure the following parameters:
   a. Enter a suitable **Name** for the service.
   b. Select the **Type** to be **TS Passthrough**.
   c. Select the **Server** to be Receiver to create and configure the service.

4. Click 📊 to edit the service.
5. See **Configure input for decoding (transport streams)** on page 20 for how to set up in the input interface to receive the incoming transport stream.
6. See **Configure decryption** on page 53 for how to decrypt any of the incoming service in the transport stream.

   **NOTE** A maximum of 15 services can be decrypted.

7. Select the **Output** tab from the **Parameters** window:
   **Result:** A new window displays:

   ![Parameters](image)

   - **Network interface:** eth1
   - **Stream address:** 235.0.0.1
   - **UDP port:** 5000
   - **Time to live:** 64

8. Configure the following parameters:
   a. Select the **Network interface** for the outgoing transport stream.
   b. Enter a **Stream address** (Multicast IP address) and **UDP port** number for the outgoing transport stream.
   c. Enter the **Time to live** for the outgoing data packets.
Configure output

The Content Processing is designed to output a decoded video component and related audio and data components.

Supported output formats

Output formats

<table>
<thead>
<tr>
<th>Format</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5G / 3G SDI</td>
<td>4 x 3G is required for UHD</td>
</tr>
<tr>
<td>12G SDI</td>
<td>1 x 12G is required for UHD</td>
</tr>
<tr>
<td>HDMI 2.0b</td>
<td>Available 2019</td>
</tr>
<tr>
<td>SMPTE 2022-6</td>
<td>Available 2019</td>
</tr>
<tr>
<td>SMPTE 2110</td>
<td>Available 2019</td>
</tr>
</tbody>
</table>

TIP See Supported decoding formats on page 21.

Configure UHD video output

UHD 4k video can be output in 2 different formats:
- Quadrant squared division (4 x 3G links only)
- 2 sample interleaved (4 x 3G or single 12G)

1. Display services.
2. Click 🎨 to edit the service.
3. From the **Parameters** section, select **Output** to display options.  

**Example:**

![Parameters section screenshot]

4. Select the **Link Mode** format required for the video output.
5. Set the **Clock Reference**.
6. Optional: Configure audio and data output accordingly.

**Set SDR / HDR signaling**

There are different industry standards for HDR. The standard to be transmitted must be signaled in the video output to display the output in the correct format, and for video monitoring purposes. The settings are either extracted from the data in the incoming transport stream, or configured manually in the User Interface.

**Applied standards:**

<table>
<thead>
<tr>
<th>Dynamic range type</th>
<th>Resolution</th>
<th>Industry standard applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDR</td>
<td>SD and HD</td>
<td>ITU-R recommendation BT.709</td>
</tr>
<tr>
<td>HDR</td>
<td>SDR UHD (3804 x 2160 pixels)</td>
<td>ITU-R recommendation BT.2020</td>
</tr>
</tbody>
</table>

**NOTE** The 2 main HDR standards used today are: PQ10 and HLG10.

To manually set the standard to be used for SDR or HDR signaling follow the steps below:

1. Display services.
2. Click ✎ to edit the service.
3. Select the **Output** Tab in the **Parameters** window.

**Result:** The **HDR / WCG signalling** control is displayed under the **SDI** tab.

**Example:**

---

**NOTE**

See output parameters descriptions for additional information.

---

4. Select a signaling option (see details below):

- Select **Follow input** to extract the video format from the incoming transport stream and to signal into SDI output.

**NOTE**

- **If the incoming format cannot be decoded:** A new service is signalled as SDR (BT.709).
- **If the format is successfully decoded and then is lost:** The last standard decoded is signaled into the SDI output.
- **If the video input is lost:** The last standard decoded is signaled into the SDI output and the output switches to a freeze frame of the last decoded picture.

- Select an SDR or HDR standard To override the incoming format set in the transport stream.

**Result:** The selected SDR / HDR signalling is inserted into the SDI output.

---

### Configure audio output

**Prerequisites:**

- At least one service is configured.
- A video service and at least 1 audio input has been configured to be decoded.

<table>
<thead>
<tr>
<th>Output Format</th>
<th>Number of audio channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5G SDI (720p / 1080i)</td>
<td>16 channels (8 stereo pairs)</td>
</tr>
<tr>
<td>3G SDI (1080p)</td>
<td>32 channels (16 stereo pairs)</td>
</tr>
</tbody>
</table>
### Output Format and Number of audio channels

<table>
<thead>
<tr>
<th>Output Format</th>
<th>Number of audio channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 3G SDI (2160p)</td>
<td>32 channels (16 stereo pairs) embedded in the first SDI output</td>
</tr>
<tr>
<td>12G SDI (2160p)</td>
<td>32 channels (16 stereo pairs)</td>
</tr>
</tbody>
</table>

### Output Format and Embedded options

<table>
<thead>
<tr>
<th>Output Format</th>
<th>Embedded options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5G SDI (720p / 1080i)</td>
<td>Embedded 1 to 8</td>
</tr>
<tr>
<td>3G SDI (1080p)</td>
<td>Embedded 1 to 16</td>
</tr>
<tr>
<td>4 x 3G SDI (2160p)</td>
<td>Embedded 1 to 16</td>
</tr>
<tr>
<td>12G SDI (2160p)</td>
<td>Embedded 1 to 16</td>
</tr>
</tbody>
</table>

**NOTE** See output parameters descriptions for additional information.

1. Display services.
2. Click 🖌 to edit the service.
3. From the Parameters section, select **Output** to display options.
4. Select **Audio** to open the tab and display options.
5. Optional: Add an audio if none are currently configured.
6. Select a **Component** from the drop-down list.
   **NOTE** Available audio components are based on the audio being decoded for the service.
7. Select an **Embedding** position from the drop-down list.
   **NOTE**
   - A single Embedded channel is required to output a stereo audio.
   - 3 Embedded channels are required to output a 5.1 audio.

**Result:** Each audio component is embedded into the output SDI at the selected position.

### Setting 3G SDI output level

The 3G-SDI output level is only used when outputting 1080p video signals. Either as a single HD service or as part of a quad 3G 4K service.

Level A maps the SMPTE ST 274 video directly into a 3Gb/s serial digital interface. Level B Dual-Link divides the 1080p picture into SMPTE ST 372 Dual-Link video streams and maps them into a 3Gb/s serial digital interface.

Level B Dual-Link divides the 1080p picture into SMPTE ST 372 Dual-Link video streams and maps them into a 3Gb/s serial digital interface.

1. Display services.
2. Click 🖌 to edit the service.
3. From the Parameters section, select **Decoding** tab.
4. Select a 3G-SDI Level.

Example:

![Parameters](image)

**NOTE** When 3G-SDI Level is set to Level B Dual Link, and the video format is 1080p or 2160p, the data will be inserted into the nth line of each field of the digital interface in Link A. For example, if set to Line 9, the data will be inserted into line 9 and line 572 of the digital interface of Link A.

**Configuring an SDI monitor on an HD service**

The SDI monitor port can be configured as a shared resource for all decoded HD services. The monitor port has the same configuration options as a standard SDI output port. Each decoded service can configure the output port as required.

**Prerequisites:**
At least one Rx1 service is configured.

1. Display services.
2. Click to edit the service.
3. From the **Parameters** section, select the **Output** tab.
4. Click + to add an SDI output.
5. Select the **SDI port 0 shared** for **Output interface**
   **Example:**

   ![Parameters](image1)

6. Configure the output port as required. See Configure output section of this guide for how to set the output options.

7. The Output status panel displays the current service using the monitor port. Pressing the Grab button switched the monitor to output the currently viewed service.
   **Example:**

   ![Output status](image2)

8. The monitor port can be switched off by viewing the Output status of the service using it and pressing the Release button.
   **Example:**

   ![Output status](image3)

**Configure multiple SDI outputs on an HD service**

It is possible to add multiple HD SDI outputs to a single decode up to a maximum of 4 main outputs plus a single monitor port, if no other decode is currently running on the unit. When a service is created a single SDI output is automatically assigned.
1. Display services.
2. Click to edit the service.
3. From the Parameters section, select to Output tab.
4. Click + to add an SDI output.

**Example:**

![Parameters Diagram]

5. Select the Output interface.

**IMPORTANT** If another service is already using this interface when you try to start the service then it will be blocked from starting until:

- an unused port is selected for the new service, or
- the current running service is stopped, or
- the service is reconfigured to avoid a clash, or
- the added Output interface is deleted. If the service is blocked from starting for this reason, then the alarm icon displays the following alarm: **Insufficient Resources – SD 1 already in use**

**Setting HDR to SDR conversion on the SDI monitor**

It is possible to convert an incoming HD video standard coded with PQ10 or HLG10 to BT.709 color space.

**Prerequisites:**
Service has been configured to contain an HD monitor output.
The playout timing of each SDI output frame can be adjusted (advanced or delayed) in single pixel increments relative to the external frame sync.

1. Display services.
2. Click to edit the service.
3. Select the **Output** tab in the **Parameters** window.
4. Select the **SDI** tab configured as **SDI port 0 shared**.
5. Select **Convert to BT.709** from the **Dynamic range signalling** drop down menu.

   **Example:**

   ![Parameters Window](image)

   **NOTE** If the incoming video is already BT.709, the signal will be passed through unaltered.

### Add an output audio component

**Prerequisites:**
- At least one service is configured.
- A video service and at least 1 audio component is configured to be decoded.

1. Display services.
2. Click 🖌 to edit the service.
3. From the **Parameters** section, select **Output** to display options.

   **Example:**

   ![Parameters Window](image)
4. Select **Audio** to open the tab and display options.
5. Select **Add component**.
   **Result:** An audio component displays.
6. **Configure audio output** parameters.

**Add all output audio**

**Prerequisites:**
- At least one service is configured.
- A video service and at least 1 audio component is configured to be decoded.

1. Display services.
2. Click ‌ to edit the service.
3. From the **Parameters** section, select **Output** to display options.
   **Example:**

   ![Parameters section](image)

4. Select **Audio** to open the tab and display options.
5. Select **Add all**.
   **Result:** All the decoded audio components that are not currently included in the output audio configuration are added to the component column (up to a maximum number of embedded channels available for the output video format in use). Embedded channels are allocated in sequence until all available channels are filled.

**Delete an output audio**

**Prerequisites:**
- At least one service is configured.
- A video service and at least 1 audio component has been configured to be decoded.

1. Display services.
2. Click ‌ to edit the service.
3. From the Parameters section, select Output to display options.

Example:

4. Select Audio to open the tab and display options.

5. Select

Result: The audio component no longer displays.

Delete all output audio

Prerequisites:
• At least one service is configured.
• A video service and at least 1 audio input has been configured to be decoded.

1. Display services.
2. Click 🖋 to edit the service.
3. From the Parameters section, select Output to display options.

Example:

4. Select Audio to open the tab and display options.

5. Select Remove all

Result: All the audio components are now removed from the list of output configurations.
Configure data output

Data is embedded into the VANC (Vertical Ancillary) lines of the SDI output. It is possible to embed more than one data type onto a single VANC line.

Prerequisites:
- At least one service is configured.
- The service to be decoded has been selected from the Selected Service list in the Input tab.

Content Processing currently supports the following data types:
- VITC / Time code
- AFD / BAR
- Closed Captions
- OP-47 Teletext
- SMPTE 2031 Teletext
- Generic data

NOTE: See output parameters descriptions for additional information.

1. Display services.
2. Click to edit the service.
3. From the Parameters section, select Output to display options.
   Example:

   ![Parameters section]

   4. Select Data to open the tab and display options.
5. Select the **Line number** from the drop-down menu.
   **Result:** Each selected data component (if present on the incoming transport stream) is now either decoded from a data PID or is extracted from User data or SEI in the video elementary stream.
   **NOTE** Generic data is automatically reinserted into the same line it came in.

**Disable data output**

**Prerequisites:**
- At least one service is configured.
- The service to be decoded has been selected from the **Selected Service** list in the **Input** tab.

1. Display services.
2. Click 🆕 to edit the service.
3. From the **Parameters** section, select **Output** to display options.
4. Select **Data** to open the tab and display options.

   **Example:**

   ![Image of Status and Parameters sections]

5. Select **Off** from the drop-down menu for each data that you want to disable.
   **Result:** Once disabled, the data is no longer embedded into SDI outputs.
Configure decryption

BISS decryption modes

BISS v1 and v2 has two modes: Mode 1 and Mode E. These modes are specified in EBU Tech 3292 May 2002. RX1 offers these standard BISS decryption modes.

NOTE
- If a service is received without decryption, or if a service is received with a service BISS encrypted with the key entered, then the service is be decrypted and all components are output from the RX1.
- If a service is received with any other type of encryption, or with BISS encryption generated with a different key, then the decoder cannot decode the service.

Mode 1

This mode is recommended for short events, such as sports broadcasts. Mode 1 uses a fixed control word to encrypt the data in the Transport Stream using the DVB Common Scrambling Algorithm.

This control word or key, known as the clear session word (CSW), is entered into the receiver using the web interface. If the same CSW has been entered into a BISS compliant encoder: the unit decrypts the encrypted service.

The decryption work-flow:
1. Generate a random 12 digit hexadecimal for BISS v1 or a 32 digital hexadecimal number for BISS v2
2. Enter the number into the encoder
3. Communicate the number securely to all decrypting decoders

Mode E

Mode E encrypts using an internal fixed 14 digit hexadecimal Injected ID for BISS v1 or an internal fixed 32 digit hexadecimal Injected ID for BISS v2. This mode is a more secure version of Mode 1. In this mode the clear session word (CSW) is encrypted to prevent clear keys from being used to access encrypted content.

NOTE The Encrypted CSW is also referred to as the ESW (Encrypted session word)

The decryption work-flow:
1. Generate a random 16 digit hexadecimal number for BISS v1 or a 32 digit hexadecimal number for BISS v2
2. Enter the number into the encoder
3. Communicate the number securely to all decrypting decoders Mode E is used to provide a secure content link from one encoded source to the Rx1 where the original CSW is hidden.

Mode E is used to provide a secure content link from one encoded source to the Content Processor where the original CSW is hidden.
Setting BISS to mode 1

1. Display services.
2. Click 🏷️ to edit the service.
3. Select the Decrypt tab in the Parameters window.
   Example:

   ![Parameters](image)

   - BISS Mode
   - BISS Key

4. Select Mode 1 for BISS mode.
5. Enter the 12 digit hexadecimal number for BISS v1 or the 32 hexadecimal number for BISS v2 provided for the transmission.

   **Result:** The BISS key is visible while the key is being entered. Once complete, then the value of the key displays as **********.

   **NOTE**
   - If a service is received without decryption, or if a service is received with a service BISS encrypted with the key entered, then the service is be decrypted and all components are output from the Content Processor.
   - If a service is received with any other type of encryption, or with BISS encryption generated with a different key, then the decoder cannot decode the service.

Set BISS to mode E

1. Display services.
2. Click 🏷️ to edit the service.
3. Select the Decrypt tab in the Parameters window.
   Example:

   ![Parameters](image)

4. Select Mode E for BISS mode.
5. Enter the 16 digit hexadecimal number for BISS v1 or the 32 digit hexadecimal number for BISS v2 provided for the transmission.
   **Result:** The BISS key is visible while the key is being entered. Once complete, then the value of the key displays as **********.
   **NOTE**
   • If a service is received without decryption, or if a service is received with a service BISS encrypted with the key entered, then the service is be decrypted and all components are output from the Content Processor.
   • If a service is received with any other type of encryption, or with BISS encryption generated with a different key, then the decoder cannot decode the service.

### Setting the injector ID for BISS mode E

**Prerequisites:**
Retrieve the 14 digit injector ID number for BISS v1 or the 32 digit injector ID number for BISS v2 from your administrator.

**IMPORTANT**
• It is impossible to read back the set value once you configure the Injected ID number.
• For added security we recommended that the Injected ID is set by generating the ESW in the RX1 web interface. See Set BISS to mode E.

1. Connect to the RX1 unit using one of the following options:
   • Use an SSH connection
   • Connect a mouse and keyboard directly to the unit
2. Use the login credentials below:
   • Username: mfeng
   • Password: 2u4y&C
3. Using a command prompt, enter the following command: SetBissInjectedID
   **Result:** The following message displays: Please enter the BISS injector ID.
4. Enter the 14 digit Injector ID provided for BISS v1 or the 32 digit Injector ID provided for BISS v2.

### Setting delay mode

1. Display services.
2. Click to edit the service.
3. Open the Decoding tab in the Parameters window.
4. Select a **Delay mode**.  
   **For more information on Delay modes see here:** Decoding delay modes (latency) on page 20

**Example:**

![Parameters Diagram]

---

**NOTE**  
Low delay mode has been designed and tested to ensure an optimized error free minimum end to end delay. If a problem occurs trying to decode a valid input transport stream, please try Standard and Compatibility delay modes before raising a support request.

---

**Audio auto select decoding**

Auto decode applies to audio components for a selected service. The audio components are automatically decoded and embedded into the output SDI that are configured as stereo channels. Components are decoded and embedded in the output in the order that they appear in the PMT.

**IMPORTANT** Audio auto decode can be applied for a maximum of 16 audio components per service.

**New audio components**

- New audio components appearing in the incoming service are decoded and embedded in the output in the order that they appear in the PMT.
- If a new component is presented in the PMT before any existing components then all existing components after the new component in the PMT are embedded into a different audio channel on the SDI output.
- If the number of channels exceeds 16, then the last existing component in the PMT is no longer be decoded and removed from the output SDI.

**Removed audio components**

- Any audio component that is removed from the incoming service will be deleted from the SDI output.
- Any audio components presented after a removed component in the PMT are embedded into a different audio channel on the SDI output.

**Set Auto Select mode for audio decoding**

1. Display services.
2. Click 🖍️ to edit the service.
3. Select the **Decoding** tab in the **Parameters** window.
4. Select the **Audio** tab.
   
   **Example:**

   ![Parameters window with Decoding and Audio tabs selected](image)

5. Select the **Auto select** check box.
   
   **Result:** All audio components present on the incoming service are automatically decoded and output as stereo components.

---

### Decrypting incoming services with a Common Interface module

**Common Interface** (DVB-CI) provides a descrambling solution using integrated descrambling PCMCIA cards, sometimes referred to as a **Conditional Access Module** (CAM). CAMs are available in many different CA types and have varying advantages.

Consumer CAMs may only be able to descramble one service and this service may limited to no more than two components (PIDs). A Professional CAM may be able to decode multiple services and multiple components per service.

Analysis is required to define a suitable CAM for each system. The Content Processing module can be configured to provide 2 PCMIA slots to insert CAMs.

**NOTE**  
Content Processing currently only supports CI with Transport Streams up to 72 Mbps.

**Multi-service descrambling**

Content Processing has the ability to descramble multiple services from a single incoming MPTS and then decode up to 4 HD services, depending on the capabilities of the CAM fitted.

**Example:**

4 CAM modules are required to descramble and decode 4 encrypted services from 4 independent incoming transport streams

---

### Configure service decryption

**Prerequisites:**
Content Processing must have a CI card must with the correct CAMs and viewing cards.
1. Display services.
2. Click to edit the service.
3. Select the Decrypt tab for the Current Input.
4. Select the CAM slot to be used to decrypt the incoming service.

**Example:**

![Diagram](image)

**Result:** The incoming service is decrypted using the selected CAM. An alarm is triggered if the CAM is unable to decrypt the incoming service.

**Explore CAM information**

CAM information varies per vendor and between different versions of the same CAM. You can set parameters such as the CA PIN or Language. You can see the model number, versions and CAM status.

1. Display services.
2. Click to edit the service.
3. Select Decrypt for the Current Input.
4. Select the **Explore CAM** to see information for the selected **CAM slot**.

**Example:**

![CAM Menus: Conax Conditional Access](image)

[Image: CAM Menus: Conax Conditional Access]

### Reset the CAM

You can trigger a soft reboot of a selected CAM.

**IMPORTANT** Resetting the CAM causes a brief outage in the output SDI.

1. Display services.
2. Click ![edit] to edit the service.
3. Select **Decrypt** for the **Current Input**.
4. Select ![reset] to reset the selected **CAM slot**.
CHAPTER 4

Managing Solutions
Manage input redundancy

Configure secondary transport stream input

For each service it is possible to set up a ‘Primary’ and ‘Secondary’ (backup) input.

**Switching to secondary (backup) servers is either automatic or manual depending on the following contexts:**

Switching to secondary (backup) servers is either automatic or manual depending on the following contexts:

The secondary input can be configured as either active or passive.

When set up as a passive input. Although the secondary hardware resource is reserved when configured, it only becomes active when:
- The primary input fails
- Or when you manually switch to the secondary input. If the Secondary input fails, the input is not automatically switched back to the Primary.

When set up as an active input. The secondary input receives the incoming transport stream and reports its current status. Active / Active redundancy will have a quicker switch time however will use more unit resource.

If the Secondary input fails, the input is not automatically switched back to the Primary.

**NOTE** Depending on the hardware installed, the same input options (IP, ASI or Satellite) with the same configuration parameters are available for the secondary input as the primary input.

1. Display services
2. Click to edit.
3. Set the **Redundancy mode** to **Active Passive** or **Active Active**.

   **Example:**

   ![Parameters](image)

4. Set the **Signal loss timeout** to the amount of time from when an input error is detected before the Content Processing attempts to switch to the secondary.

   **NOTE** If the input error is cleared before the end of the Signal timeout the redundancy switch is aborted and the service will continue to use the Primary input.
5. Select the **Secondary** tab to configure the parameters.

6. Save and continue.

**Result:** A secondary input is configured to provide a backup input source if the Primary source fails.

**NOTE**
A 20 second delay occurs from the moment you save in order to initialize the redundancy configuration. Any loss of input or alarms raised on the Primary input during this time does not cause a switch.

---

**Manually switch between primary and secondary inputs**

You can trigger a switch manually between the primary and secondary inputs if the input status shows good health.

**Prerequisites:**
The service is configured with **Redundancy Mode** set to **Active Passive**.

1. Display services
2. Click \( \equiv \) to edit.
3. Click \( \equiv \) to switch the input source.

**Example:**

![Status Interface](image-url)
Manage services

Display services

Services are listed in a table and are associated to a specific processing type. Service parameters and options depend on the processing type.

Prerequisites:
At least one service is configured.

1. Click **Services** in the left-side menu panel.

   **TIP** The **Services** page is also available from **Home > Services**.

   **Result:** The table of services displays.

2. Optional: Edit the number of rows displayed or use the search bar to filter the display.

Create a service

Service configurations vary per processing type. See the specific product user guide for detailed information about service creation.

1. **Display services**.
2. **Click Add Service**.
   **Example:**

   ![Add service button]

3. Select a **processing type**.
   **Result:** The service parameter options display.
4. Configure the service parameters.

**IMPORTANT** Parameters vary per processing type.

5. **Assign a server** to the service.

**NOTE** Multiple servers may be assigned to a same service.

6. Use the buttons in the action column to start or stop the service.

### Assign a server to run the service

Services require a server to run. Select a server for each service before starting the service.

1. Display services.
2. Click the field in the **Mandatory** column to display available servers.
3. Enter a server name or select a server from the list, then repeat for each service to run.
4. Optional: Click to display service details and to monitor the service.
5. Optional: Start the service.

### Assign additional servers to a service

You can assign additional servers to a service to help with load balancing. Encoding services are launched on the primary server. When the first server in the pool of servers becomes saturated, the additional servers are used for encoding and job processing.

1. Display services.
2. Enter a server name or select a server from the list, then repeat for each service to run.

**Example:** This configuration below is an example and may not apply to all processing types.

<table>
<thead>
<tr>
<th>Processing Type</th>
<th>State</th>
<th>Alarm</th>
<th>Resources</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalog</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vod Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** The service runs processes on the first server in the pool. Then, uses any additional resources in the pool if the first server is overloaded, or is in error.

3. Optional: Click to display service details and to monitor the service.
4. Optional: Start the service if it is not currently running.

### Unassign a server from a service

Services require a server to run. Select a server for each service before starting the service.
1. Display services.
2. Click X to remove.

   **Example:**
   ![Image](image_url)

   **Result:** The server is removed and is unassigned from the service.

---

### Export a service configuration

Exported service configurations are for importing onto a different MediaKind system. This is useful for product or production support, or testing (parameters and expected function).

**IMPORTANT** Exports exclude the service state (started or stopped).

Importing service configurations may require manually starting or stopping other services.

1. Display services.
2. Click ![Export](image_url) to export.

   **Result:** A file downloads to the Web browser default location.

   **IMPORTANT** The download date in the file name is in the following format: YYYY/MM/DD

---

### Import a service

Import a single service to a different server where the service is not currently configured. Import files must match expected formatting requirements.

**Prerequisites:**
A .json for the service is available. (see the Export Service section)

**NOTE**
- Services on a same server require unique service names.
- Only import the service to a server where the service DOES NOT currently exist.

1. Display services.

   **REMEMBER** Files for import are retrieved from a service export from a different server.

2. Click **Import service**...
3. Click **Select file** to browse for the .json file previously exported for this service.

   **Example:**

   ![Import Service dialog]

4. Click **Import**.

   **Result:** The service imports and appears in the list of services.

---

### Start a service

Services can be started and stopped manually from the **Services** page.

**Prerequisites:**
At least one service has been created and is available in the list of services.

1. **Display services.**
2. Click the field in the **Server** column to assign the service to a server.

   **NOTE**
   Multiple servers may be added for a same service.

3. Click to launch the service.

   **Result:** The **Status** is **started**.

   **NOTE**
   If an alarm is raised:
   - Click to display all alarms.
   - Alarm colors are based on severity.

---

### Stop a service

**IMPORTANT** Stopping a service cancels any jobs in progress.

1. **Display services.**

   **TIP**
   Use the **rows per page** or the **search bar** to filter multiple services and to find a specific service.

2. Click in the **Actions** column to stop the service.

   **Result:** You are prompted to confirm.
3. Click Yes, Stop it!
   
   **Result:** The service stops running and the service status displays *stopped*.

---

**Delete a service**

Deleting a service removes a service from the list of available services.

**Prerequisites:**

A service exists.

1. Display services.
2. Click 🗑️ in the Actions column to delete the service.
3. Click Yes, delete it! to confirm.
   
   **Result:** The service is now removed from the services table and is no longer available.
Manage servers

Display servers

Servers are listed in a table. You can view server settings and usage statistics per server.

1. Click **Servers** from the left-side **Menu** panel.
   
   **Result:** The table of servers displays.

2. Optional: Edit the number of **rows displayed** or use the **search bar** to filter the display.

Display server information (system)

Check server functions and performance to manage server and service allocation, or to view license information. System settings and information displays for each server.

1. Display servers.

2. Click **•** in the **Actions** column to view server information.
   
   **Result:** Information based on the server type displays.

3. Click the tabs to display server information.
   
   • General
   • System Settings
   • Statistics
   • Licenses

   **Example:**

   ![General parameters](image-url)
System administration

System center

Management and administration features for failover, users, backup, and restore are available in the System Settings menu ( ).

Backup and restore

Backup and restore configurations

Backups include services, server definitions, and locally defined users. You can back up your configurations to restore a previous configuration (for upgrades or rollbacks or after a server crash, etc.)

**NOTE**
- Access to configurations is blocked while a backup or restore is in progress.
- Up to 30 backup files are supported for local backups.
- The oldest backup is deleted once 30 backups are detected.

Backup database configurations

Create a backup of MediaKind configurations to save a version locally or on a remote server.

Display backup MediaKind database options

Back up the MediaKind configuration to a local or remote server. Backups include services, servers, and users. Backups are time-stamped.

1. Click in the upper-right corner of the screen.
   **Result:** The System Center menu displays.
2. Select Backup.
   **Result:** The Backup Controller Database options display.
Create a local backup

Local backups of MediaKind settings are still accessible even when no remote access is possible. Backups only include the list of servers, services, and user configurations.

1. Display backup options.
   
   **Example:**

   ![Backup Location](image)

   - Local Backup
   - Remote Backup (secure FTP)
   
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>ftpserver-4backups</td>
</tr>
<tr>
<td>Port</td>
<td>21</td>
</tr>
<tr>
<td>Path</td>
<td>controller</td>
</tr>
<tr>
<td>Username</td>
<td>ftplogin</td>
</tr>
<tr>
<td>Password</td>
<td>**********</td>
</tr>
</tbody>
</table>

   **NOTE**
   - The Host, Port and Path are only required for a remote backup.
   - FTPS is also authorized.

   **Result:** Local Backup is selected by default.

2. Click Backup now.
   
   **Result:** The backup is stored on the local drive.

Create a remote backup

Create remote backups to restore MediaKind settings from a remote server using FTP or FTPS.

1. Display backup options.

2. Select Remote backup.
   
   **Result:** Required fields are highlighted.
3. Enter the required remote backup settings information.

**NOTE** FTPS is also authorized.

Example:

<table>
<thead>
<tr>
<th>Backup Location</th>
<th>Scheduled Backup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Backup (secure FTP)</td>
<td></td>
</tr>
<tr>
<td>Host*</td>
<td>ftpserver-4backups</td>
</tr>
<tr>
<td>Port*</td>
<td>150</td>
</tr>
<tr>
<td>Path*</td>
<td>c:users\desktop\backup</td>
</tr>
<tr>
<td>Username</td>
<td>ftlogin</td>
</tr>
<tr>
<td>Password</td>
<td>.......</td>
</tr>
</tbody>
</table>

**IMPORTANT** Editing the backup file storage location impacts scheduled backups.

4. Click **Backup Now**.

**Schedule an automatic backup (periodic)**

Set a schedule to back up the MediaKind database on a regular basis: monthly, weekly or daily. Backup guard times may impact backup availability.

1. Enable the scheduled backup.
2. Select the backup schedule time.

**NOTE** The time stamp is based on the current time on the Controller server.

3. Open the **Backup Location** tab to set the backup file storage settings, if they are not currently configured.
4. Save and exit.

**Restore configurations**

Restore configurations for recovery or troubleshooting. You must have already created a local or remote backup in order to restore. Backups are selected based on the backup time stamp.

**IMPORTANT**
- The Database is **inaccessible until the restore completes**.
- Only one restore can be launched at a time.
- Alarms and statistical data are not restored because they are dynamic.
- The alarms banner is not displayed until the restore completes.
Display restore options

You can restore the MediaKind database configuration from existing local or remote backups.

1. Click in the upper-right corner of the screen.
   Result: The System Center menu displays.
2. Select Restore.
   Result: The Restore Controller Database page displays.

Restore configurations from a remote backup

1. Display restore options.
2. Select Remote Backup.
3. Select a Year > Month > Backup.
   NOTE
   • Available backups are time-stamped.
   • Be aware of backup guard time configurations to ensure availability.

   Example:

   ![Remote Backup Selection](image)

4. Click Restore.
   IMPORTANT The Controller is unavailable to all users until the restore completes.

Restore configurations from a local backup

1. Display restore options.
   Result: Local Backup is selected by default.
2. Expand the Backup drop-down list to display available backups, then select a backup to restore.
   NOTE
   • Available backups are time-stamped.
   • Be aware of backup guard time configurations to ensure availability.
3. Click Restore.
   
   **Result:** All users are temporarily assigned to the Monitoring user group until the restore completes or is terminated.

---

### User management

#### Manage users

Administrators have rights to create users and assign groups. User groups reflect different user roles with specific permissions. Permissions authorize access to MediaKind applications, menus and features.

**IMPORTANT** Menu options depend on your processing type and product installation.

---

#### User groups

A user group is a set of access rights and permissions. Permissions authorize users to either display or edit configurations. Users are assigned to at least 1 user group. A user can be assigned to multiple groups.

**NOTE** New users are automatically assigned to the Monitoring group.

#### User group permissions

There are 3 default user groups. Permissions are either Read (R), Write (W), or Read and Write (R/W). Yes means the user group can carry out the action, but may be limited to specific options.

**IMPORTANT** User group options depend on your processing type and product installation.

<table>
<thead>
<tr>
<th></th>
<th>Admin</th>
<th>Configuration</th>
<th>Monitoring</th>
<th>API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>R/W</td>
<td>R/W</td>
<td>R</td>
<td>R/W</td>
</tr>
<tr>
<td>Servers</td>
<td>R/W</td>
<td>R/W</td>
<td>R</td>
<td>R/W</td>
</tr>
<tr>
<td>Templates</td>
<td>R/W</td>
<td>R/W</td>
<td>R</td>
<td>R/W</td>
</tr>
<tr>
<td>Failover</td>
<td>R/W</td>
<td>R/W</td>
<td>R</td>
<td>R/W</td>
</tr>
<tr>
<td>Alarms and Stats</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Settings</td>
<td>R/W</td>
<td>N/A</td>
<td>N/A</td>
<td>R/W</td>
</tr>
<tr>
<td>Restore</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### Display the list of users

1. Click in the upper right corner of the window.
2. Select **User Management**.
   **Result:** The **User Administration** page displays.
3. Select **Users**.
   **Result:** The list of users displays.
   **TIP** Scroll to the end of the list to display the total number of users.

### Create a new user

The MediaKind Controller is a single access point for MediaKind products. Administrators manage users, groups and permissions from the system center.

1. **Display users.**
2. **Select Add User.**
   **Result:** You are prompted to enter User information.
3. **Enter the User information.**
   - **Username**
   - **Password**
   **IMPORTANT**
   - An Admin user can edit or create other Admin users and profiles, including passwords and permissions.
   - **Password** is case sensitive.
4. **Select a Save option.**
5. **Assign a user to a group** to manage user access rights and permissions.
   **Result:** By default, new users are assigned to the **Monitoring** group.

### Assign a user to a group

Groups are a set of access rights and permissions. Permissions authorize users to either display or edit configurations. Give a user access rights by assigning the user to a group.

1. **Display users.**
2. **Click the user in the list to display user information and permissions.**
3. Scroll to **Permissions** and use the arrows to add the group to the list of **Chosen groups**.

   **Example:**
   ![Permissions screenshot]

   **TIP** You can add multiple groups, or click **Choose all** to assign the user to all available groups.

   **Example:**
   ![Choose all screenshot]

4. Click **Save**.

**Link LDAP or Active Directory**

The MediaKind Controller can be linked with an external server (LDAP or *ActiveDirectory*) to identify and authenticate users. If activated, the authentication page displays before granting access to the **Home** page.

**NOTE**
- The LDAP connection parameters are defined in a dedicated configuration file.
- If using LDAP, then the MediaKind Controller neither stores nor manages user passwords that are managed by the external LDAP server.
- Users defined on the external server can coexist with locally defined users.

See the Installation manual for LDAP configuration procedures.

**Result:** When users are first installed from the LDAP or *ActiveDirectory* server, they are automatically assigned to the Monitoring group. Administrators can **edit user groups** to **manage permissions** and access rights.

**Edit user information**

1. Display users.
2. Select a **User**.
3. Edit the user information:
   
   **NOTE** An Admin user can edit or create other Admin users and profiles, including passwords and permissions.
   
   • Username
   • Password
   • Personal information
   • Permissions

4. Select a save option to continue or exit.

**Edit a user password**

Any user can edit their password, but only users with admin or configuration permissions can edit passwords for other users.

1. Display the list of users in the System Center.
2. Click the current Admin user from the list to edit.
3. Click the link as shown in the example below to change the password.
   
   **Example:**

   ![Change User](image)

   **Username:**
   `admin`

   `Required. 30 characters or fewer. Letters, numbers and @/=+/-. characters`

   **Password:**
   `algorithm pbkdf2_ske256 iterations: 30000 salt: 2B120Yabcdef1f277418d98
   Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using the form.`

4. Optional: Edit user profile settings, then **Save**.

**Save options for user management**

<table>
<thead>
<tr>
<th>Save Option</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save</td>
<td>the user is added to the list</td>
</tr>
<tr>
<td>Save and continue</td>
<td>additional user information displays (groups and permissions)</td>
</tr>
<tr>
<td>Save and add another</td>
<td>user is added to the list and the add user page is refreshed to add another new user</td>
</tr>
</tbody>
</table>
License management

Manage licenses

MediaKind solutions offer flexible licensing models. Each model depends on your solution and installation options. A service can be configured but can only be processed for a limited period of time without a license (grace period).

License servers and installation

The license manager is a micro-service application installed on a server, or on 2 servers if in redundancy mode. By default, the Controller hosts this application that is identified by a Licensing processing type.

The license manager may also run on dedicated servers for very large configurations.

<table>
<thead>
<tr>
<th>TIP</th>
<th>View license details per feature to display:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• license usage per feature</td>
</tr>
<tr>
<td></td>
<td>• license codes</td>
</tr>
<tr>
<td></td>
<td>• license expiry dates in Universal Time (UTC)</td>
</tr>
</tbody>
</table>

Display license details

There is a license code per feature. Licenses are required for features and options in the MediaKind solution and have expiry dates.

<table>
<thead>
<tr>
<th>IMPORTANT</th>
<th>Licenses are managed by a License Manager.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The License Manager is a micro-service application installed by default on the Controller server or a dedicated license server.</td>
</tr>
<tr>
<td></td>
<td>• There may be more than one license server if your solution is installed in redundancy.</td>
</tr>
</tbody>
</table>

1. Display servers.
   Result: The servers display.

2. Click ☐ for the server with the Licensing processing type.

| NOTE | The Licensing processing type may display for the Controller server if the licensing manager is installed on the same machine as the Controller. |
3. Select the **Licenses** tab.  

**Example:**

![Image of License Management Interface]

**Result:** The license information displays.

**NOTE:** All time stamps are in Universal Time (UTC).

### Request license file

This is your first time connecting to your MediaKind user interface and you want to request a license file.

1. Display license details.  

**Result:** The licensing information displays for the specific server.

2. Copy the locking code, including the asterix (*) and paste into the email or file you plan to send to MediaKind.  

**Example:**

![Image of License Management Interface]

**IMPORTANT** In redundant solutions:

- Multiple locking codes display per server.
- Provide both locking codes.
3. Copy and paste the LAC reference number for your Software Handling Community to the same file or email and send to your MediaKind representative.

**NOTE** The LAC reference number and the Software Handling Community details are in the software Delivery Note. See software installation package.

### Import license file

New license files are available from the support center.

**Prerequisites:**
- The new license file needs to be available on the machine.
- Only configuration and admin users can import license files.

1. **Display the license details.**
   **Result:** The licensing information displays for the specific server.

2. **Click Import license > Select file** to browse and select the file to import.
   **Example:**
   ![Image](image-url)
   **Result:** A summary displays.
   **TIP** If an error occurs, keep a copy of the error number and contact support.

### Revert to the previous license file

This feature is helpful when solving import errors that restrict license use. **Only use if MediaKind support staff approves a revert.**

1. **Display the license details.**
2. **Click Discard last import.**
   **Example:**
   ![Image](image-url)
   **Result:** You are prompted to confirm.
3. **Click OK** to confirm.
   **Result:** The last license file import is discarded and the previous file is used.

### Display license token usage

Use the **Reports** menu to review the Encoding On-Demand license usage.
License information details

License information displays in a table. View information on license usage and availability per feature. Find license codes (FAT codes) for administration and support.

NOTE: All time stamps are in Universal Time (UTC).
Manager alarms and events

Alarm icons and alarm state descriptions

Alarm icons use a color code to indicate levels of severity. Alarms may trigger different automatic system responses, like failover. Certain intended, manual actions may trigger a notification event, like when you manually start or stop a service.

Color codes for alarm and event states

- **Alarms**
  - critical
  - major
  - minor
  - information

- **States**

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>raised</td>
<td>An alarm is active and triggered. Service may be stopped or the server is down.</td>
</tr>
<tr>
<td>cleared</td>
<td>The issue related to the alarm is resolved. This includes restoring services after a failover to a backup server, even if the primary server is down.</td>
</tr>
</tbody>
</table>

Types of alarms

Different pages are dedicated to specific alarm displays. For example, the **Alarms** page is a centralized alarm overview, the **Service alarms** page displays alarms for the specific service, and the **Failover alarms** page displays alarm and event overviews.

**NOTE**
- The alarm display is automatically refreshed every few seconds.
- All **time stamps are in Universal Time (UTC)**.

Alarms page

The alarms page centralizes all alarms and events into a table. The Alarms page is a general alarms overview. See Service alarms or Failover alarms for more specific alarm information.

**NOTE**
- The **alarm display** is automatically refreshed every few seconds.
- All **time stamps are in Universal Time (UTC)**.
Display Alarms page for all alarms and events

The Alarms page is an overview of all alarms and events.

NOTE See Service alarms page or the Failover alarms page for specific alarm information.

1. Display alarms from the menu panel to access all Active alarms and the Alarm history.
   Example:
   ![Active Alarms and Alarm History]

2. Display Services and click to display alarms for a specific service.
   NOTE The Alarm icon is the color of the active alarm with the highest level of severity.
   Example: If the highest level of severity for all active alarms for the service is major, then
   the icon is yellow.

3. Use the shortcuts in the banner to display alarms for a specific severity.
   Example:
   ![Alarms with shortcuts]

4. Use the sort options in the table headers or the search bar to filter on specific alarms, services or servers.

Display alarm history for all active alarms

The alarm history for all alarms displays in a tab in the Alarms page.

NOTE By default, the alarm history is stored for 7 days.

1. Click Alarms from the left-side menu.
   Example:
   ![Alarms from left-side menu]

2. Click Alarm History to view the history for all alarms.

3. Use the sort options in the table headers or the search bar to filter on specific alarms, services or servers.
Service alarms page

You can access the alarms for a specific service from the **Services** page. An icon in the **Alarms** column indicates that there is at least one alarm for the service. Alarm icons use a color code. The color of the alarm icon in the Alarms column is based on the highest severity alarm known for that service.

An alarm status icon displays per service in relation to the alarm with highest severity for that service. More than one alarm may exist for a single service.

**NOTE**
- The **alarm display** is automatically refreshed every few seconds.
- All **time stamps are in Universal Time (UTC)**.

Display service specific alarms page

The service specific alarms display in a dedicated page that also displays the alarm history for the service.

1. Display **Services**.
2. Click the alarm icon in the **Alarms** column.

**Result:** The service alarms display and the alarm history displays in a table below the list of active alarms.

---

Failover alarms page

If a failover group exists, then certain critical alarms may trigger a failover. You can check alarms for failover groups, and then drill down to alarms to investigate servers and related services.

In the **Failover group page**, the alarm with the highest severity (in relation to the servers in the failover group) displays in the **Alarm Status** column.

**NOTE**
- The **alarm display** is automatically refreshed every few seconds.
- All **time stamps are in Universal Time (UTC)**.

Display failover alarms page

The failover alarms page displays alarms and the alarm history for servers in a failover group.

1. Display the **Failover** page from the left-side menu panel.
2. Click the alarm icon in the **Alarm Status** column.
   
   **Example:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Processing Type</th>
<th>Alarm Status</th>
<th>Running State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demo_group</td>
<td>Live Encoding</td>
<td>A</td>
<td>Backups in use</td>
</tr>
</tbody>
</table>

   **Result:** The alarms for the failover group displays. You can use failover alarms to determine if a server in the failover group has an alarm, and then if there are service alarms for services running on that server.

**Alarm forwarding (SNMP)**

SNMP alarm forwarding requires you to define a destination where alarms are sent.

**Display the list of SNMP destination configurations**

1. Click ☰ to display the system center menu.
2. Click **Settings**
   
   **Result:** The **SNMP notifications** display.
3. Optional: Use the search options or column filters to browse the SNMP notification configurations.
   
   **Example:**

   ![SNMP Notifications](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Destination address</th>
<th>Port</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trap destination 1</td>
<td>192.168.1.1</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td>Trap destination 2</td>
<td>192.168.1.1</td>
<td>162</td>
<td></td>
</tr>
</tbody>
</table>

4. **Add a new SNMP destination**
   
   1. Click ☰ to display the system center menu.
2. Click **Settings**
3. Click **Add destination**
   
   **Result:** The SNMP destination parameters display.
4. Enter the parameters to configure the destination and the SNMP version.

**NOTE**

**Example:**
SNMP destination setup

![SNMP destination setup](image)

5. Optional: Select **active** to activate the SNMP notification, or clear to deactivate.

**NOTE** The **active** option also displays in the table where SNMP configurations are listed.

**Example:**

![SNMP Notifications](image)

6. Save settings to return to the list of SNMP configurations.

**Edit SNMP destination configurations**

1. Click 🏛️ to display the system center menu.
2. Click **Settings**
3. From the **SNMP notification** tab, click 🛠️ to display SNMP destination parameters.
4. Edit the parameters and save.

**NOTE** The parameters that display depend on the SNMP version.

**Example of an SNMP v3 configuration**

The parameters that display to edit SNMP destinations depend on the version of the SNMP.
Activate/deactivate SNMP notifications

1. Click  to display the system center menu.
2. Click Settings
3. From the SNMP notification tab, click  to display SNMP destination parameters.
   **Example:**
   
   ![SNMP destination setup]
   
   4. Select the check box to activate or clear to deactivate.

Delete an SNMP destination server

1. Click  to display the system center menu.
2. Click Settings
3. From the SNMP notification tab, click  to delete the SNMP destination configuration.
   **Result:** You are prompted to confirm and delete.
Alarm override

You can manually override alarm severity levels. You can also view the alarms that trigger failover. You can filter the alarms using the search bar.

**NOTE** Changing the **Triggers failover** value impacts the possibility of a failover occurring.

Display alarm override options

The alarm override feature requires specific user rights.

1. Click **Alarms** in the left-side menu panel.
2. Click **Alarm overrides** to display options.

Result: The following page displays.

![Alarm overrides interface](image)

Override an alarm severity

You can change the alarm severity to either critical, major, minor or notice. The initial default severity displays in the **Alarm overrides** tab if you need to revert to the initial default severity setting.

**IMPORTANT** Changes to severity are only applied to future occurrences. Any current or previously existing alarms are unchanged.

1. Click **Alarms** in the left-hand menu panel.
2. Click **Alarm override** to display options.
   **Result:** The following page displays.

   ![Alarm override screen](image)

   *Active alarms, Alarm history, Alarm overrides*

<table>
<thead>
<tr>
<th>Label</th>
<th>Current severity</th>
<th>Default severity</th>
<th>Trigger failover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to server lost</td>
<td>major</td>
<td>critical</td>
<td>yes</td>
</tr>
<tr>
<td>Input audio silent</td>
<td>notice</td>
<td>critical</td>
<td>no</td>
</tr>
<tr>
<td>Network input is backed up</td>
<td>notice</td>
<td>major</td>
<td>no</td>
</tr>
</tbody>
</table>

3. Click the **Current severity** for the specific alarm to display options.
   **Example:**

   ![Current severity example](image)

   *Active alarms, Alarm history, Alarm overrides*

<table>
<thead>
<tr>
<th>Label</th>
<th>Current severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to server lost</td>
<td>major</td>
</tr>
</tbody>
</table>

   **Result:** A list of severity options displays.

4. Select a severity from the list.

   **WARNING** Changing the severity may increase or decrease the possibility of failover occurrence.

   **Example:**

   ![Severity selection example](image)

   *Active alarms, Alarm history, Alarm overrides*

<table>
<thead>
<tr>
<th>Label</th>
<th>Current severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to server lost</td>
<td>notice</td>
</tr>
</tbody>
</table>

   **Result:** The **Current severity** changes.

**Reset the alarm severity to the default setting**

Alarm severity can be manually changed. You can reset the alarm severity to the default setting. Changing the **Triggers failover** value impacts the possibility of a failover occurring.
**IMPORTANT** Changes to severity are only applied to future occurrences. Any current or previously existing alarms are unchanged.

1. Click **Alarms** in the left hand menu.
2. Click **Alarm override** to display options.
   
   **Result:** The following page displays.

   ![Alarm overrides](image)

3. Click the **Current severity** for the specific alarm to display options.
   
   **Example:**

   ![Example](image)

   **Result:** A list of severity options displays.
   
   **Example:**

   ![Example](image)

4. Select a severity from the list.
   
   **WARNING** Changing the severity may increase or decrease the possibility of failover occurrence.
   
   **Result:** The **Current severity** changes.
Message queue error (rabbitmq-server)

The error message "Message queue was force started" displays for this alarm. By default this alarm is a minor error. If this error occurs then you may be required to try and diagnose and recover from the error. This error is linked to a known bug (48579).

Why did this error occur?

Within a HA system the message queue (rabbitmq-server) service may fail to start correctly after both Controller nodes have been powered down and only one recovers. This may happen, for example, in the event of a power cut or large network failure. Controller detects this issue and restarts the message queue.

How do I diagnose and resolve this error?

1. Carry out the following checks to diagnose and resolve the error:
   a. Ensure both controllers are powered on and connected to the network.
   b. Ensure the arbiter and both controllers can all contact each other.
   c. On the command line or each controller type:

   ```
   mongo
   rs.status()
   ```

   **Result:** You should see a list of the primary, secondary and arbiter nodes. Look for all members to display "health:1"

   d. On the command line of each controller type: o rabbitmqctl cluster_status
      **Result:** The output should show both controllers as running nodes.

   e. If a controller node does not show both controllers running, reboot that controller.

   **Result:** If the check above show problems then do not run the script below, and contact support.

2. If the diagnostic and reboot is successful, then run the following script on the controller where the alarm was raised to clear the message:

   `/opt/ericsson/controller/setup/clear_rabbitmq_alarm.sh`

Events

Events are displayed in the Alarms page. Events notify you of actions that do not impede proper functioning.

An example of an event when you intentionally start or stop a service.
Display alarms

Check alarm details for services or failover groups.

1. Display the list of items that have an alarm.
   
   Example:
   
   - Services

2. Click the alarm symbol in the Alarm Status column.
   
   **NOTE** The alarm icon is only clickable for service alarms.

   **Result:** The Alarms page displays. Alarm information may vary depending on service type.
   
   **NOTE** All time stamps are in Universal Time (UTC).

License management

Manage licenses

MediaKind solutions offer flexible licensing models. Each model depends on your solution and installation options. A service can be configured but can only be processed for a limited period of time without a license (grace period).

License servers and installation

The license manager is a micro-service application installed on a server, or on 2 servers if in redundancy mode. By default, the Controller hosts this application that is identified by a Licensing processing type.

The license manager may also run on dedicated servers for very large configurations.

**TIP** View **license details per feature** to display:

- license usage per feature
- license codes
- license expiry dates in **Universal Time** (UTC)
Display license details

There is a license code per feature. Licenses are required for features and options in the MediaKind solution and have expiry dates.

**IMPORTANT**
- Licenses are managed by a License Manager.
- The License Manager is a micro-service application installed by default on the Controller server or a dedicated license server.
- There may be more than one license server if your solution is installed in redundancy.

1. Display servers.
   **Result:** The servers display.

2. Click for the server with the **Licensing** processing type.
   **NOTE** The Licensing processing type may display for the Controller server if the licensing manager is installed on the same machine as the Controller.

3. Select the **Licenses** tab.
   **Example:**

   ![License Management Interface](image)

   **Result:** The license information displays.
   **NOTE** All time stamps are in Universal Time (UTC).

Request license file

This is your first time connecting to your MediaKind user interface and you want to request a license file.

1. Display license details.
   **Result:** The licensing information displays for the specific server.
2. Copy the locking code, including the asterix (*) and paste into the email or file you plan to send to MediaKind.

   Example:

   ![Image of Locking Codes]

   **IMPORTANT** In redundant solutions:
   - Multiple locking codes display per server.
   - Provide both locking codes.

3. Copy and paste the LAC reference number for your Software Handling Community to the same file or email and send to your MediaKind representative.

   **NOTE** The LAC reference number and the Software Handling Community details are in the software Delivery Note. See software installation package.

---

**Import license file**

New license files are available from the support center.

**Prerequisites:**
- The new license file needs to be available on the machine.
- Only configuration and admin users can import license files.

1. **Display the license details.**

   **Result:** The licensing information displays for the specific server.

2. **Click Import license > Select file** to browse and select the file to import.

   **Example:**

   ![Image of License Import]

   **Result:** A summary displays.

   **TIP** If an error occurs, keep a copy of the error number and contact support.
Revert to the previous license file

This feature is helpful when solving import errors that restrict license use. Only use if MediaKind support staff approves a revert.

1. Display the license details.
2. Click Discard last import.
   
   **Example:**

   ![License Details](image)

   **Result:** You are prompted to confirm.

3. Click **OK** to confirm.
   
   **Result:** The last license file import is discarded and the previous file is used.

Display license token usage

Use the **Reports** menu to review the Encoding On-Demand license usage.

License information details

License information displays in a table. View information on license usage and availability per feature. Find license codes (FAT codes) for administration and support.

**NOTE** All time stamps are in Universal Time (UTC).
Manage external links

Using external links

**Prerequisites:**
At least one link is configured.

1. Select **External links** from the left side menu panel.
   
   **Example:**
   
   ![External links example]

   **Result:** All available links display.

2. Select the link.
   
   **Result:** Depending on the link configuration, either a page opens in a new tab, or in the current open window.

Create an external link for third party tools

**Prerequisites:**
You must have the correct user rights to create an external link.

**NOTE**
- For security or brand enforcement, some external sites prevent themselves from being embedded.
- Controller cannot detect these kinds of pages.
- **If a page does not display when Embedded is selected:** Clear the **Embedded** check box and try again.

1. Click to expand the **Settings** menu in the upper right corner of the screen.
2. Click ☐ to access the Settings page.
   **Result:** The following page displays:

<table>
<thead>
<tr>
<th>SNMP Notifications</th>
<th>External Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add destination</td>
<td></td>
</tr>
<tr>
<td>Search in table</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Destination address</td>
</tr>
<tr>
<td>Rows per page: 20</td>
<td></td>
</tr>
</tbody>
</table>

3. Click the **External Links** tab to display options.

4. Click **Add external link**
   **Result:** The following options display:

   - Name:
   - URL:
   - Embedded:

5. Enter the **Name** and **URL**.

6. Click **Embedded** if you want the link to open in the same window as the application.
   **NOTE** If **Embedded** is left blank, then the link opens in a new tab.

7. Click **External Links** in the left side menu to display links.
   **Example:**

<table>
<thead>
<tr>
<th>SNMP Notifications</th>
<th>External Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add External Link</td>
<td></td>
</tr>
<tr>
<td>Search in table</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>URL</td>
</tr>
<tr>
<td>my_dashboard</td>
<td><a href="http://137.58.63.177/">http://137.58.63.177/</a></td>
</tr>
<tr>
<td>Rows per page: 20</td>
<td></td>
</tr>
</tbody>
</table>
Delete an external link

**Prerequisites:**
You must have the correct user rights to delete an external link.

1. Click 📚 to expand the **Settings** menu in the upper right corner of the screen.
2. Click 📚 to access the **Settings** page.
   **Result:** The following page displays:
   ![External Links tab](image)
   - **Add External Link**
   - **Search in table**
   - **Name** | **URL**
     - my_dashboard | http://137.58.68.177/
   - **Rows per page:** 20

3. Click the **External Links** tab to display options.
4. Click 🗑️ to delete.
   **Result:** A confirmation pop-up displays.
5. Click **Delete**.
   **Result:** The link no longer displays in the list and is no longer available from the left side **External Links** menu.
CHAPTER 5

Parameter descriptions
Input parameters and statuses

Input parameters vary depending on the **Current input** type.

### IP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current input</strong></td>
<td>Select an input type: IP, ASI, Satellite</td>
</tr>
<tr>
<td><strong>Unicast</strong></td>
<td>Set input stream to be unicast</td>
</tr>
<tr>
<td><strong>NOTE:</strong></td>
<td>In <strong>Unicast</strong> mode, the control is read only.</td>
</tr>
<tr>
<td><strong>Stream address</strong></td>
<td>Input stream unicast or multicast IPv4 address</td>
</tr>
<tr>
<td><strong>IGMPv3 source filtering</strong></td>
<td>IGMP source IPv4 address. List of addresses using a comma to separate, or leave empty to disable source-specific multicast</td>
</tr>
<tr>
<td><strong>UDP Port</strong></td>
<td>Port used to capture the input stream</td>
</tr>
<tr>
<td><strong>Network interface</strong></td>
<td>Name of the network interface used to capture the input stream</td>
</tr>
</tbody>
</table>

### ASI

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current input</strong></td>
<td>Select an input type: IP, ASI, Satellite</td>
</tr>
<tr>
<td><strong>TS packet size</strong></td>
<td>Set 188 or 204 byte packets</td>
</tr>
<tr>
<td><strong>Port</strong></td>
<td>Port used to capture the input stream</td>
</tr>
</tbody>
</table>

### Satellite

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current input</strong></td>
<td>Select an input type: IP, ASI, Satellite</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>Status indicating if the source input is shared with other services</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Select RF input</td>
</tr>
<tr>
<td><strong>LNB frequency</strong></td>
<td>The LNB frequency (low noise block down-converter) in MHz input up to 3 decimal places used with the satellite dish. Typically a value of 9750 MHz or 10600 MHz would be used to cover the satellite KU band frequency range 11.70 GHz-12.75 GHz. With this value correctly entered and with the satellite frequency entered the IRD can calculate the frequency of the wanted signal at L-band present on the input connector.</td>
</tr>
</tbody>
</table>
LNB voltage: Voltage supplied to LNB. Allows the user to turn the voltage off or to set the LNB to one of the following different LNB voltages:
- 13v (Vertical polarization)
- 18v (Horizontal polarization)

22kHz: LNB band select. Check to select LNB high band. Clear the check box to select LNB low band. This check box enables the LNB 22 kHz signal to be activated. Enabling the 22 kHz tone will command the LNB to switch to its high band local oscillator frequency.

Frequency: The satellite input downlink frequency. This will normally be within the C-band or Ku-band frequency range. Alternatively, if the LNB LO Frequency was entered as 0 MHz the user can manually calculate and directly enter the wanted L-band frequency.

Symbol rate: The symbol rate in MSymbols/sec. This field should be entered with the symbol rate of the wanted signal.

C/N Margin Alarm: Carrier to noise margin alarm threshold in dB.

MIS Enable: Enable multiple input stream (MIS) filtering using the configured MIS stream ID. Multiple Input Stream (MIS) filtering is not applicable to DVB-S mode. Multiple Input Streams allows multiple independent transport streams in one satellite carrier. When enabled a single transport stream is filtered out of the baseband frames based upon the MIS Stream ID (ISI). This should be disabled for single stream carriers.

MIS Stream ID: The input stream ID (ISI) to be used when MIS is enabled. Defines the Input Stream ID (ISI) filter value when the MIS filter is enabled. Only streams with this ISI value will be output, thus a non-matching ISI value will result in zero bit rate being detected by the unit and will raise TS Unlock alarms.

Gold Code: The Gold code sequence seed. The gold sequence code is the seed for a randomizing sequence which can be used to uniquely identify the owner of the transmission. The satellite input will only lock to the incoming signal when the gold code entered into the IRD matched the code set in the up-link modulator. For this reason, the Gold Sequence will often be used as a form of fixed key CA.
## Status

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source status</strong></td>
<td>Shows whether the input has a transport stream present and the number of services present on the incoming transport stream</td>
</tr>
<tr>
<td><strong>CC errors</strong></td>
<td>Number of transport stream packets that had continuity count (CC) errors. Each CC error indicates one or more missing transport stream packets for a particular PI</td>
</tr>
<tr>
<td><strong>FEC corrected packets</strong></td>
<td>Number of transport stream packets that have been corrected by forward error correction (FEC) on the input interface</td>
</tr>
<tr>
<td><strong>FEC lost packets</strong></td>
<td>Number of transport stream packets that were detected by forward error correction (FEC) as lost on the input interface</td>
</tr>
<tr>
<td><strong>Bit rate</strong></td>
<td>Total bit rate of the incoming transport stream</td>
</tr>
<tr>
<td><strong>Signal strength</strong></td>
<td>Input signal strength dBm</td>
</tr>
<tr>
<td><strong>Bit error ratio</strong></td>
<td>Number of bit errors divided by total number of bits</td>
</tr>
<tr>
<td><strong>FEC errors</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery system</strong></td>
<td>Satellite delivery system</td>
</tr>
<tr>
<td><strong>Roll off</strong></td>
<td>Enables the selection of a roll-off rate from a drop-down menu.</td>
</tr>
<tr>
<td></td>
<td>The DVB-S modulation standard is fixed to 35%.</td>
</tr>
<tr>
<td></td>
<td>The DVB-S2 modulation standard provides the options:</td>
</tr>
<tr>
<td></td>
<td>20%, 25%, 35%.</td>
</tr>
<tr>
<td></td>
<td>Tighter roll-offs (20%, 25%) allow a higher symbol rate to be used within a given allocated bandwidth.</td>
</tr>
<tr>
<td></td>
<td>The DVB-S2X modulation standard provides the options:</td>
</tr>
<tr>
<td></td>
<td>5%, 10%, 15%, 20%, 25% and 35%.</td>
</tr>
<tr>
<td><strong>Pilot</strong></td>
<td>Pilot tone presence</td>
</tr>
<tr>
<td><strong>Inversion</strong></td>
<td>Spectral inversion</td>
</tr>
<tr>
<td><strong>Modulation</strong></td>
<td></td>
</tr>
</tbody>
</table>
Decode parameters and statuses

Decoding

- **Service**
  - Select the service to decode

- **Delay mode**
  - The delay mode of the service, one of Compatibility
  - **Default**: Standard

Video

- **Service type**
  - The type of service
  - **Example**: UHD or SD/HD

Audio

- **Auto Select**
  - Auto select audio streams. This disables manual selection

- **Input**
  - Select a PID to decode from the incoming stream or manually enter a PID value to decode

- **Output channel configuration**
  - Select the output audio format from the decoder
  - **Example**: Stereo / 5.1 / 16

Data

- **Input**
  - Select a PID to decode from the incoming stream or manually enter a PID value to decode

- **Data type**
  - Select the data format to be decoded
  - **Example**: Ancilliary / Teletext

Service status

- **Selected service**
  - Program number (and service name if present)

- **PCR PID**
  - Numeric value PCR PID being used for the reference clock to decode the selected service

Video status

- **PID**
  - Numeric value of the PID being used to decode the video from the incoming transport stream

- **Rate**
  - Elementary stream rate of the video being decoded
Codec Video codec being used to decode the video
Chroma Format of chrominance samples
   Example: 4:2:2 or 4:2:0
Bit depth Number of bits precision in each luminance/chrominance sample
Resolution Video resolution being decoded
Aspect ratio Signalled aspect ratio of the video being decoded
   Example: 4:3 or 16:9
Frame rate Frame rate of the video being decoded
   Example: 25Hz / 29.97Hz / 50Hz / 59.94Hz

Audio Status

Audio X Displays status as OK or Error the audio PID being decoded, the audio codec being used, the channel mode and the bitrate

Status

SFP Slot1 Displays SFP type
SFP Slot2 Displays SFP type
# Decrypt parameters

<table>
<thead>
<tr>
<th><strong>BISS Mode</strong></th>
<th>The BISS decryption mode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example:</strong></td>
<td>Mode 1 or Mode E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>BISS Key</strong></th>
<th>The BISS key to decrypt the service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range:</strong></td>
<td>0-9 or A-F</td>
</tr>
</tbody>
</table>

---

**Related Concepts**

BISS decryption modes on page 53

BISS v1 and v2 has two modes: Mode 1 and Mode E. These modes are specified in EBU Tech 3292 May 2002. RX1 offers these standard BISS decryption modes.
CAM parameters

**CAM slot**  
Selects the CAM to be used for decrypting the incoming service to be decoded.

**Explore CAM**  
Extracts the status information and allows setting CAM manufacturer parameters.

**Reset CAM**  
Resets the CAM in the selected spot.
Output parameters and status

**General**

**Configuration name**
The name of the Receiver Configuration

**SDI**

**Link mode**
Select either Quadrant or Interleaved output video format for UHD output

**Output interface**
The SDI output port

**Dynamic range signalling**
Transfer characteristics and colorimetry

**Dynamic range conversion**
If incoming stream contains high dynamic range video content, convert it to standard dynamic range video on this output. If the incoming stream is already SDR, then conversion is silently bypassed.

**Clock reference**

**Audio**

**Component**
Select which decoded audio to embed in the SDI output

**Embedding**
Select the position where the audio component will be embedded in the SDI output

**Add component**
Add a single entry to the list of audio components

**Add all**
Add all decoded audio components to the list of embedded audio components

**Remove all**
Remove all entries from the list of embedded audio components

**Data**

**VITC/Time code**
If present at the input, VITC / time code information will be inserted in the output SDI at the selected line number

**AFD/BAR**
If present at the input, AFD (Active Format Description) information will be inserted in the output SDI at the selected line number

**Closed captioning**
If present at the input, closed captions information will be inserted in the output SDI at the selected line number
OP-47 teletext  If present at the input, OP-47 teletext information will be inserted in the output SDI at the selected line number

SMPTE 2031 teletext If present at the input, SMPTE 2031 teletext information will be inserted in the output SDI at the selected line number

**Status**

**SFP Slot1**  Displays SFP type  
**Example:** 3G / 12G / HDMI

**SFP Slot2**  Displays SFP type  
**Example:** 3G / 12G / HDMI

**Clock Reference**

**Clock reference**  Select either an internal free running clock or to lock to an external black and burst or 10Mhz studio clock.
Backup parameters

**Host**  Remote server Hostname or IP address.
**Possible values:** 32 characters max

**Port**  IP Port for the secure FTP or FTPS connection.
**Possible values:** 1 to 65535
**Recommended value:** 21

**Path**  Backup file storage directory on the remote server. This path is a relative path, and must exist on the remote server.
**Possible values:** 128 characters max

**Username**  For the secure FTP connection. Must be a valid secure FTP or FTPS server user.
**Possible values:** 16 characters max

**Password**  Allows the configured username to connect to the secure FTP server.
**Possible values:** 16 characters max

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**Related Concepts**

*Backup and restore configurations* on page 69

Backups include services, server definitions, and locally defined users. You can back up your configurations to restore a previous configuration (for upgrades or rollbacks or after a server crash, etc.)
## Failover parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group name</td>
<td>Enter a unique failover group name for your selected primary and backup servers.</td>
</tr>
<tr>
<td>Group processing type</td>
<td>Select the processing type to display compatible servers.</td>
</tr>
<tr>
<td>Group mode</td>
<td>In Automatic mode, the system triggers a server failover when a critical alarm occurs (manual triggers are still possible).</td>
</tr>
</tbody>
</table>

### Related Tasks

- Create a failover group
License parameters

**Licensing server status**

started: the server is running and available.

**Licensing version**

License software version installed on the license server.

**Feature**

Processing options per processing type.

**Code**

The license code used to identify the feature.

**Expiry**

The date when the feature is no longer available unless the license is renewed.

**Usage**

The current use of licenses in relation to the total of available licenses.

**Count**

The total licenses currently used in relation to the total of available licenses.

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**Related Concepts**

[Manage licenses](#) on page 77

MediaKind solutions offer flexible licensing models. Each model depends on your solution and installation options. A service can be configured but can only be processed for a limited period of time without a license (grace period).