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Every reasonable attempt has been made to comply with all licensing requirements for all components used in the system. Any oversight is unintentional and will be remedied if brought to the attention of Harmonic at support@harmonicinc.com.

Documentation Conventions

This guide may use some special symbols and fonts to call your attention to important information. The following symbols appear throughout this guide:

- **DANGER:** The Danger symbol calls your attention to information that, if ignored, can cause physical harm to you.

- **CAUTION:** The Caution symbol calls your attention to information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.

- **LASER DANGER:** The Laser symbol and the Danger alert call your attention to information about the lasers in this product that, if ignored, can cause physical harm to you.

- **NOTE:** The Note symbol calls your attention to additional information that you will benefit from heeding. It may be used to call attention to an especially important piece of information you need, or it may provide additional information that applies in only some carefully delineated circumstances.

- **IMPORTANT:** The Important symbol calls your attention to information that should stand out when you are reading product details and procedural information.

- **TIP:** The Tip symbol calls your attention to parenthetical information that is not necessary for performing a given procedure, but which, if followed, might make the procedure or its subsequent steps easier, smoother, or more efficient.

In addition to these symbols, this guide may use the following text conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typed Command</td>
<td>Indicates the text that you type in at the keyboard prompt.</td>
</tr>
<tr>
<td><code>&lt;Ctrl&gt;</code>, <code>&lt;Ctrl&gt;+&lt;Shift&gt;</code></td>
<td>A key or key sequence to press.</td>
</tr>
<tr>
<td>Links</td>
<td>The <em>italics in blue</em> text to indicate Cross-references, and hyperlinked cross-references in online documents.</td>
</tr>
<tr>
<td>Bold</td>
<td>Indicates a button to click, or a menu item to select.</td>
</tr>
<tr>
<td>ScreenOutput</td>
<td>The text that is displayed on a computer screen.</td>
</tr>
<tr>
<td>Emphasis</td>
<td>The <em>italics</em> text used for emphasis and document references.</td>
</tr>
</tbody>
</table>

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Chapter 1
Introduction to DMS

Broadcasters and content providers can use the Harmonic Distribution Management System (DMS) to control large device populations and monitor their RF statuses. It allows flexible device or group addressability, entitlements and authorization management as well as over-the-air (OTA) in-band control of content distribution network elements such as ProView™ 7000\(^1\) and ProView™ 8000 receivers. The DMS solution is ideal for content distribution to operators, affiliates and service providers, as well as distribution for digital terrestrial TV services.

DMS enables secure broadcast of video content over satellite or IP delivery networks, ensuring the delivery of content to authorized recipients only. DMS 3.5 provides individual or group entitlement control using Verimatrix embedded descrambling, CAS. DMS is based on open standards such as DVB SimulCrypt. The ProView 7000 and ProView 8000 have a module based DVB-CI descrambler.

DMS maintains a database of all receivers in the network enabling you to manage individual and groups of receivers (in-band) with a return channel to monitor alarms and RF inputs. It can store customized information about each receiver. You can filter lists to view receivers and affiliates with common attributes.

DMS can perform the following on ProView receivers:

- Upgrade Firmware (7000 and 8000)
- Activate Firmware (7000 and 8000)
- Reboot Devices (7000 and 8000)
- Update Configuration (RF tuning, port selection, decoding channel selection and more) (7000)
- CA Entitlement and subscriber management (Verimatrix CAS) (7000)
- Schedule events for automated operation (7000 and 8000)

DMS performs validation checks on immediate and scheduled commands, this provides the operator ample time to take corrective action in case of any inconsistencies.

You can monitor events and commands in the system. Alarms and alerts draw your attention to events that may require your response. The Dashboard enables you to see multiple elements at the same time for monitoring and information purposes.

The DMS is a client-server based system and you can set up additional DMS Client PCs locally or remotely for operating or monitoring. Hot and cold DMS server redundancy is supported, see the server redundancy manual for instructions.

If you are a first time user you should proceed to Chapter 2, Start Up and GUI Introduction then proceed to one of the following: Affiliates Management, Import Affiliates, Chapter 9, Distribution Network Setup, Chapter 10, Processing Profiles, Chapter 12, Setup.

\(^{1}\) All references to the ProView 7000 include the ProView 7100 unless the ProView 7100 is specified.
Chapter 2
Start Up and GUI Introduction

The following topics describe how to get started and how to use the GUI:

- **Hardware Setup**
- **Running the DMS Client**
- **The DMS GUI**

**Hardware Setup**

Harmonic recommends you use the ProStream 1000 to multiplex the DMS output data.

To connect the DMS:

- Connect one Ethernet cable to the rear panel socket labeled **Gb1** and to the management switch for CAS and remote clients.
- Connect one Ethernet cable to the rear panel socket labeled **Gb2** and to the mux input for streaming the DMS control data.

**Running the DMS Client**

Use a DMS client for DMS database administration of receivers and to send commands to receivers.

To run the DMS client:

1. Double-click the **DMS Client** icon on the Desktop.
   - If your version of Windows prompts you to select firewall permissions, select all permissions.
2. Enter the **Server** name or IP address.
3. Login with the default Username: **admin** and no password.

   The DMS GUI displays.

---

**NOTE:** The Server name should only be used if the DMS Client is on the DMS server.

**The DMS GUI**

The DMS GUI is a very versatile GUI, see *Figure 2–1* for a sample layout. There is a **Quick Launch** toolbar at the very top of the window. The ribbon near the top of the window contains the main menu items on four tabs, namely:

- Home
- Configuration
- Setup
- Help

The DMS window comprises mainly of panels, that you can freely re-position and re-size, and tabs. At the bottom left of the window there is the **Alarm panel launch** button, use it to launch the alarm panel.
The following display in the bottom right hand side of the window:

- The current user name – hover over the user name to display the user role
- The server IP address
- The server time

**Related Topics**

- **Panels**
- **Open Panels Overview**
- **The Dashboard Panel**
- **The Groups Panel**
- **The Device Browser Panel**
- **The Device Properties Panel**
- **Schedule Panel**
- **The Service Plan Panel**
- **RF Panel**
Chapter 2 Start Up and GUI Introduction

The DMS GUI

Figure 2–1: DMS GUI with the Dashboard
Panels
The DMS GUI comprises multiple panels. The Dashboard panel displays in the DMS window by default.

Customizing Panels
You can drag panels in the upper part of the DMS window to the lower part of the window and you can drag panels in the lower part of the DMS window to the upper part of the window using the panel title bar.

You can float panels with the floating gadget and set them to auto-hide with the auto-hide gadget, see Figure 2–2.

To resize panels:
- Drag the dotted handle in the middle of the panel bar.

To collapse panels:
- Double-click the gray area below the panel title bar.

Searching in Panels
You can search for text that matches any column in the Device Browser panel.

NOTE: Some devices must display in the Device Browser and one of them must be highlighted.

To search for text in the Device Browser panel:
1. Click on the panel.
2. Press <Ctrl> + <F>.
   
   A search box displays at the bottom of the panel.
3. Enter search text in the Find field.

Column Order
You can change the order of columns by dragging the column headings past each other.

NOTE: In the current release the application does not save the column positions when you exit it.

Column Display
Right-click any column heading to view a drop-down menu which enables you to select which columns to display or hide and to resize.

If there are too many columns to fit comfortably on the screen then you can de-select the Fit to Screen drop-down menu item which causes a horizontal scroll bar to appear.
Column Sorting

Use column sorting to sort lists according to select list columns to select specific device populations for applying commands or defining groups. The device list is sorted by default according to device name in ascending order.

To sort a list according to a column in descending order:
- Click on a column header.
  An arrow displays in the column header to indicate the sort order.

To sort a list according to a column in ascending order:
- If the column header has a sort arrow pointing upwards, click once on the column header,
  if the column header has no sort arrow, click twice on the column header.

To remove a sort:
- If the column header has a sort arrow pointing downwards, click once on the column header,
  if the column header has a sort arrow pointing upwards, click twice on the column header.

To sort a list according to several columns:
1. Click on the column header for the primary sort.
2. Hold the Control key and click on more column headers for secondary sorting.
   Sequential numbers display in each column header to indicate the sort weights.

Open Panels Overview

You can display an overview of all open panels, including those reduced to a tab, and jump to an open panel.

To jump to an open panel:
1. Click the triple panel icon on the Quick Launch toolbar, see Figure 2–1.
   A property sheet displays with a list of all open panels.
2. Double-click a panel name to jump to the respective panel
   —or—
   click a panel name and double-click the panel preview.
The Dashboard Panel

The Dashboard is an aggregative view to monitor the system, including system events, active commands, alarms and others. You can customize it by selecting and arranging the elements to view. The Dashboard elements’ layouts and configurations are stored on your client machine. For element details see The Dashboard Panel.

The Dashboard can occupy all the screen below the Ribbon, or share it with the Groups and or lower screen panels. The Dashboard displays by default when you open the client.

To display the Dashboard:

- Click Dashboard in the Monitoring group of the Home tab, see Figure 2–1.

TIP: You can display the Dashboard with the Quick Launch toolbar, see Figure 2–1.

Customizing Elements

See Figure 2–3 for element operation call outs.

![Element GUI operations](image)

**Figure 2–3: Element GUI operations**

To position an element:

- Click the element title bar and drag it.

To resize an element:

- Click and drag the dotted handle on the element base.

To configure an element:

1. Click the button in the element title bar, labeled Configure in Figure 2–3.

The Device Element Configuration property sheet displays.

Each element has a number of parameters which you can configure.
2. Click **OK** to complete the configuration.

To collapse or expand an element:

- Click the button in the element title bar, labeled **Collapse / Expand** in *Figure 2–3*.

To maximize an element or restore it after a maximize operation:

- Click the button in the element title bar, labeled **Maximize / Restore** in *Figure 2–3*.

To close an element:

- Click the button in the element title bar, labeled **Close** in *Figure 2–3*.

### The Groups Panel

Use the **Groups** panel to manage device groups, folders and subfolders in the system. The **Groups** panel always displays on the left side of the DMS window and can be tabbed with the **Services Plan** panel when you use the push-pin. See *Group and Folder Operations* for group administration functions.

#### Opening the Groups Panel

To open the **Groups** panel:

- Hover over the **Groups** tab on the left side of the screen.

  The **Groups** panel opens.

  You can click the push-pin to pin the panel down and click it again to close the panel.

#### Finding a Folder or Group

Use the quick search box in the **Groups** panel to quickly find a folder or group. The quick search box is useful when there are many groups or folders.

To quickly find a folder or group:

1. Click the magnifying icon to select filter matching options.
2. Enter filter text in the quick search box.

  The filter text is matched as you type and only matching folders or groups display.
The Device Browser Panel

The Device Browser displays a list of all the devices in the system. You can use it for the following:

- Device database administration
- Device grouping
- Device updates
- Initiating commands
- Entitlements

See Figure 2–5.
The DMS GUI

Figure 2–5: Device Browser panel

Displaying the Device Browser Panel

To display the Device Browser panel:

- Click Device Browser in the Device group of the Home tab, see Figure 2–1.

TIP: You can display the Device Browser with the Quick Launch toolbar, see Figure 2–1.

The Device Browser columns represent all the device attributes. See Columns for column related functions. The following table describes the different device icon colors.

<table>
<thead>
<tr>
<th>Device Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deployed, not managed</td>
</tr>
<tr>
<td></td>
<td>Receiving commands</td>
</tr>
<tr>
<td></td>
<td>Not authorized or Defined states</td>
</tr>
</tbody>
</table>
Columns

The default view is predefined with a selection of common and important columns. You can freely customize the columns in your client by right-clicking on a column heading.

Query Editor

Click Query Pane to display the Query Editor if it is hidden. It can be used with the following panes: Device Browser, Affiliates Management, Audit Log and Alarms. Use the Query Editor to filter by attribute values and select specific device populations for applying commands or defining groups. You can define queries and save them for re-use. You can use multiple attributes and conditions in a single query but all conditions can only be joined with the And or Or operand, you cannot mix And and Or in a query. The list of conditions depends on the type of selected attribute.

Use the Save Query button to save queries, the Manage Queries button to use saved queries, and the Update Query button to update an existing query (Name, Description, and whether it is a Public Query - shown to everybody - or not).

Use the Remove Selected Query (red X) to remove the selected query.

To display the Query Editor:

- Click Query Editor in the Device Browser panel.

<table>
<thead>
<tr>
<th>Device Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Icon" /></td>
<td>Return channel, no alarms</td>
</tr>
<tr>
<td><img src="image2" alt="Icon" /></td>
<td>Return channel, alarms</td>
</tr>
<tr>
<td><img src="image3" alt="Icon" /></td>
<td>Warning alarm</td>
</tr>
<tr>
<td><img src="image4" alt="Icon" /></td>
<td>Major alarm</td>
</tr>
<tr>
<td><img src="image5" alt="Icon" /></td>
<td>Critical alarm</td>
</tr>
</tbody>
</table>

To display all devices:

1. Make sure that the second list has is anything selected.
2. Click Append.
3. Click Search.

The common way of using this editor is:

1. Select an attribute type.
2. Select a condition.
3. Enter a value if relevant.
4. Click **Append**.
5. If you need to add another condition then click **And** or **Or** and repeat **Step 1** through **Step 4**.
6. Click **Search**.

**The Device Properties Panel**

Use the **Device Properties** panel to display the following device properties:

- Attributes
- CA entitlements
- Hardware inventory
- Licenses

The **Device Properties** panel displays in the **Device Browser** panel.

![Device Properties panel](image)

**Figure 2–6: Device Properties panel**

The **Device Properties** panel comprises the following:

- **Filter box** – enter part of a field name or contents to display matching entries
- **Category sort** – to sort fields according to category
- **Alphabetical sort** – to sort fields alphabetically according to field name
- **Description** – display or hide a description of the selected field

**Viewing a Device’s Properties**

**Prerequisite**

- You must have at least one device in the device database.

To view a device’s properties in the **Properties** panel:
1. Click **Device Browser** in the **Device** group of the **Home** tab.

   The **Device Browser** panel displays.
2. Use the **Query Editor** to display devices. See **Query Editor**.
3. Click a device in the **Device Browser** panel.
4. Hover over the **Device Properties** tab on the right side of the DMS window. The **Device Properties** panel displays, see *Figure 2–6*.

5. You can click the push-pin to pin the panel down and click it again to close the panel.

**Filtering Properties by Property Name or Content**

The device properties filter uses pattern matching.

**Prerequisite**

- Display a device’s properties in the **Devices Properties** panel, see *Viewing a Device’s Properties*.

To filter the properties by property name or content:

- Enter a few letters of the property name or content in the filter box.
  
  Only properties with the same sequence of letters in them display.

**Selecting Devices**

Select devices for applying commands, changing CA entitlements or defining groups.

To select devices:

- Select devices in one of the following ways:
  
  - **Mark the checkboxes of several devices.**
  
  - **Click All next to Check:** to mark the checkboxes of all devices in the displayed list.
  
  - **Click None next to Check:** to clear the checkboxes of all devices in the displayed list.
  
  - **Click Selected next to Check:** to mark the checkboxes of selected devices in the displayed list.

**Schedule Panel**

Use the **Schedule** panel to view and manage scheduled commands.

**NOTE:** When you select a command instance, all the instances for the command are selected.

To display the **Schedule** panel:

- **Click Scheduled Commands** in the **Monitoring** group on the **Home** tab, see *Figure 2–1*. **

![Schedule Panel Diagram](image)
The Schedule panel comprises the following:

- **Cancel Button**
- **Edit Button**
- **Collapse and Expand Buttons**
- **Period to Display**
- **Refresh Button**
- **Commands Button**

**Cancel Button**

Use the Cancel button to cancel a scheduled command.

**Edit Button**

Use the Edit button to edit the start time of a scheduled command. With the Configuration Update command you can switch inputs and edit the schedule and name and description parameters.

**Collapse and Expand Buttons**

Use the Collapse and Expand buttons to expand or collapse all scheduled command entries in the Schedule panel. When a scheduled command is expanded, you can see more details of the scheduled command including the target devices.

**Period to Display**

Use the From and Until date-pickers to configure the filter period for scheduled commands. Click the Refresh button after configuring From or Until date pickers.

**Refresh Button**

Use the Refresh button to refresh the scheduled commands display after you configure the filter period. The scheduled commands display refreshes automatically at regular intervals.

**Commands Button**

Use the Commands button to display the Commands panel in place of the Schedule panel.

**The Service Plan Panel**

The Service Plan panel displays on the left side of the DMS window by default and can be tabbed with the Groups panel.
The DMS GUI

You can click the push-pin gadget to pin the panel down and click it again to close the panel. Use the float gadget to float the panel. When a panel is floating you can drag it into another panel position. Use the quick search box to quickly find a transport stream or service.

Opening the Service Plan Panel
To open the Service Plan panel:
- Click Service Plan in the Distribution Network Setup group on the Configuration tab. The Service Plan panel opens.

RF Panel
Use the RF panel to monitor RF inputs of receivers. Requirements to monitor a receiver’s RF inputs:
- Receiver must have a MAC address configured
- Receiver must be deployed
- The return channel must be enabled
- Management IP
- Management port
- Agent
Use the Device Browser to configure the above, see Add Device and Updating a Device.

To display the RF panel:
1. Right-click a group.
2. Select RF Monitor.
Thresholds

Use the Manage Thresholds property sheet to configure threshold values.

To display this property sheet:

- Click the Manage Thresholds button in the RF Monitor panel.

To configure a threshold:

1. Mark the Active checkbox for an RF value.
2. Enter the threshold value.
3. Click OK.

RF values display in red in the panel if they exceed the value set according to the direction triangle in the thresholds property sheet.
Chapter 3
Redundancy

Use the **DMS Redundancy Control** utility to manage and monitor server hot:hot redundancy using two physical DMS servers. This utility is part of the server installation.

You must first configure the host addresses before you can manage or monitor any redundancy servers.

**NOTE:** The servers are unavailable during synchronization.

The GUI components are:

- **System tab**
  - **Redundancy** Group
    - **Hosts Config** – Use to configure the redundancy mode and the server IP addresses
    - **Perform Sync** – Use to initiate a full synchronization, this is useful in circumstances when the backup server has been off or off-line
  - **View Group**
    - **Clear Console** – Use to clear the **Operations Console**

- **Server Status** box
  - **Server IP** column – displays the server IP addresses
  - **Redundancy Role** column – displays the server role: standalone, primary or backup
  - **Status** column – indicates which servers are configured for redundancy and are active

- **Redundancy Alarms** box – See Table 3–1 for some important alarm descriptions.
  - **Time**
  - **Severity**
  - **Description**
  - **Corrective Action**

- **Operations Console** – this console displays current and past operations

Starting the DMS Redundancy Control utility.

You can launch the Redundancy Management utility from the Setup tab in the DMS Client or by double-clicking the **DMS Redundancy Management** utility Desktop icon (server installation only).
To configure redundancy:
1. Double-click the **DMS Redundancy Control** utility.
   The **DMS Hot Redundancy Configuration** property sheet displays.

2. In the **Redundancy Mode** list, select **No Redundancy** or **Hot-Standby**.
3. Enter the **Primary** and **Backup** IP addresses. You can swap the addresses with the **Swap** button.
4. Click **OK**.

**Table 3–1: Redundancy Alarms and descriptions**

<table>
<thead>
<tr>
<th>Alarm Text</th>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnected From Primary Server</td>
<td>Critical</td>
<td>Is asserted when the DMS Redundancy Management application does not have an IP connection to the Primary Server (or the Server services are down).</td>
</tr>
<tr>
<td>Disconnected From Backup Server</td>
<td>Critical</td>
<td>The alarm is asserted when the DMS Redundancy Management application does not have an IP connection to the Backup Server (or the Server services are down).</td>
</tr>
<tr>
<td>The following DMS alarms:</td>
<td></td>
<td>See <em>Table 8–1</em> for details.</td>
</tr>
<tr>
<td> No Available Backup</td>
<td></td>
<td></td>
</tr>
<tr>
<td> No Primary Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td> Backup Server Not Synced</td>
<td></td>
<td></td>
</tr>
<tr>
<td> SW Version Mismatch with Backup Server</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use the DMS to maintain a device database which can be used to remotely control and monitor devices. The database can include ProView 7000 and ProView 8000. Use the Device Browser to display a list of all the devices in the system, it is covered in The Device Browser Panel.

The following topics describe device related operations:

- Add Device
- Exporting Devices
- Importing Devices
- Reporting Devices
- Updating a Device
- Cloning a Device
- Swapping Two Devices
- Removing Devices
- Group and Folder Operations

Add Device

You can add devices to the device database by manually creating them or importing them from one or more Excel 2007/2010 files. You should create service plans, uplinks and input profiles (if the device will be added in deployed or not authorized states), processing profiles (Decoder, DTA, TX, DPI) before adding devices.

- Adding a Single Device
- Importing Devices

Adding a Single Device

Use the Add Device feature to add devices one by one.

The Expected Firmware Version drop-down menu contains the firmware versions loaded on the server (ProView 7000/7100/8000 only).

Prerequisites:

- Service plan, see Service Plan.
- Uplinks, see Uplinks.
- Input profiles, see Input Profiles.
- Processing Profiles, see Processing Profiles.
- Relevant firmware versions uploaded, see Uploading a Firmware Version.

To add a device:
1. Click Add Device in the Device group of the Home tab.

   The Add Device property sheet displays.
2. Select the device type.
3. Select the device model.
4. Enter the unique **MAC Address** (mandatory). This is the MAC address of the device management port. The address is mandatory for ProView 7000 and ProView 8000 devices, it must be unique.
5. Enter a unique name (mandatory). With ProView 7000/7100/8000 DMS populates this field with the device model number and the first 3 bytes of the MAC Address but you can change this.
6. Select a state (mandatory):
   - **Not Authorized** – in this state the DMS de-authorizes the VMX (if applicable) and the device from all its services
   - **Defined** – switching to Defined de-authorizes the VMX (if applicable) and the device from all its services (Default for ProView 8000). All previous authorization configurations are deleted from the DMS DB/GUI.
   - **Deployed** (Default for ProView 7000)
7. Enter the **Serial Number** (alphanumeric).
8. Enter the **Virtual Smart card ID**. You can find the Verimatrix VSC ID in the Verimatrix properties in the EMS and front panel of the ProView 7000. If you don’t enter a unique Virtual Smart Card ID then you can’t authorize a program that uses it.
9. Enter the **CAM-1/2/3/4 Smart Card ID**. If you don’t enter a CAM Smart Card ID then you can’t authorize a program that uses it.

**NOTE:** ProView 7000 and 8000 can only have CAM-1/2.

10. Select the **Expected Firmware Version**. This is the firmware version in the actual device, DMS does not validate the version.
11. Click the **Affiliate Information** tab.
12. Select the **System ID**. If you select an affiliate by name from the Affiliate list then the System ID field automatically populates.
13. Select an affiliate from the Affiliate list or create a new affiliate, see **Affiliates Management**. If you select a system ID from the System ID list then the Affiliate field automatically populates.
14. Select the **City Served** from the list.
   The state, ZIP Code and contacts are retrieved from the selected **City Served**.
   The **Blackout Codes** are retrieved from the selected **City Served**.
15. Click the **Authorization** tab. Different fields display on this tab according to the device model
    that you select at the top of the property sheet. The boxes that may display are:
   - **Transcoding** box
   - **Decoding** box — **NOTE**: The **Program** column in the **Decoding** box has the **Local Override** option.
     Use **Local Override** instead of a program to enable a user to configure a program on the ProView 7000, you are not required to configure any other profile.
   - **Passthrough (DTA)** box
   - **TS Passthrough** checkbox

16. Select the **Input Profile** from the list (Mandatory for **Not Authorized** and **Deployed** device
    states).
17. If the device has a transcoder then the properties sheet has a transcoding box as below. If it has
    no transcoders then proceed to step If the device has a decoder then the tab has a decoding box as below. If it has no decoders then proceed to step If you will use a return channel then:..

18. In the **Program** column in the **Transcoding** box select a program for each transcoder to
    transcode. These programs must first be configured in the **Service Plan** panel, see **Adding a
    Program**.
19. In the **TX profile** column select a **TX profile**. **TX profiles** must first be configured in the
    **Transcoding Profiles Management** panel, see **Transcoding**.
20. In the **DPI Tiers** column select a **DPI profile** (optional). **DPI profiles** must first be configured in
    the **DPI Profiles Management** panel, see **DPI**.
21. If the device has a decoder then the tab has a decoding box as below. If it has no decoders then proceed to step If you will use a return channel then:..

---

1. ProView 7100
22. In the **Program** column in the **Decoding** box select a program for each decoder to decode. These programs must first be configured in the **Service Plan** panel, see *Adding a Program*.

23. In the **Decoding Profile** column select a **Decoding Profile**. **Decoding Profile** must first be configured in the **Decoding Profile Management** panel, see *Decoding*.

24. In the **DPI Tiers** column select a **DPI Profile**. **DPI Profiles** must first be configured in the **DPI Profiles Management** panel, see *DPI*.

25. To pass a program, in the **Program** column in the **Passthrough (DTA)** box select the programs to pass through. These programs must first be configured in the **Service Plan** panel, see *Adding a Program*.

26. Select a corresponding **DTA Profile** for each program.

27. Select a corresponding **DPI Tier** for each program.

28. If you will use a return channel then:
   a. Select the **Return Channel** tab. (This tab only displays for devices that support a return channel.)
   b. Mark the **Enable** checkbox.
   c. Enter the management address (mandatory).
   d. Enter the return channel port.

29. Select the **Advanced** tab.
   - **Lock to Broadcaster Network** – A device that is locked executes commands from this DMS only. The DMS ID should not be 0, if it is 0 then the Device Lock is compromised. The default is **Disabled**.
   - **Disable Disaster Recovery** – When this is selected, the device will not trigger disaster recovery even if it is configured in the input profile.
   - **Send Resume Command** – Command the device to stop disaster recovery and resume to primary.

30. Click **OK**.
Exporting Devices

DMS enables you to export ProView 7000 and ProView 8000 devices in Excel 2007/2010 format. You can use these files for importing with the Import Devices function. If you don’t select any devices to export then all the devices are exported.

To export devices:
1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Use the Query Editor to search for devices. See Query Editor.
3. Select the devices to export with the checkbox.
4. Click Export Devices in the Device group of the Home tab.
   The Export Device property sheet displays.
   DMS generates a file name in the format of devices.inventory.<date><time>.xlsx. You can define the file name too.
5. Click Download.

Importing Devices

DMS enables you to import ProView 7000 and ProView 8000 devices in Excel 2007/2010 format. You can download a template Excel file from the server to populate to ensure compatibility.

Prerequisites

- Firmware files of the same version as devices in the Excel file must be loaded on the DMS server. See section Firmware Versions for instructions on loading firmware versions.

To import devices:
1. Click Import Devices in the Device group of the Home tab.
   The Import Device property sheet displays.
2. Browse for the file and select it.
3. Click Import devices.
   Devices are added in the defined state.

To download a template Excel file:

- Enter http://<DMS Server management IP Address>:9090/dms in your browser address box
  —or—
  a. Click Import Devices in the Device group of the Home tab.
     The Import Device property sheet displays.
  b. Click Download template Excel file.

Reporting Devices

DMS can generate a device report in Excel 2007/2010 format. The report contains all the device properties. If you don’t select any devices for the report then all the devices are included in the report.
To report devices:
1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Use the Query Editor to search for devices. See Query Editor.
3. Select the devices to report with the checkbox.
   The Devices Report property sheet displays.
5. Select the fields that the report should contain.
6. Click Create Report.
   DMS generates a file name in the format of devices.report.<date><time>.xlsx. You can define
   the file name too.
7. Click Download.

Updating a Device

Use the device Update feature to edit a device’s attributes.

**NOTE:** The Serial number and Smart card ID fields are disabled for devices in Deployed or Not Authorized
states. The Device Type and Expected Firmware Version fields are not disabled if the device is receiving a
command and the device state is Deployed.

**NOTE:** You can click on different steps to perform them in a different order.

To update a device:
1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Use the Query Editor to search for devices. See Query Editor.
3. Double-click a device.
   —or—
   a. Mark a device checkbox for updating.
   b. Select Device > Update
   The Update Device property sheet displays.
4. Enter new device attributes. See Adding a Single Device for details on device attributes.
5. Select the Audit Log tab. This tab displays the log for the selected device only. See The Audit
   Log Panel for a description of the operation.
6. Select the Blackout tab.
   a. Use the Add Device to Blackout Event button to add devices to blackout events.
   b. Use the Remove from Blackout Event button to remove devices from blackout events.

**NOTE:** When using a dynamic target list, you are not able to manually add or remove devices from the
Blackout event.
Cloning a Device

Use the device **Clone** feature to create a single clone of a device with similar attributes. The new device has the same properties (except the ones defined with this feature) and authorization as the source device.

**NOTE:** Unique attributes, such as serial number, will not be copied from the original device.

To clone a device:
1. Click **Device Browser** in the **Device** group of the **Home** tab.
   
   The **Device Browser** panel displays.
2. Use the **Query Editor** to search for devices. See **Query Editor**.
3. Mark one device checkbox.
4. Select **Device > Clone**.
   
   The **Device Configuration** property sheet displays.
5. You must enter the following:
   - A new **MAC Address**.
   - A new **Device Name**.
   - A new **Virtual Smart Card ID**.
   - The **Return Channel IP Address** if **Return Channel** is enabled.
6. Edit any other parameters that you wish.
7. Click **OK**.

Swapping Two Devices

Swapping a device has the same functionality as cloning a device, only that at the end of the process the source device is in the defined state. The new device has the same properties (except the ones defined with this feature) and authorization as the source device.

**NOTE:** You have the option to delete the source device.
To swap two devices:
1. Click **Device Browser** in the **Device** group of the **Home** tab.
   The **Device Browser** panel displays.
2. Use the **Query Editor** to search for devices. See **Query Editor**.
3. Mark one device checkbox.
4. Select **Device > Swap**.
   **Delete Swapped Device** query displays.
   The **Device Configuration** property sheet displays.
5. You must enter the following:
   - A new **MAC Address**.
   - A new **Device Name**.
   - A new **Smart Card ID**.
6. Edit any other parameters that you wish.
7. Click **OK**.

**Removing Devices**

Use the **Remove** feature to remove selected devices. You can delete only devices in the Defined state.

To remove a device:
1. Click **Device Browser** in the **Device** group of the **Home** tab.
   The **Device Browser** panel displays.
2. Use the **Query Editor** to search for devices. See **Query Editor**.
3. Select devices to remove, see **Selecting Devices**.
4. Click **Device > Remove**.
   A confirmation dialog displays.
5. Confirm to remove the devices.

**Group and Folder Operations**

Groups simplify the task of managing many devices. You can create folders and subfolders to contain groups and manage them in a hierarchy. To open the **Groups** panel see **Opening the Groups Panel**.

**Figure 4–1:** Groups panel with folders and groups

See **The Groups Panel** for GUI related group functions.
- Creating a Group and Adding Devices
- Performing Commands on Groups
- Editing a Group
- Removing a Group
- Creating a Folder
- Removing a Folder
Creating a Group and Adding Devices

You can create groups and add devices to them in one procedure. If need you can create empty groups and add devices to them later on, though this is not the mainstream way of working.

Creating a Group and Adding Devices with the Create Group Function

In this procedure you enter the group name and then select devices to add to the group.

To create a group and add devices with the Create Group function:

1. Click Create Group in the Device group of the Home tab.

   The Group Management panel displays.

2. To change the container folder, click Browse and browse to another folder.

   The default Container Folder is Groups. Under normal circumstances there is no need to change this.

3. Enter a name for the group. (Mandatory)

4. The Group Description is optional.

5. To add selected devices:
   a. Select devices using the Shift and Control keys in combination with the mouse.
   b. Click Add to group.

6. To add all devices:
   □ Click Add all to group.

7. Click Create Group.

8. If you did not add devices then a warning displays and you can create the group with no devices if you click Create Group again.

Creating a Group and Adding Devices from the Device Browser

In this procedure you select devices, to add to the group, in the Device Browser and then enter the group name.

To create a group and add devices from the Device Browser:

1. Click Device Browser in the Device group of the Home tab.

   The devices in the database display in the Device Browser panel.

2. Choose one of the following procedures:
   a. Select devices, see Selecting Devices.
   b. Click Device > Create Group in the Device Browser panel

   —or—
   a. Right-click a folder in the Groups panel.
   b. Select Create Group.
   c. Select devices, see Selecting Devices.

3. To change the container folder, click Browse and browse to another folder.

4. Enter a name for the group.

5. The Group Description is optional.

6. Click Create Group.
Performing Commands on Groups

You can perform the following commands on groups of devices:

- Upgrade Firmware
- Activate Firmware
- Reboot Devices
- Download Configuration File
- Roll Back Configuration
- Set Model
- Set TS Bitrate

**NOTE:** If the group contains at least one ProView 8000 device, the available commands are Upgrading Firmware, Activating Firmware, Rebooting Devices, and Bulk Updates.

To perform a command on a group of devices:

1. Right-click a group in the **Groups** panel.
2. Select **Commands** > `<command>`.

![Groups Commands Menu](image)

Figure 4–2: Groups Commands Menu

Editing a Group

You can move a group to another folder, change the group name and description and add or remove devices.

To edit a group:

1. Click the **Groups** tab on the left side of the main window.
2. Right-click a group.
3. Select **Properties**.

   The **Group Management** panel displays.

4. To add or remove selected devices:
   a. Select devices using the **Shift** and **Control** keys in combination with the mouse.
b. Click **Add to group**  
—or—  
Click **Remove from group**  
5. To add all devices click **Add all to group**.  
6. To remove all devices click **Remove all from group**.  
7. To change the container folder, click **Browse**.  
8. You can edit the group name and description.  
9. Click **Update group**.

To move a group:  
1. Click the **Groups** tab on the left side of the main window.  
2. Drag the group to the appropriate folder.

### Removing a Group

You can remove groups one at a time.

To remove a group:  
1. Click the **Groups** tab on the left side of the main window.  
2. Right-click a group.  
3. Select **Remove Group**.  
   
   A confirmation dialog displays.

### Creating a Folder

You can create folders and add groups to them to organize them.

To create a folder and drag content into it:  
1. Right-click a folder in the **Groups** panel where you want to create the folder.

   ![Create Folder dialog](image)

2. Select **Create Folder**.  
   
   The **Create Folder** dialog displays.  
3. Enter a folder name.  
4. The **Folder Description** is optional.
5. Click **OK**.
   The folder is created.

6. Drag a folder or group into the new folder. To drag a folder, you must click on the folder name.

---

Removing a Folder

You can remove any folder in the system except those directly under **System**. Any groups in the folder are also removed.

To remove a folder:
1. Right-click a folder in the groups panel.
2. Select **Remove Folder**.
   A confirmation dialog displays.
3. Click **OK**.
   The folder is removed.

Editing a Folder

You can change the name and description for a folder and you can move it under different folders.

To change the name or description of a folder:
1. Right-click a folder in the **Groups** panel.
2. Select **Properties**.
   The **Update Folder** dialog displays.
3. Edit the relevant fields.
4. Click **OK**.
To move a folder:

- Drag the folder in the **Groups** panel to the folder you want it to be under.
Chapter 5
Device Commands

DMS commands enable you to remotely control ProView 7000 and ProView 8000 receiver devices.

The following topics describe device configuration and control commands:

**NOTE:** For ProView 8000, only Upgrading Firmware, Activating Firmware, Rebooting Devices, Bulk Updates, and General Device Command Functions are relevant.

- Upgrading Firmware
- Activating Firmware
- Rebooting Devices
- Downloading Configuration Files
- Rolling Back Device Configurations
- Upgrading Licenses
- Set Model
- Resume from Disaster Recovery
- Set TS Bitrate
- Bulk Update
- General Device Command Functions

The following commands can be sent to devices in the **Defined** state:

**NOTE:** For ProView 8000, only Upgrading Firmware, Activating Firmware, Rebooting Devices, and Bulk Updates are relevant.

- Upgrade Firmware
- Activate Firmware
- Reboot Devices
- Download Configuration File
- Rollback Configuration
- Upgrade Licenses

All other commands can only be sent to devices that are not in the **Defined** state.

**Upgrading Firmware**

DMS enables you to upgrade the firmware of remote devices and activate the new firmware version.

You can configure the start or finish date and time to send the command.

If you use the **No activation** parameter with the Upgrading firmware command, the firmware is loaded into the secondary bank, the Standby firmware version attribute is set with the firmware upgrade version, you can activate the firmware later with the **Activate Firmware** command.
You can increase the number of repetitions or set the repetitions to indefinite (repeat till you succeed) for the firmware download to increase the reliability of the process, since the download is performed over a one-way satellite link. Under normal circumstances three repetitions are enough. Repetitions are labeled as cycles in the timeline simulation in Figure 5–1.

The following Firmware Activation Mode options are available:

- **Simultaneous** – once all repetitions are complete, DMS sends a command to all devices to activate. After activation, the device will reboot.
- **Independent** – each device reboots and activates the firmware as soon as it is fully received.
- **No Activation** – do not activate the firmware after the firmware download.

You can give each Upgrade Firmware command a name and description which displays when monitoring commands.

![Figure 5–1: Upgrade Firmware property sheet](image)

**NOTE:** You can launch two concurrent firmware upgrade commands; one for ProView 7000 and one for ProView 8000 devices.

**NOTE:** To cancel an active command see [Canceling an active command from the Device Browser Panel](#).

**Prerequisites**

- Upgrade firmware versions must be loaded onto the server before starting the upgrade procedure, to upload a firmware file see [Uploading a Firmware Version](#).
- If the DMS Stream is not configured, you must configure it, see [Network Connection](#).

To upgrade the firmware of selected devices:

1. Click **Device Browser** in the **Device** group of the **Home** tab.
   - The **Device Browser** panel displays.
2. Select devices to upgrade, see [Selecting Devices](#).
Activating Firmware

You can load upgrade firmware into the second bank with the Upgrade Firmware command and activate the firmware later with the Activate Firmware command. You can configure the date and time to send the command. After a successful activation the secondary bank is now the active bank and the previous active bank is now the secondary bank.

3. Select Commands > Upgrade Firmware.
   The Upgrade Firmware property sheet displays.
4. Select the firmware version for the upgrade from the Expected Firmware Version drop-down menu.
5. Set the Number of Repetitions parameter for the firmware download or select the Indefinite Repetitions check box.
6. You can set a specific bitrate or a bitrate that is calculated according to a specific completion time, see Figure 5–1.
   The timeline simulation updates accordingly.
7. Select a firmware activation mode.
8. If you want scheduled activation, configure the start or finish dates and times.

   NOTE: You can always change the start time before the command is executed.
9. Click Next.
10. Enter a name and description. (Optional)
11. Click Next and change the list of target devices if you want to do so.
12. Click Finish to send the upgrade command.

   The firmware upgrade progress displays in the command panel, see The Commands Panel.

To upgrade the firmware for a group of devices:
1. Click the Groups tab on the left side of the main window.
2. Right-click a group.
3. Select Commands > Upgrade Firmware.
   The Upgrade Firmware property sheet displays.
4. Select the firmware version for the upgrade from the drop-down menu.
5. Set the Number of Repetitions parameter for the firmware download or select the Indefinite Repetitions check box.
6. You can set a specific bitrate or a bitrate that is calculated according to a specific completion time, see Figure 5–1.
7. Select a firmware activation mode.
8. If you want scheduled activation, configure the start or finish dates and times.

   NOTE: You can always change the start time before the command is executed.
9. Click Next.
10. Enter a name and description. (Optional)
11. Click Next and change the list of target devices if you want to do so.
12. Click Finish to send the upgrade command.

   The Firmware Upgrade progress displays in the command panel. See The Commands Panel.
You can give each Activate Firmware command a name and description which displays when monitoring commands.

Prerequisites

- The device’s secondary bank must contain the upgrade firmware.

To activate firmware for devices:

1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Select devices to upgrade, see Selecting Devices.
3. Select Commands > Activate Firmware.
   The Activate Firmware Version property sheet displays.
4. If you want scheduled activation, configure the start date and time.
5. Select the firmware version from the list.
6. Click Send.

Rebooting Devices

Use the Reboot Devices command to reboot selected devices or a group of devices. A device reboot causes the device to be unavailable for a few minutes. You can configure the date and time to send the command.

You can give each Reboot Devices command a name and description which displays when monitoring commands.

Prerequisite

- If the DMS Stream is not configured, you must configure it, see Network Connection.

To reboot selected devices:

1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Select devices to reboot, see Selecting Devices.
4. If you want scheduled activation, configure the start date and time.
5. Click Send.

To reboot a group of devices:

1. Click the Groups tab on the left side of the main window.
2. Expand the group tree.
3. Right-click a group.
4. Select Commands > Reboot Devices.
5. If you want scheduled activation, configure the start date and time.
6. Click Send.
Downloading Configuration Files

You can change the configuration for a set of ProView 7000s by downloading a configuration file to these devices. You can configure the date and time to send the command. Up to 10 configuration commands can run concurrently. DMS reports a validation failure if the configuration file does not match the hardware configuration, software version and license of the device, but you can still download the configuration file if you are confident that it is suitable.

DMS activates the new configuration as soon as the download is complete. If DMS loses control of the device after it activates the new configuration, the device rolls back to the previous configuration.

You can give each Download Configuration File command a name and description which displays when monitoring commands.

Prerequisites

- The configuration file must first be created with a ProView 7000 that has the same hardware configuration, software version and licenses.

**NOTE:** You can check the hardware configuration, software version and licenses of a ProView_7000 using the front panel or EMS. To check these details in DMS double-click a device in the **Device Browser**.

- The same firmware version must be in the DMS database. To load a firmware file, see **Uploading a Firmware Version**.

The ProView 7000 saves the file as a preset file. The filenames have the .pvr extension. See Manage Presets in the ProView 7000 User Manual for instructions on saving a preset file.

To download a ProView 7000 configuration file:

1. Click **Device Browser** in the **Device** group of the **Home** tab.

   The **Device Browser** panel displays.

2. Select devices, see **Selecting Devices**.

3. Select **Commands > Download Configuration File**.

   The **Download Configuration File** dialog displays.


5. Select the necessary configuration file.

6. Click **Next**.

   Validation message displays.

7. Click **Send**.

   DMS downloads the configuration.

Rolling Back Device Configurations

Use the Roll Back command to roll back to a previous configuration after uploading and activating a new configuration file. You can configure the date and time to send the command. There is no limit to the number of Roll Back commands that can run concurrently. You cannot cancel a Roll Back command.

There is no limit to the number of times DMS you can send the Roll Back command, however the device will not accept the command after one successful configuration roll back.
You can give each Roll Back Configuration command a name and description which displays when monitoring commands.

To roll back devices to the previous configuration:
1. Click Device Browser in the Device group of the Home tab.

   The Device Browser panel displays.
2. Select devices, see Selecting Devices.
3. Select Commands > Roll Back Configuration.

   The Roll Back Configuration property sheet displays.
5. Click Send.

To roll back a group of devices to the previous configuration:
1. Click the Groups tab on the left side of the DMS window.
2. Expand the group tree.
3. Right-click a group.
4. Select Commands > Roll Back Configuration.

   The Roll Back Configuration property sheet displays.
5. Configure scheduling.
6. Click Send.

Upgrading Licenses

Use the Upgrade Licenses command to upgrade the licenses of a single device or many devices using a license file in Excel format or a license key. The license keys must reflect the licensed features in the License Upgrade property sheet or in the Excel file if you import licenses. You can configure the date and time to send the command.

You can give each Upgrade Licenses command a name and description which displays when monitoring commands.
Importing a License File

When you purchase licenses for many devices, Harmonic can supply you a license file in Excel .xlsx format which you can import to upgrade multiple devices with one procedure. The target devices are defined in this Excel file, devices selected in the Device Browser have no effect on the license import operation. DMS validates the licenses with the devices in the DMS database. If there is a validation mismatch and you are confident that the licenses are suitable, you can still start the upgrade.

To import a license file and upgrade multiple ProView 7000 licenses:
1. Click Device Browser in the Device group of the Home tab. The Device Browser panel displays.
2. Select Commands > Upgrade Licenses. The License Upgrade property sheet displays.
4. Click Next.
5. Select a license file.
6. Configure the date and time for the upgrade in the Schedule box.
7. Click Next to validate the licenses.
8. You can enter a name and description for this command.
9. Click Send to send the command.

Inserting a License Key

To insert a license key and upgrade multiple ProView 7000 licenses:
1. Click Device Browser in the Device group of the Home tab. The Device Browser panel displays.
2. Select Commands > Upgrade Licenses. The License Upgrade property sheet displays.
3. Select License Key.
4. Click Next.
5. Enter the license key.
6. Click Next.
7. Configure the date and time for the upgrade in the Schedule box.
8. Click Next.
9. You can enter a name and description for this command.
10. Click Send to send the command.

Set Model

You can change the model of devices.

To set a device model:
1. Click Device Browser in the Device group of the Home tab.
   The Device Browser panel displays.
2. Select devices, see Selecting Devices.
3. Select Commands > Set Model.
   The Set Model command property sheet displays.
4. Configure the date and time for the command in the Configure Scheduling box.
5. Select a PVR model from the list.
6. Click Next.
7. You can enter a name and description for this command.
8. Click Send to send the command.

Resume from Disaster Recovery

Use the Resume from Disaster Recovery to command the device to stop disaster recovery and resume to primary.
To resume from disaster recovery:
1. Click Device Browser in the Device group of the Home tab.
   
   The Device Browser panel displays.
2. Select devices, see Selecting Devices.
3. Select Commands > Resume from Disaster Recovery.
   
   The Stop Disaster Recovery property sheet displays.
4. Configure the date and time for the command in the Configure Scheduling box.
5. Click Next.
6. You can enter a name and description for this command.
7. Click Send to send the command.

Set TS Bitrate

Use the Set TS Bitrate command to set the transport stream output bitrate. The range is 1 - 160 Mbps, the default 70 mbps.

To set the transport stream output bitrate:
1. Click Device Browser in the Device group of the Home tab.
   
   The Device Browser panel displays.
2. Select devices, see Selecting Devices.
   
   The Set TS Output Bitrate property sheet displays.
4. Configure the date and time for the command in the Configure Scheduling box.
5. Enter a value for the TS Output Bitrate.
6. Click **Next**.
7. You can enter a name and description for this command.
8. Click **Send** to send the command.

**Bulk Update**

Use the device properties **Bulk Update** command to update the following on selected devices on a specified date and time:

- Affiliate Association
- Program Replacement
- New Program Authorization
- Input Profile Replacement
- Processing Profile Replacement
- Change Device State
- Change Device Property
- Program Authorization Re-Scheduling

The following configurations are available on the **Command Configuration** page:

<table>
<thead>
<tr>
<th>Update Type</th>
<th>Command Configuration</th>
</tr>
</thead>
</table>
| Affiliate Association    | ■ Affiliate  
                          | ■ Affiliate City                                         |
| Program Replacement      | ■ Current Program (From)                                  |
|                          | ■ New Program (To)                                        |
|                          | ■ Processing Type: All, DTA, TX, Decoding                 |
|                          | ■ Processing Profile                                      |
|                          | ■ DPI Profile                                             |
| New Program Authorization| ■ New Program (To)                                        |
|                          | ■ Processing Type: DTA, Decoding, TX                      |
|                          | ■ Processing Profile                                      |
|                          | ■ DPI Profile                                             |
| Input Profile Replacement| ■ Current Input Profile (From)                            |
|                          | ■ New Input Profile (To)                                  |
|                          | ■ Program aliasing: Replaced Program, Substitute Program   |
| Processing Profile Replacement| ■ Profile Type: DTA, TX, Decoding, DPI Profile          |
|                          | ■ Program                                                 |
|                          | ■ Current Profile (From)                                  |
|                          | ■ New Profile (To)                                        |
| Change Device State      | ■ Device State: Not Authorized, Defined, Deployed         |
|                          | ■ Input Profile                                           |
Chapter 5 Device Commands

General Device Command Functions

<table>
<thead>
<tr>
<th>Update Type</th>
<th>Command Configuration</th>
</tr>
</thead>
</table>
| Change Device Property           | • Name: Device Model in DMS, Expected Firmware Version, TS Pass-Through, Lock to Broadcaster Network, Disable Disaster Recovery  
• Value |
| Program Authorization Rescheduling | • Current Program (From)  
• Authorize indefinitely  
• Authorize with start/end dates  
• Recurrent authorization  
• Suspended authorization |

**NOTE:** This command is very useful for many devices that have been imported using the Excel format.

To perform a **Bulk Update**:
1. Click **Device Browser** in the **Device** group of the **Home** tab.  
The **Device Browser** panel displays.
2. Select devices, see **Selecting Devices**.
3. Select **Commands > Bulk Update**.  
The **Device Properties Bulk Update** property sheet displays.
4. Enter the **Name** (mandatory) and **Description**.
5. Select the **Update Type** from the list.
6. Set the start date and time.
7. Click **Next** to configure the **Command Configuration** page.
8. Click **Next**.
9. A summary of the changes made displays.
10. To submit these changes, click **Finish**.

**General Device Command Functions**

- **Command Scheduling**
- **Canceling an active command from the Device Browser Panel**
Command Scheduling

You can schedule all commands and commands for groups of devices using the command property sheet. You can make changes to a group before the command starts. See the relevant section for the command. You can only schedule the **Update Configuration** command for recurrent activation. DMS validates scheduled commands with devices up to a week in advance, thus it checks if they can be performed, this provides you the opportunity to take corrective action.

Use the **Schedule** Panel to cancel or edit scheduled commands, see **Schedule Panel**.

Every command property sheet has a page to configure the command to be sent immediately or to be scheduled. Click on the drop-down menu to display a monthly calendar and set a start or end time, see **Figure 5–2** for an example.

![Figure 5–2: Schedule configuration](image)

Canceling an active command from the Device Browser Panel

You can cancel the following commands:

- Upgrade Firmware
- Download Configuration File

**NOTE:** If you cancel an Upgrade Firmware command that is configured with the Independent Firmware Activation mode, the **Cancel Command** property sheet displays for to choose which firmware version to record for the target devices in the device database as there is no return channel.

To cancel an active command from the **Device Browser**:

1. Click a device that is receiving a command.
   
   The command progress property sheet displays.
2. Click **Cancel** in the active commands view.
   
   A confirmation dialog displays.
3. Click **OK**.
Chapter 6
Affiliates

- **Affiliates Management**
- **Edit and Remove**
- **Export Affiliates**
- **Import Affiliates**
- **Report Affiliates**

### Affiliates Management

Use the **Affiliates Management** panel to **Add**, **Edit** and **Remove** affiliates. You can add up to 5 contacts for each affiliate. You can add up to 10 blackout codes per city.

To add affiliates:

1. Click **Affiliates Management** in the **Affiliates** group of the **Home** tab.
   
   The **Affiliates Management** panel displays.

2. Click **Add**.
   
   The **Add New Affiliate** property sheet displays.

3. Enter a unique name for the **Affiliate Name**.

4. Complete the **General** tab:
   - **MSO** – Company name
   - **System ID** – Required
- **H/E Type** – Head end type
  - Primary
  - Backup
  - Secondary
  - Simulcast
  - Lab
- **Time Zone**
- **Street**
- **City**
- **County**
- **State/Province**
- **Zip Code**
- **Area Code**
- **Country**

Blackout Codes for each city display. Enter blackout codes using the **City Served** tab.

5. **Contacts** tab.
   - Click **Add New** to add contacts.
   - To edit or remove a contact, right-click on a contact and select the appropriate menu item.

6. **City Served** tab.
   - Click **Add New** to add a city.
   - To edit or remove a city, right-click on a contact and select the appropriate menu item.

7. Click **OK**.

**Edit and Remove**

Use the **Edit** and **Remove** buttons to edit and remove affiliates, you can also right-click on an affiliate to do the same. Changes that you make to an affiliate are applied. You cannot remove an affiliate that is assigned to a deployed device.

To edit or remove affiliates
1. Click **Affiliates Management** in the **Affiliates** group of the **Home** tab.
   - The **Affiliates Management** panel displays.
2. Right-click an affiliate.
   - Click **Edit** or **Remove**.

**Bulk Update**

Use the **Bulk Update** button to update properties of selected affiliates. There are three main steps in this procedure:
- Scheduling
- Configuration
- Summary

For each property, unless specified otherwise, you can perform the update in one of two modes:
- **Replace** – In Replace mode you enter the new value of the property and all the selected affiliates are updated with the new value.

- **Search/Replace** (default) – In Search/Replace mode you enter a value to search criteria for and a new replacement value. The matching affiliates are updated with the new value.

To perform a bulk update:
1. Click **Affiliates Management** in the **Affiliates** group of the **Home** tab.

   The **Affiliates Management** panel displays.

2. Select affiliates.

   Click **Bulk Update**.

   The **Affiliates Bulk Update** property sheet displays.

3. In the **General Information** box in **Step 1 Scheduling**, enter a name for the update operation. **Description** is optional. Select an update type:
   - Affiliate Properties
   - Blackout Codes Update

4. Configure a start date and time in the **Execution Schedule** box.

5. Click **Next**.

6. If you selected **Affiliate Properties** then **Step 2 Configuration** displays as below, if you selected **Blackout Codes Update** then proceed to **Step 11**.

7. Select an affiliate name from the name list. See **Table 6–1** for the list of names.

8. Select an update type. See **Table 6–1** for the list of types.
9. The remaining parameters in the **Command Configuration** box vary depending on the affiliate name and update type selections.
10. Proceed to **Step 15**.
11. Step 2 for **Blackout Codes Update** displays.

12. Select an **Update Type**:
   - Add
   - Replace
   - Delete
13. The remaining parameters in the **Command Configuration** box vary depending on the **Update Type** selection.
14. Configure the execution schedule.
15. Click **Next**.
16. **Step 3 Summary** displays what property is updated, what the new value is, scheduled execution and how many affiliates are updated.
17. Click **Finish** to close the **Affiliates Bulk Update** property sheet.
Table 6–1: Affiliate Bulk Update Command Configuration box configurations

<table>
<thead>
<tr>
<th>Update Type (General Information box)</th>
<th>Name (Command Configuration box)</th>
<th>Update Type (Command Configuration box)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliate Properties</td>
<td>Affiliate Name</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>MSO</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>System ID</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>H/E Type</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>Time Zone</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>Area Code</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>Street Address</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>City</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>County</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>State/Province</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>Zip Code</td>
<td>Search/Replace</td>
</tr>
<tr>
<td></td>
<td>Country</td>
<td>Replace</td>
</tr>
<tr>
<td>Blackout Codes Update</td>
<td>N/A</td>
<td>Add</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delete</td>
</tr>
</tbody>
</table>

Export Affiliates

You can export the DMS affiliates as an Excel file. The exported file includes all the Contacts properties, City Served properties, blackout codes, affiliate index/ID and City Served index/IDs. If you don’t select any affiliates then all the affiliates and device properties which are assigned to the affiliates are exported.

To export affiliates:
1. Click **Affiliates Management** in the **Affiliates** group of the **Home** tab.
   
   The **Affiliates Management** panel displays.
2. Use the **Query Editor** to search for affiliates. See **Query Editor**.
3. Select the affiliates to export with the checkbox.
4. Click **Export Affiliates** in the **Affiliates** group of the **Home** tab.
The Export Affiliates dialog displays.

5. Select a folder to export to.
6. Click Download.

DMS generates a file name in the format of affiliates.<date><time>.xlsx. You can define the file name too.

Import Affiliates

You can prepare a table of affiliates on an Excel spreadsheet to import into the DMS database. Use the Import Affiliates property sheet to download an Excel template for populating. An affiliate or city served that exists in the database but not in the Excel file remains in the database. If the information for an affiliate is different in the database and the Excel file then DMS prompts you to choose which affiliate or city served should be used and you can choose to have DMS perform the same action on all following conflicts, therefore use the affiliate or city served in the file or the database.

To import affiliates
1. Click Import Affiliates in the Affiliates group of the Home tab.

   The Import Affiliates property sheet displays.
2. Select an Excel file with affiliates.
3. Click Import Affiliates.

Report Affiliates

DMS can generate an affiliate report in Excel 2007/2010 format. The report contains all the affiliate properties. If you don’t select any affiliates then all the affiliates and device properties which are assigned to the affiliates are reported.

To generate an affiliate report:
1. Click Affiliates Management in the Affiliates group of the Home tab.

   The Affiliates Management panel displays.
2. Use the Query Editor to search for affiliates. See Query Editor.
3. Select the affiliates for the report with the checkbox.

   The Make Affiliates Report property sheet displays.
5. Select the fields that the report should contain.
6. Click Create Report.

   DMS generates a file name in the format of affiliates.report.<date><time>.xlsx. You can define the file name too.
7. Click Download.
Chapter 7
Blackout

- Create Blackout Event
- Blackout Events
- Timeline

Create Blackout Event

Use the Blackout Event Editor panel to Add or Edit blackout events. Blackout events are minimum 15 minutes and maximum 24 hours. The alternate program must be in the same transport stream as the blacked-out program. The Start Time is validated because events cannot start in the past.

To create a spotlight event, set the Blacked-Out Program parameter to None.

**NOTE:** Blacked-Out programs must be authorized on the devices. You can authorize them directly with the Device Browser or access the Device Browser from the Black-Out Event Editor.

Prerequisites:

- Authorize devices using the Device Configuration property sheet accessible from the device browser.

To add a blackout event:

1. Click Create Blackout Event in the Blackout group of the Home tab.

The Blackout Event Editor panel displays.

2. Enter the blackout properties. Name is mandatory. The default activation mode is Manual.

**Activation Mode** – This mode is active when the Start Time is not set to Immediately.

- Manual (default) – Use manual to manually start the blackout without using scheduled dates and times.
Create Blackout Event

- **Automatic** – The event starts automatically at the scheduled start time.

3. Click **Next**.

4. In the **Select Targets** box, select the target devices.

You can select targets the following ways:

- **Targets source type** – Either Static (Default) or Dynamic. This is the mode that describes how the query result list will be updated.
  
  A query that uses the dynamic mode, is a query that removes devices from the query result list when a device is no longer compliant to the criteria set in that query. It dynamically adds new devices that are added to the DMS and that are compliant to the criteria set in that query. Once the dynamic mode is configured, you cannot manually add or remove devices to/from the target list.
  
  A query that uses the static mode, is a query of which the result list remains as is in an existing Blackout Event. You can make changes to the results list, but it will not be reflected in the existing Blackout Event.

- **Query** – Use **Add Devices via Query** to add those devices that comply to the criteria set via the chosen query. Queries must first be saved in the Query Editor in the Device Browser, see Query Editor. This is also called a pre-defined query. When selecting Dynamic Query, you can select the relevant query from the list of pre-defined public queries only.

- **Device Browser** – Use the **Open Device Browser** to select devices. After selecting the devices in the Device Browser, click **Add Targets**, see the figure below for the button location.

- **Group Tree** – Use **Open Group Tree** to select devices. After selecting the devices in the Groups panel, click **Add Targets**.
5. Click **Finish**.

### Blackout Events

Use the **Blackout Events** panel to view all blackout events in the system. The events database are maintained after software upgrades.

You can:

- End an event or lengthen or shorten it while running.
- Add devices to the event before it has finished running.
- Remove devices from an event.
- Configure a device with two overlapping events with the same blackout program and the same alternative program.

The following features are available in this panel as context menu items:

- **Edit**
- **View**
- **Clone Blackout Event**
- **Show in Timeline View**
- **Start Now**
- **End Now**
- **Remove**
The following states are used in the **Blackout Event** panel:

### Table 7–1: States

<table>
<thead>
<tr>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined</td>
<td>The start time has not been defined.</td>
</tr>
<tr>
<td>Ended</td>
<td>The event ran and stopped according to schedule.</td>
</tr>
<tr>
<td>Failed</td>
<td>The event failed to start on the device.</td>
</tr>
<tr>
<td>Incomplete</td>
<td>The blackout event is not fully defined.</td>
</tr>
<tr>
<td></td>
<td>- Target devices are not selected.</td>
</tr>
<tr>
<td></td>
<td>- The blacked-out program has not been defined.</td>
</tr>
<tr>
<td></td>
<td>- The End Time has not been defined.</td>
</tr>
<tr>
<td>Preparing</td>
<td>The preparation command is sent and CAS entitlement opens (if CAS scrambling is selected). The blackout event is moved to the preparation state 4 minutes before the start.</td>
</tr>
<tr>
<td>Running</td>
<td>The event has been activated (either manually by the user or automatically). In the case of an automatic event, the device is considered to be in the Running state at the scheduled time.</td>
</tr>
<tr>
<td>Scheduled</td>
<td>The event definition is complete and a start time has been defined (regardless of the activation mode).</td>
</tr>
<tr>
<td>Skipped</td>
<td>The event was scheduled but never activated.</td>
</tr>
<tr>
<td>Stopped</td>
<td>The event was running and had a defined End Time, yet the user stopped it manually.</td>
</tr>
</tbody>
</table>

To display the **Blackout Events** panel:

1. Click **Blackout Events** in the **Blackout** group of the **Home** tab.

   The **Blackout Events** panel displays.

   **NOTE:** A new column have been added to indicate if the event has a static or dynamic Target Source Type.
Blackout Events

To display the context menu:
1. Right-click an event in the **Blackout Events** panel.
2. A context menu displays with relevant menus from the following list:
   - Edit
   - View
   - Clone Blackout Event
   - Show in Timeline View
   - Start Now
   - End Now
   - Remove

**Editing a Blackout Event**

Use the context menu or double-click a blackout event to edit it.

To edit a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **Edit**.

**Viewing a Blackout Event**

Use the context menu to view the properties and targets of a blackout event.

To view a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **View**.

Each of the columns can be used to filter the blackout events on event state (multiple selection). The default view will display only events that are: Defined, Incomplete, scheduled, and running. By default the events will be sorted according to the start_time. Events that are running are expected to be on top.

**Cloning a Blackout Event**

Use the context menu to clone a blackout event. When an event is cloned the following properties are copied from the source event:

- Event Description
- Blacked-Out program
- Alternative Program
- Targets

To clone a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **Clone Blackout Event**.

**Showing a Blackout Event in the Timeline**

Use the context menu to show a blackout event in the Timeline.

To show a blackout event in the Timeline:
1. Right-click an event in the **Blackout Events** panel.
2. Select **Show in Timeline View**.

**Manually Starting a Scheduled Blackout Event**

Use the context menu to start a scheduled blackout event immediately.

To start a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **Start Now**.

**Manually Stopping a Scheduled Blackout Event**

Use the context menu to stop a scheduled blackout event immediately.

To stop a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **End Now**.

**Removing a Blackout Event**

Use the context menu to remove a blackout event. You cannot remove past events or running events.

To remove a blackout event:
1. Right-click an event in the **Blackout Events** panel.
2. Select **Remove**.

**Timeline**

Use the **Timeline** to view a graphical representation of the blackout events. You can also create blackout events on the timeline using the mouse. You can choose to view events on a specific date or at the current time. You can zoom to change the viewing period. The **Timeline** is part of the **Blackout Event Editor** panel. The **Timeline** shows events in one of the following states:

- Scheduled
- Running
- Ended
- Stopped

The states are color coded.

You can:

- Stop running events
- Clone events
- Edit event properties
- Show in **Blackout Event** panel
Creating Events

To create an event:
1. Click and drag the mouse pointer on the Timeline.
   The Blackout Properties update to reflect the changes.
2. Enter properties as per Create Blackout Event.

Zooming

Use the magnifying glass buttons to zoom in or out and the minimum zoom button to display a large time range.
Use Alerts and the following panels to monitor receiver devices:

- **Dashboard** panel
- **Alarms** panel
- **Commands** Panel
- **Schedule** Panel
- **Audit Log** panel

To monitor the return channel use *The Alarms Panel*. The actual firmware version of a device displays in the *Expected Firmware Version* column in the *Device Browser* panel.

The following topics describe monitoring related operations:

- *The Dashboard Panel*
- *The Alarms Panel*
- *Export Alarms Property Sheet*
- *The Commands Panel*
- *RF History*
- *Schedule Panel*
- *The Audit Log Panel*
- *Exporting the Audit Log*
- *Alerts*

### The Dashboard Panel

The **Dashboard** panel is an aggregative view to monitor the system, including system events, active commands, alarms and others. The **Dashboard** panel comprises of elements. For an explanation of the GUI functionality see *The Dashboard Panel*.

**Related Topics:**

- *Elements Introduction*
- *Adding Elements*
- *Element Descriptions*
- *Displaying the Commands Panel*
- *Displaying Command Details*
- *Displaying Target Devices*
- *Canceling a Command in Progress*

### Elements Introduction

There are various Dashboard elements for different purposes. The elements currently available in the system are:
The Dashboard Panel

- Audit Log
- Calendar
- Clock
- Image
- Devices
- Commands
- Alarms
- Scheduled Commands

You can add multiple instances of the same element, with different configurations, to the Dashboard. For example, you can add multiple Clock elements to the Dashboard, and configure them with different times, to represent different time zones.

Adding Elements

To add elements to the Dashboard:

1. Click the Show palette button in the bottom right corner of the Dashboard panel.
   The palette displays at the bottom of the Dashboard panel.

2. Drag palette icons onto the Dashboard or double-click palette icons to add them.
   You can hide the palette with the Hide palette button in the bottom right corner of the Dashboard panel.

Element Descriptions

The following elements are available:

Audit Log

This element displays the most recent events. You can filter this list by event type and originator and configure the refresh interval and list size limit.

You can configure the Audit Log element in the element configuration property sheet, see Customizing Elements.
The Dashboard Panel

Calendar

This element is month based and displays the current date. To advance or retreat the year, click the double arrow buttons. To advance or retreat the month, click the single arrow buttons. To display the current date, click **Today**.

Clock

Use the element configuration property sheet to configure the clock caption and time zone, see *Customizing Elements*.

You can configure several Clock instances, each with their own time zone and caption.

Image

This element displays an image file of your choice. This is a good place to display a map of the region where the devices are deployed.

You can select a file to display in the element configuration property sheet, see *Customizing Elements*. 
The Dashboard Panel

**Devices**

This element displays a pie chart of the number of devices in the system grouped by any of the following categories:

- channel
- customer
- expected firmware version
- country
- state
- time zone

The chart refreshes every 60 seconds by default. You can change the refresh rate.

You can change the group category or refresh rate in the element configuration property sheet, see [Customizing Elements](#).

To display the corresponding filtered view in the **Device Browser**:

- Double-click a slice of the pie chart.

**Commands**

This element displays running commands in the system in chronological order. You can set the maximum number of commands to display and whether to display only commands that are being executed. Scheduled commands display in the corresponding element.

You can view the target device/group and **Cancel** commands with the **Commands** element. The **Cancel** command is only available for firmware upgrade commands in idle or in-progress states.
You can configure the **Commands** element in the element configuration property sheet, see *Customizing Elements*.

To view the target device/group:

- Click **Targets**.

To cancel commands:

- Click **Cancel**.

### Alarms

This element displays all the alarms in chronological order. Each alarm is colored according to the alarm severity predefined colors. Click an alarm to display the alarm details in the **Alarms** panel at the bottom of the DMS window.

### Scheduled Commands

This element displays the next 20 scheduled commands for the following 7 days arranged according to the day of the week. You can decrease the number of days in the element configuration property sheet, see *Customizing Elements*. 
The Alarms Panel

The Alarms panel enables you to monitor the system and receiver devices and respond quickly. An alarm is a state in the system or a receiver device.

To display the Alarms panel:

- Click Alarms in the Alarms group of the Home tab, see Figure 2–1.

Current receiver device alarms are received via the return channel, if the return channel is enabled for the receiver device, and via CAS and display in the Alarms panel. Alarms are colored according to their severity. The following list defines the severity colors:

- **Yellow** – Minor
- **Orange** – Major
- **Red** – Critical

Alarms are logged in The Audit Log Panel.

See Panels for information on selecting columns to display.
See Table 8–1 for some important alarm descriptions.

**Table 8–1: Alarms and descriptions**

<table>
<thead>
<tr>
<th>Alarm Text</th>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
</table>
| Agent Service is Unavailable                   | Critical | The alarm is asserted when the server has no IP connection to the Agent service. The alarm is remitted as soon as connection is restored. **Corrective Action:** Verify the following:  
  - The **Skipper Agent** service is running on the Server’s PC. |
| Backup Server Not Synced                       | Minor    | The alarm is asserted by the Primary Server when it detects that it is out of sync with the Backup Server. The alarm is remitted as soon as a successful Sync is performed (and completed successfully).  
  **Corrective Action:** Sync the Primary and Backup servers. |
| CAS Product X not Recognized by CAS            | Major    | The alarm is asserted when the DMS attempts to authorize a program and the CAS returns an error that the CAS product is not recognize by the CAS system. The alarm is removed once there are no pending entitlements to this product or a successful sync has been performed.  
  **Corrective Action:** Verify that the CAS Product in the Service Plan is defined correctly. If the problem persists contact Harmonic’s help desk. |
| Connection to CAS is compromised               | Major    | The alarm is asserted when the DMS is working in redundancy and it loses a connection to one of the CAS servers (either its own or its peer’s).  
  **Corrective Action:** Verify that the CAS parameters are configured properly and that the server has IP connection to the CAS server. |
| Connection to the Multiplexer is compromised    | Minor    | The alarm is asserted in the event that two data connections to the multiplexer are defined and one of them has failed (no IP connection).  
  **Corrective Action:** Verify that there is an IP connection between the DMS server and both multiplexers. |
| No Available Backup                            | Major    | The alarm is asserted by the Primary Server when it is working in Redundancy mode and it has no connection (IP or other) with the Backup.  
  **Corrective Action:** Check connectivity to the backup server PC and verify that the DMS Server application is running. |
Table 8–1: Alarms and descriptions

<table>
<thead>
<tr>
<th>Alarm Text</th>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
</table>
| No CAS Server is Available                     | Critical | In standalone: The alarm is asserted when the DMS detects that it has no connection to the CAS.  
In Redundancy: The alarm is asserted when the DMS detects that it has no connection to all CAS (both its own and its peer).  
**Corrective Action:** Verify that the CAS parameters are configured properly and that the server has IP connection to the CAS server. |
| No Connection to the Multiplexer                | Major    | The alarm is asserted in the event that there is no connection to any of the defined multiplexers.  
**Corrective Action:** Verify that there is an IP connection between the DMS server and the defined multiplexers. |
| No Primary Available                            | Major    | The alarm is asserted by the Backup Server when it is working in Redundancy mode and it has no connection (IP or other) to the Primary.  
**Corrective Action:** Check connectivity to the primary server PC and verify that the DMS Server application is running. |
| SC/VSC Not Recognized by CAS                    | Major    | The alarm is asserted when the DMS attempts to authorize a device and the authorization failed since the SC or VSC is not recognized by the CAS.  
The alarm is removed once there are no pending entitlements to that device (either the SC was corrected in the DMS or a successful sync is performed).  
**Corrective Action:** Verify that the SC/VSC in the device configuration is defined correctly. If the problem persists contact Harmonic’s help desk. |
| Software Version Mismatch with Backup Server    | Major    | The alarm is asserted by the Primary Server when it is working in Redundancy mode and it detects that the Backup Server is not running the same version.  
**Corrective Action:** The software version of the backup server is not identical to the Primary.  
Update the backup server to the correct version. |
Table 8–1: Alarms and descriptions

<table>
<thead>
<tr>
<th>Alarm Text</th>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spooler Service is Unavailable</td>
<td>Critical</td>
<td>The alarm is asserted when the server has no IP connection with the Spooler service. The alarm is remitted as soon as the connection is restored. Corrective Action: Verify the following: The Skipper Spooler service is running on the Server’s PC</td>
</tr>
</tbody>
</table>

Export Alarms Property Sheet

You can export the alarm log in Excel 2007/2010 .xlsx format. If you don’t select any alarms to export then all the alarms are exported.

To export the Alarm Log:
1. Click Browse in the Audit Log group of the Home tab.
   The Audit Log panel displays.
2. You can use the Query Editor to filter the list, see Query Editor for instructions.
3. You can use the All, None or Selected buttons to mark the respective checkboxes.
4. Select entries to export with the checkboxes.
5. Click Export in the Audit Log group of the Home tab.
   The Export Audit Log property sheet displays.
6. Enter a filename. The default entry is AuditLog<DateTime>.
7. Click Download.

The Commands Panel

The Commands panel lists all commands which are in progress or pending, as well as commands that have been executed (canceled, failed or finished). You can:

- Display command details
- Display target devices for a command
- Cancel commands that have not finished executing

Related Topics:
- Displaying the Commands Panel
- Displaying Command Details
- Displaying Target Devices
- Canceling a Command in Progress

Displaying the Commands Panel

To display the Commands panel:
- Click Commands in the Monitoring group of the Home tab.
The **Commands** panel displays.

![Figure 8–1: Commands Panel](image)

**Displaying Command Details**

To display command details:

- Double-click on a command in the list to display its details.
  
  The command in the list expands to display its details.

**Displaying Target Devices**

To display the target devices for a command:

1. Double-click on a command in the list to display its details.
   
   The command in the list expands to display its details.

2. Click the blue **Target devices** link.

**Canceling a Command in Progress**

You can cancel the following commands:

- Download Configuration File
- Upgrade Firmware

To cancel a command in progress:

1. Select a command in the **Commands** panel list.
2. Click **Cancel Command**.

When you cancel a firmware upgrade that is configured with **Firmware Activation** mode set to **Simultaneous**, a property sheet displays so that you can choose one of the following:

- **Current device firmware** – do not change the device firmware version in the database, assume it was not upgraded
- **Command firmware** – update the device firmware version in the database with the version in the command, assume it was upgraded
- **Unknown firmware** – there is no certainty whether the upgrade completed, record **unknown** in the device profile in the database

Command Alerts draw the user’s attention to significant events with pop-up messages and audio. See **Configuring Alerts** for information on configuring Alerts.
RF History

DMS snapshots the RF status of every port on every device every hour and keeps the last week of snapshots on record so that you can save the RF history in Excel format and produce graphs with a spreadsheet. The Excel file is zipped.

To download the RF history:
1. Click Download RF History in the Monitoring group of the Home tab.
   The Download RF History property sheet displays.
2. Browse to a folder.
3. Click Download.

Schedule Panel

Use the Schedule panel to display commands scheduled to execute between specified dates. Right-click a column heading to select columns to display. See Schedule Panel for an explanation of the buttons and usage.

The Audit Log Panel

The Audit Log panel displays a history of system and user actions in a sortable list, which can be used for tracking any past user or system activity and for auditing purposes. DMS records every time a user logs in or out of DMS, it also records alarm transitions. When an alarm transitions, therefore raised or cleared, it generates an event. You can scroll the log in the Device Audit Log box. Click on any column to sort the list according to that column. Right-click a column for a menu of column operations. Click the Query Pane to filter the log.

To display the Audit Log panel:
- Click Browse in the Audit Log group of the Home tab, see figure below.

TIP: You can display the Audit Log panel with the Quick Launch toolbar, see Figure 2–1.
The Audit Log Panel

Use the **Query Editor** to filter the list, see *Query Editor*. See *Panels* for information on selecting columns to display.

**Comments**

You can append comments to entries, these display in the **Entry Comments** box when the respective entry is selected.

Appending a comment:
1. Select the text of any entry.
   - The text highlights.
2. Click in the empty box next to the append button
3. Enter the comment.
4. Click **Append**.

Editing an appended comment:
- Double-click the comment then edit it.

Removing an appended comment:
1. Click the comment.
2. Click **Remove**.

**Custom Entries**

You can add free text to the **Audit Log** using the **Insert Custom Entry** box. This is not appended to entries but is recorded as a separate entry.

Inserting a custom entry:
1. Click in the **Insert Custom Entry** box.
2. Type the custom text.
3. Click **Append**.
Exporting the Audit Log

You can export the audit log to a .xlsx Excel file. If you don’t select any entries to export then all the entries are exported.

To export the Audit Log:
1. Click Browse in the Audit Log group of the Home tab, see figure below.
   The Audit Log panel displays.
2. You can use the Query Editor to filter the list, see Query Editor for instructions.
3. You can use the All, None or Selected buttons to mark the respective checkboxes.
4. Select entries to export with the checkbox.
5. Click Export in the Audit Log group of the Home tab.
   The Export Audit Log property sheet displays.
6. Enter a filename.
7. Click Download.

Alerts

Alerts draw the user’s attention to significant events with pop-up messages and audio alerts. There are alerts related to:
- Devices
- Groups
- Commands
- Alarms
- CAS
- TS and Programs
- Device Authorization
- Uplinks
- Input Profiles
- Blackouts and SpotLights
- User Roles
- Public Queries
- BISS Keys

See Configuring Alerts for information on configuring Alerts.
Chapter 9
Distribution Network Setup

- Service Plan
- BISS Keys
- Uplinks
- Input Profiles

Service Plan

In order to configure devices to process any service in the system it has to be defined in the processing profiles first.

You must give each profile a unique name.

The following topics describe device configuration and control commands:

- Adding a Transport Stream
- Updating a Transport Stream
- Removing a Transport Stream
- Adding a Program
- Updating a Program
- Removing a Program

Adding a Transport Stream

To add a transport stream:

1. Right-click Transport Streams in the Service Plan panel.

2. Select Create Transport Stream.
   
   The Create Transport Stream property sheet displays.

3. Enter a unique name.

4. Click OK.
Updating a Transport Stream

To update a transport stream:
1. Right-click a transport stream in the Service Plan panel.
2. Select Update Transport Stream.
   The Update Transport Stream property sheet displays.
3. Enter new data.
4. Click OK.

Removing a Transport Stream

You cannot remove a transport stream that is defined in an Input Profile.
To remove a transport stream:
1. Right-click a transport stream in the Service Plan panel.
2. Select Remove.
3. Confirm the dialog.

Adding a Program

DMS enables you to add and update programs for devices.
Prerequisite:
- A transport stream.
To add a program:
1. Right-click a transport stream.
2. Select Create Program.
   The Program property sheet displays.
3. Configure the following parameters:
   - General box:
     - Program Name – unique within the transport stream
Number – unique within the transport stream (1–65534)

Video Resolution
- SD
- HD (default)

Video Codec
- MPEG-2
- AVC (default)

Scrambling box:
- Method
  - None (default if VMX is not licensed)
  - VMX (default)
  - BISS
  - CAM-1/2/3/4
  - VMX CAM-1/2/3/4

Product Key – When VMX or VMX CAM is selected this is required. Use this for CA products.

BISS Key – When BISS is selected this is required. Define the BISS keys using the Configuration tab.

DTA box:
- Output Program Number (Range 1-65534, default same as the program number)
- PID Offset (Range -4096 - 4096, default is 0)

TX - SD box
- Output Program Number (Range 1-65534, default is program number + 1000)
- PID Offset (Range -4096 - 4096, default is 1000)

TX - HD box
- Output Program Number (Range 1-65534, default is program number + 2000)
- PID Offset (Range -4096 - 4096, default is 2000)

Updating a Program

DMS enables you to update programs for devices. Changes to programs are applied immediately unless there is a conflict.

Prerequisite:
- A program.

To update a program:
1. Right-click a program.
2. Select Update Program.
3. The Program property sheet displays. See Adding a Program for parameter information
4. Enter new data.
5. Click OK.

Removing a Program

DMS enables you to remove programs.

Prerequisite:
A program.

To remove a program:
1. Right-click a program.
2. Select **Remove**.
3. Confirm the dialog.

**BISS Keys**

Use the **BISS Keys** property sheet to configure BISS Keys for synchronization with devices. Use the **Edit** icon to edit the description and key number or the **Clear** icon to clear the description and number. A check mark in the **In Use** column displays for a key that is used for a program, this column is read only.

**NOTE:** You can also clear keys using the **Clear** icon.

To configure BISS keys:
1. Click **BISS Keys** in the **Distribution Network Setup** group on the **Configuration** tab.
   
   The **BISS Keys** property sheet displays.
2. Click the **Edit** icon or double-click a key row to edit a key.

   ![BISS Keys property sheet](image)

   The **Key** property sheet displays.

   ![Key property sheet](image)

   3. Enter a description and the key.
   4. Click **OK**.
Uplinks

Use the Uplink property sheet to define uplink profiles to use with devices that have uplinks. You can define satellite and IP uplink profiles.

To open the Uplinks Management panel:

- Click Uplinks in the Distribution Network Setup group on the Configuration tab.

The Uplinks Management panel opens.

Use the Edit and Remove buttons to edit and remove uplink profiles.

**Satellite Uplink Properties**

To add a satellite uplink profile:

1. Select Add > Add Satellite Uplink.

   The Uplink property sheet displays.

![Uplink Properties](image)

The editable properties comprise the following:

- **Uplink Name** – Must be unique.
- **Modulation Standard** (Default DVB-S2)
  - Automatic
  - DVB-S
  - DVB-S2
- **L-Band Frequency** – Range 0.95 – 2.125 GHz. Default 1.
- **Symbol Rate** – Range 1,000,000 – 45,000,000 Msym/s, adjustable in 100 sym/s steps. Default 27.5.
- **Modulation and FEC**
  - DVB-S options:
    - Automatic (default)
    - QPSK 1/2

---

1. Only available with certain hardware configurations.
Uplinks

- QPSK 2/3
- QPSK 3/4
- QPSK 5/6
- QPSK 7/8
- DVB-S2 options:
  - Automatic (default)
  - QPSK 1/4
  - QPSK 1/3
  - QPSK 2/5
  - QPSK 1/2
  - QPSK 3/5
  - QPSK 2/3
  - QPSK 3/4
  - QPSK 4/5
  - QPSK 5/6
  - QPSK 8/9
  - QPSK 9/10
  - 8PSK 3/5
  - 8PSK 2/3
  - 8PSK 3/4
  - 8PSK 5/6
  - 8PSK 8/9
  - 8PSK 9/10

- Spectral Inversion – Sets the mode of operation for the spectral inversion function. Options:
  - Automatic (default)
  - Normal
  - Inverted

- Roll Off
  - Automatic – Default for DVB-S2.
  - 0.2
  - 0.25
  - 0.35 – Default for DVB-S.

- PL Scrambling – DVB-S2 only. Range 0 – 262144. Default 0.

- Pilot – DVB-S2 only. Options:
  - Automatic (default)
  - Enable
  - Disable

- ISI – DVB-S2 only. Range 0 – FF. Default is FF.

**IP Uplink Properties**

To add an IP uplink profile:
1. Select Add > Add IP Uplink.
The **Uplink** property sheet displays.

![Uplink Properties](image.png)

The editable properties comprise the following:

- **Uplink Name**
- **Unicast** – Default is not Unicast.
- **Multicast IP** – Default is 224.224.224.224.
- **UDP Port** – Default is 1000.
- **FEC Mode** – Default is **None**. In this release you cannot change the **FEC Mode**.
  - None
  - 1D
  - 2D

**Input Profiles**

Use the **Input Profile** property sheet to define input profiles with links to use with devices that have RF, IP or ASI inputs. You can configure backup links in case of disasters. Each link must be configured with a different port.

To open the **Input Profile Management** panel:

- Click **Input Profiles** in the **Distribution Network Setup** group on the **Configuration** tab.

  The **Input Profile Management** panel opens.

Use the **Edit** and **Remove** buttons to edit and remove input profiles. Changes that you make to an input profile are applied immediately to all devices that have the input profile as part of the device configuration. You cannot remove a profile that is part of a device configuration.

Prerequisites for adding and editing **Input Profiles**:

- Uplink profiles for RF and IP ports.
- A transport stream.

The editable properties comprise the following:

- **Profile Name** – Must be unique.
- **Line Up** tab
  - **Port** – Select a port above the **Primary** label to be the primary port. Select any relevant port in each of the four **Port** lists. You can select **Local Override** enabling a user to
configure the port directly on a ProView 7000. Note: When Disaster Recovery is enabled, the Local Override parameter is not available.

- **Priority** – Select backup priorities for all ports except the first.
- **Uplink** – Select uplinks for all ports that are not ASI ports. Uplink profiles must first be defined in *Uplinks*. You can select Local Override enabling a user to configure the uplink directly on a ProView 7000.
- **TS** – Select transport streams for ports. You are required to select a transport stream for the primary port. First create transport streams in *Adding a Transport Stream*.
- **Program aliasing** – Program names with backup links configured with the same transport stream as the primary link are automatically populated with the same program names as the primary link and you cannot change them. You can configure program names for different transport streams and you can configure a program as an alternative to more than one program on the primary.

### Disaster Recovery tab
- **Enable Disaster Recovery** – Mark the checkbox to enable disaster recovery
  - **Start Conditions**
    - **Link Loss for** – You can change the period of time the link is lost before Disaster Recovery begins. Defaults: Always Enabled, 60 seconds. Range: 1–86400 seconds.
  - **End Conditions**
    - **Link Lock for** – You can change the period of time to end disaster recovery after the link is locked. Defaults: Always Enabled, 5 seconds. Range: 1–86400 seconds.
    - **DMS Lock**
    - **Network ID** (0–65535)
    - **TS ID** (0–65535)

To add an input profile:

1. Select **Add**.

   The *Input Profile* property sheet displays.
Importing from NMX

You can import program definition files generated with Harmonic NMX.

To import an NMX file:
1. Click **Import from NMX** in the **Actions** group on the **Configuration** tab.
   
   The **Import NMX File** property sheet displays.
2. Select the file or enter the name.
3. Click **Import NMX File**.
Chapter 10
Processing Profiles

In order to configure devices to process any service you must create processing profiles. Use the Edit and Remove buttons to edit and remove processing profiles. Changes that you make to a processing profile are applied immediately to all devices that have the processing profile as part of the device configuration. You cannot remove a profile that is part of a device configuration.

The following topics describe the processing profiles:

- Decoding
- Transcoding
- DTA
- DPI

**Decoding**

Use the Decoding Profile property sheet to create decoding profiles for devices.

To create a decoding profile:

1. Click Decoding in the Processing Profiles group of the Configuration tab.
   
   The Decoding Profile Management panel displays.

2. Click Add.
   
   The Decoding Profile property sheet displays.

3. Enter the Profile Name (unique).

4. Configure the following parameters:
   - Local Override
   - All

![Decoding Profile Property Sheet](image-url)
Decoding

- **Disabled** (default)
- **Video Decoding** box
  - **Video PID Selection**
    - **Automatic** (default)
    - **None**
  - **Display Format**
    - **Automatic** (default)
    - **HD**
    - **SD**
  - **Video Format and Frame Rate** – This can only be configured when **Display Format** is set to **HD**.
    - **720p@50**
    - **720p@59**
    - **720p@60**
    - **1080i@25**
    - **1080i@29.97** (default)
    - **1080i@30**
- **Analog Format for 625 lines**
  - **PAL B/G** (default)
  - **PAL I**
  - **PAL D**
  - **PAL N**
  - **French SECAM**
  - **Russian SECAM**
- **Analog Format for 525 lines**
  - **NTSC** (default)
  - **PAL M**
- **Aspect Ratio**
  - **Automatic** (default)
  - **4:3**
  - **16:9**
- **Aspect Ratio Conversion for 4:3**
  - **AFD** (default)
  - **Center-Cut**
  - **Letterbox**
  - **Anamorphic**
- **Aspect Ratio Conversion for 16:9**
  - **AFD** (default)
  - **Center-Cut**
  - **Pillarbox**
  - **Anamorphic**
- **Audio Channels**
  - **Audio Channel 1** box - **Audio PID Selection**
Transcoding

Use the TX Profile property sheet to create transcoding profiles for devices.

To create a transcoding profile:
1. Click TX in the Processing Profiles group of the Configuration tab.
2. Click Add.

The TX Profiles Management property sheet displays.

3. Enter a unique name for the Profile Name.
4. Configure the following parameters:
Local Override
- Disabled (default)
- Display Format
- All

Transcoding box
- Output Codec
  - MPEG-2 (default)
  - AVC
- Preferred Video Format
  - HD (default)
  - SD
- SD Output Box
  - Bitrate –
    When Output Codec is MPEG-2 the range is 2–15 Mbps, the default is 3.
    When Output Codec is AVC the range is 1–15 Mbps, the default is 2.
  - Video Resolution
    - 352
    - 480
    - 528
    - 544
    - 640
    - 704
    - 720 (default)
  - Profile –
    When Output Codec is MPEG-2 the parameter is High.
    When Output Codec is AVC the parameters are Main and High, the default is High.
  - Aspect Ratio
    - 4:3 (default)
    - 16:9
  - Aspect Ratio Conversion –
    When Aspect Ratio is 16:9 the parameter is N/A.
    When Aspect Ratio is 4:3:
  - Letterbox
  - Center-Cut
  - AFD (Fallback to Letterbox)
  - AFD (Fallback to Center-Cut) (default)
  - GOP Mode
    - Follow the Input (default)
  - Fixed (N & M)
  - Variable (N & M)
  - Capped (M follows the input)
  - Fixed M
  - Open/Close GOP
Follow the Input (default)
Open
Close
GOP Length – The range is 6– 90, default 30. It must be a product of the Mini GOP Length.
Mini GOP Length –
When Output Codec is MPEG-2: 1, 2, 3 (default).
When Output Codec is AVC: 1, 2, 4 (default).

HD Output Box
Bitrate –
When Output Codec is MPEG-2 the range is 6– 18 Mbps, the default is 15.
When Output Codec is AVC the range is 3– 18 Mbps, the default is 10.

Video Resolution
720 x 960
720 x 1280 (default)
1080i x 1280
1080i x 1440
1080i x 1920
Profile –
When Output Codec is MPEG-2 the parameter is High.
When Output Codec is AVC the parameters are Main and High, the default is Main.

Aspect Ratio – Passthrough
Aspect Ratio Conversion – None

GOP Mode
Follow the Input (default)
Fixed (N & M)
Variable (N & M)
Capped (M follows the input)
Fixed M
Open/Close GOP
Follow the Input (default)
Open
Close
GOP Length – The range is 6– 90, default 30. It must be a product of the Mini GOP Length.
Mini GOP Length –
When Output Codec is MPEG-2: 1, 2, 3 (default).
When Output Codec is AVC and Video Resolution is 720p: 1, 2, 4, 8 (default).
When Output Codec is AVC and Video Resolution is 1080i: 1, 2, 4 (default).

AFD
Re-Insert (default)
Discard

MCTF Level
Off (default)
DTA

Use the DTA Profile property sheet to create DTA profiles to map audio inputs with audio outputs.

To create a DTA profile:
1. Click DTA in the Processing Profiles group of the Configuration tab.
   The DTA Profiles Management panel displays.
2. Click Add.
The DTA Profile property sheet displays.

3. Enter a unique name for the Profile Name.
4. Configure the following parameters:
   - Pass all Data PIDs
   - Pass all Audio PIDs
   - Audio Priorities box – Select audio sources from the lists to map with the audio outputs on the left.
     - Audio #1 (primary) Source
       - None
       - Audio #1 (primary) (default)
       - Audio #2
       - Audio #3
       - Audio #4
     - Audio #2 Source
       - None
       - Audio #1 (primary)
       - Audio #2 (default)
       - Audio #3
       - Audio #4
     - Audio #3 Source
       - None (default)
       - Audio #1 (primary)
       - Audio #2
       - Audio #3
       - Audio #4
     - Audio #4 Source
       - None (default)
       - Audio #1 (primary)
       - Audio #2
       - Audio #3
       - Audio #4
5. Click OK.
DPI

Use the DPI Profile property sheet to create DPI profiles for devices. You can add up to 256 tiers in a profile.

To create a DPI profile:
1. Click DPI in the Processing Profiles group of the Configuration tab. The DPI Profiles Management panel displays.
2. Click Add. The Add DPI Profile property sheet displays.
3. Enter a unique name for the Profile Name.
4. Enter DPI Tiers values one at a time and click Add for each one.
5. Click OK.
Chapter 11

Custom Device Attributes

Custom device attributes are attributes that are added to the standard attributes. You can use these attributes in the Query Editor or to sort the devices just like with any standard device attribute. The custom attributes can be of different types such as numeric, boolean, string or a list of values and you can categorize these attributes.

You can enter custom device attributes when:

- Adding devices
- Updating devices
- Cloning devices
- Swapping devices

List Type

The List type must have at least two entries. The first entry in the list is considered the default. You can delete entries from the list. Any devices that use the List type is assigned with the default entry.

The operations are:

- Adding Custom Device Attributes
- Editing Custom Device Attributes
- Removing Custom Device Attributes

Adding Custom Device Attributes

Use the Add button to add custom device attributes.

To add a custom device attribute:

1. Click Custom Device Attributes in the Device Attributes group of the Configuration tab.
   The Custom Device Attributes panel displays.
2. Click Add in the Custom Device Attributes panel.
   The Add Custom Attribute property sheet displays.
3. Enter a name for the attribute.
4. The description is optional.
5. Select an attribute type from the drop-down list:
   - Boolean
   - Date
   - Decimal
   - List
   - Numeric
   - String
6. To make this attribute unique, mark the Unique checkbox.
7. If you selected List for the Type parameter, enter a list of items in the List of Entries box.
8. Click OK.
Editing Custom Device Attributes

Use the Edit button to edit custom device attributes.

To edit a custom device attribute:
1. Click Custom Device Attributes in the Device Attributes group of the Configuration tab.
   The Custom Device Attributes panel displays.
2. Select a custom device attribute in the Custom Device Attributes panel to edit.
3. Click Edit in the Settings panel in the Custom Device Attributes panel.
   The Edit Custom Attribute property sheet displays.
   The description is optional.
   The attribute type cannot be changed.
4. Edit the fields.
5. Click OK.

**NOTE:** If the Device Browser panel is open when you edit custom attributes, any custom attribute update does not reflect in the Device Browser panel until you close and open it again.

Removing Custom Device Attributes

Use the Remove button to remove custom device attributes.

To remove a custom device attribute:
1. Click Custom Device Attributes in the Device Attributes group of the Configuration tab.
   The Custom Device Attributes panel displays.
2. Select a custom device attribute in the Custom Device Attributes panel to remove.
3. Click Remove in the Custom Device Attributes panel.
4. Confirm the confirmation dialog.
The following topics describe operations related to system setup:

- **Network Connection**
- **Firmware Versions**
- **Configuring Alerts**
- **Sync Entitlements**
- **User Management**
- **Roles**

### Network Connection

Use the **DMS Network Connection Setup** property sheet to configure the following:

- **Connection to Multiplexers** – The DMS server supports two (2) physical connections to the multiplexer. Both multicast sources are used for the spooler and agent. (The spooler is used to spool the command data, that is sent to devices, using a transport stream.)
- **DMS EMMs Configuration** – Configure the stream management.
- **CAS Configuration** – Configure the CAS server.
- **DMS Redundancy Configuration** – The number of connections used in the primary and backup servers for redundancy should be the same.

To configure the DMS network:

1. Click **Network Connection** in the **Settings Group** of the **Setup** tab.
2. Configure the following parameters in the **Connection to Multiplexers** step:
   - **Connection #1** box
     - **DMS NIC IP Address** – Required
     - **Multicast Address** – The first Multicast IP to connect to a multiplexer. It must use the same NIC configuration as its peer DMS. It is required.
   - **Enable Connection #2**
     - **Connection #2** box
     - **DMS NIC IP Address** – Required if you enable **Connection #2**.
Chapter 12 Setup

Network Connection

- **Multicast Address** – The second Multicast IP to connect to a multiplexer. It must use the same NIC configuration as its peer DMS. It is required if you enable Connection #2.

3. Click Next.

![Image of DMS Network Connection Setup](image)

4. Configure the following parameters in the **DMS EMMs Configuration** step:
   - **Bitrate**
     - Reserved Bitrate for Control EMMs (50-500 Kbps)
     - Reserved Bitrate for File Download (50-500Kbps)
   - **PID Configuration** box – The UDP Ports and PIDs are the same for both connections. You can use the same PIDs for all EMMs but they must use different UDP Ports.
     - Commands EMM – CMAT and CMT (Default PID is 100).
     - SW Files Download EMM – File downloading (Default PID is 101)
     - Preset Files Download EMM – Configuration files (Default PID is 102)
     - Configuration EMM – Input and Processing profiles (Default PID is 103)
     - Authorization EMM – DCT (Default PID is 104)

5. Click Next.

![Image of DMS Network Connection Setup](image)

6. Configure the following parameters in the **CAS Configuration** step:
Chapter 12 Setup

- **Enable CAS** – This checkbox is marked if CAS is enabled.
- **CAS Configuration box**
  - **Vendor** – Verimatrix is supported in this release.
  - **IP Address** – The IP address of the CAS server.
  - **TCP Port** – The TCP port for connection to the CAS server.
  - **Super CAS ID** – The Super CAS ID of the CAS server.

7. Click **Next**.

8. Configure the following parameters in the **DMS Redundancy Configuration** step:
   - **Allow Redundancy** – To allow redundancy with another DMS server.
   - **Peer DMS box**
     - **IP Address** – The management IP address of the peer DMS server
   - **Peer DMS Connection to Multiplexer box**
     - **Connection #1 Multicast Address** – The first Multicast IP to connect to a multiplexer. It must use the same NIC configuration as its peer DMS.
     - **Connection #2 Multicast Address** – The second Multicast IP to connect to a multiplexer. It must use the same NIC configuration as its peer DMS.
   - **Peer DMS CAS Configuration box**
     - **IP Address** – The IP address of the CAS server.
     - **TCP Port** – The TCP port for connection to the CAS server.
     - **Super CAS ID** – The Super CAS ID of the CAS server.

9. Click **Finish**.

**Firmware Versions**

The **Firmware File Management** panel displays device firmware files stored in the DMS server. Use this panel to load or remove firmware files.

You must load firmware files of the required version for the following:
- To add devices of a different firmware version than is loaded on the server
- To upgrade devices

The operations are:
- **Uploading a Firmware Version**
- **Removing a Firmware Version**
Uploading a Firmware Version

To upload a firmware version:
1. Click Firmware Versions in the Settings group of the Setup tab.
2. Click Select file to upload in the Firmware File Management panel.
   The Upload property sheet displays.
3. Browse to a firmware version and click Upload to upload it.

Removing a Firmware Version

You can remove firmware files one at a time.

**NOTE:** You cannot remove a firmware version that is used by devices.

To remove a firmware version:
1. Click Firmware Versions in the Settings group of the Setup tab.
2. Right-click a firmware version in the Firmware File Management panel.
3. Select Remove.

Configuring Alerts

Use the Alert Notification feature to configure the visual display, audio sounds, and types of alerts.
Figure 12–1: Alert Configuration property sheet

To configure the alerts:
1. Click **Alert Notification** in the **Settings** group of the **Setup** tab.
   - The **Alert Configuration** property sheet displays, see *Figure 12–1*.
2. Click on each group title to expand the group and configure the alerts for that group.
3. Click **OK** to activate the changes.

**Sync Entitlements**

Use the **Sync Entitlements** button to synchronize the CAS entitlements. This feature synchronizes entitlements on the server with the Verimatrix server and deletes any entitlements that are found on the Verimatrix server and not on the DMS server.

To synchronize CAS entitlements:
- Click the **Sync Entitlements** button in the **CAS** group on the **Setup** tab.
User Management

DMS uses user profiles to give multiple users different privileges. DMS has two user profiles built in but you can add and edit profiles:

- **Administrator** – A user profile with full permissions.
- **Guest** – A user profile with only view permissions.

The default username is `admin` with no password.

Each user profile provides user configurable roles. A user with the **User Management** privilege can configure these roles with specific privileges, see **Roles** for details.

The operations are:

- **Adding a User Profile**
- **Editing a User Profile**
- **Removing a User Profile**

Adding a User Profile

You can add user profiles with different privilege levels.

To add a user profile:

1. Click **Users** in the **Users and Roles** group of the **Setup** tab.
   - The **User Management** property sheet displays.
2. Click **Add**.
   - The **Add User Profile** property sheet displays.
3. Complete the fields.
4. Click **OK**.
   - The User Profile is added.

Editing a User Profile

You cannot change a username. You can change the password and the user level.

To edit a user profile:

1. Click **Users** in the **Users and Roles** group of the **Setup** tab.
   - The **User Management** property sheet displays.
2. Click **Edit**.
   - The **Edit User Profile Properties** property sheet displays.
3. Edit the profile.
4. Click **OK**.

Removing a User Profile

You can remove user profiles one at a time.

To remove a user profile:

1. Click **Users** in the **Users and Roles** group of the **Setup** tab.
   - The **User Management** property sheet displays.
2. Click **Remove**.
   The confirmation dialog displays.

### Roles

Each user profile provides user configurable roles. A user with the **User Management** privilege can configure these roles with specific privileges. Use the **Role Management** panel to define privileges for each role. You can define privileges for the current built-in role and you can add new roles and define privileges for them. The privileges comprise:

- **Create** – Includes the **Edit** and **View** privileges.
- **Delete** – Includes the **Edit** and **View** privileges.
- **Edit** – Includes the **View** privilege.
- **View**

See the Privileges Categories table for privileges descriptions. By default the **Administrator** role has all privileges and the **Guest** role has all **View** privileges only. Roles are maintained after software upgrades. You cannot delete a role that has users assigned to it.

To display the **Role Management** panel:

- Click **Roles** in the **Users and Roles** group on the **Setup** tab.

### Table 12–1: Privileges Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Privileges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Log</td>
<td>Privileges to manage:</td>
</tr>
<tr>
<td></td>
<td>Enables you to add custom entries.</td>
</tr>
<tr>
<td>Affiliates</td>
<td>Privileges to manage:</td>
</tr>
<tr>
<td></td>
<td>Affiliates management including Export and Import.</td>
</tr>
<tr>
<td>Blackouts</td>
<td>Privileges to manage:</td>
</tr>
<tr>
<td></td>
<td>Blackout events according to the <strong>Create</strong>, <strong>Delete</strong>, <strong>Edit</strong> or <strong>View</strong> privileges.</td>
</tr>
<tr>
<td>Custom Attributes</td>
<td>Privileges to manage:</td>
</tr>
<tr>
<td></td>
<td>Custom Device Attributes management</td>
</tr>
<tr>
<td>Roles Management</td>
<td>Privileges to manage user roles.</td>
</tr>
<tr>
<td>User Management</td>
<td>Privileges to manage user profiles.</td>
</tr>
</tbody>
</table>
### Table 12–1: Privileges Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Privileges to manage:</th>
</tr>
</thead>
</table>
| **Device Management** | ■ Groups  
                      ■ Adding / Removing devices and changing their configuration (not including authorization)  
                      ■ **Reboot Devices** command  
                      ■ Import / Export devices  
                      ■ Activate / Upgrade firmware on individual devices (device configuration)  
                      ■ CAS Sync  
                      ■ **Change Device State** type for the **Bulk Update** command  
                      ■ **Affiliate / Affiliate City** command configurations for the **Affiliate Association** type for the **Bulk Update** command  
                      ■ **Input Profile Replacement** type for the **Bulk Update** command  
                      ■ **Change Device Property** type for the **Bulk Update** command |
| **Device Authorization** | Privileges to manage:                                                                 |
|                       | ■ De/Authorizing programs in device configurations  
                      ■ CAS Sync  
                      ■ Changing device state in device configurations  
                      ■ **Program Replacement** type for the **Bulk Update** command  
                      ■ **Processing Profile Replacement** type for the **Bulk Update** command  
                      ■ **New Program Authorization** type for the **Bulk Update** command  
                      ■ **Program Authorization Re-Scheduling** for the **Bulk Update** command |
| **DMS Setup**         | Privileges to configure:                                                              |
|                       | ■ Spoolers and Agents configuration  
                      ■ CAS configuration |
| **Maintenance**       | Privileges to manage:                                                                 |
|                       | ■ Firmware Versions Management  
                      ■ Upgrade / Activate firmware on multiple devices  
                      ■ **Upgrade Licenses** on devices  
                      ■ Download / Activation / Rollback of configuration (presets)  
                      ■ **Set Model** command |
| **Service Plan**      | Privileges to manage:                                                                 |
|                       | ■ TS/Program management (including importing from NMX)                                |
| **Reception**         | Privileges to manage:                                                                 |
|                       | ■ Input Profiles  
                      ■ Uplinks |
| **Redundancy Management** | Redundancy Management application. (You must have **Create** or **Edit** rights in this category to launch the DMS Redundancy Management application.) |
To add a role:
1. Click Add.
   
   The Role property sheet displays.

   2. Enter a role name (mandatory).
   3. Enter a role description (optional).
   4. Define the role using the checkboxes.
   5. Click OK.

To edit a role:
1. Select a role in the list.
2. Click Edit.

   The Role properties sheet displays.

   3. Define the role using the checkboxes.
   4. Click OK.

To remove a role:
1. Select a role in the list.
2. Click Remove.
3. Click OK.
Chapter 13
The Help Tab

The following topics describe the Help tab items for accessing information about DMS and Harmonic:

- Displaying Help Topics
- Visiting Harmonic’s Web Site
- DMS License
- Displaying the DMS Version Number

Displaying Help Topics

Help Topics displays the guide which you are currently viewing in Web help format. It contains step by step instructions on how to use DMS.

To display the Web help:

- Click Help Topics in the Help group on the Help tab.

Visiting Harmonic’s Web Site

You can visit Harmonic’s web site with the DMS link.

To visit Harmonic’s web site:

- Click Harmonic on the Web in the Harmonic group.

DMS License

You can display a summary of the license information.

To display the license information:

- Click DMS License in the Harmonic group on the Help tab.

Displaying the DMS Version Number

You can verify the installed version number with the following procedure.

To display the DMS version number:

- Click About DMS in the Harmonic group on the Help tab.
Appendix A
Contacting the Technical Assistance Center

Harmonic Global Service and Support has many Technical Assistance Centers (TAC) located globally, but virtually co-located where our customers can obtain technical assistance or request on-site visits from the Regional Field Service Management team. The TAC operates a Follow-The-Sun support model to provide Global Technical Support anytime, anywhere, through a single case management and virtual telephone system. Depending on time of day, anywhere in the world, we will receive and address your calls or emails in one of our global support centers. The Follow-the-Sun model greatly benefits our customers by providing continuous problem resolution and escalation of issues around the clock.

Table A–1: For Distribution and Delivery (D&D, Legacy Harmonic) Products

<table>
<thead>
<tr>
<th>Region</th>
<th>Telephone Technical Support</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>888.673.4896 (888.MPEG.TWO) or 408.490.6477</td>
<td><a href="mailto:support@harmonicinc.com">support@harmonicinc.com</a></td>
</tr>
<tr>
<td>EME</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:support.emea@harmonicinc.com">support.emea@harmonicinc.com</a></td>
</tr>
<tr>
<td>India</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:support.emea@harmonicinc.com">support.emea@harmonicinc.com</a></td>
</tr>
<tr>
<td>Russia</td>
<td>+7.495.926.4608</td>
<td><a href="mailto:support.sm@harmonicinc.com">support.sm@harmonicinc.com</a></td>
</tr>
<tr>
<td>Africa</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:support.emea@harmonicinc.com">support.emea@harmonicinc.com</a></td>
</tr>
<tr>
<td>Mainland China</td>
<td>+86.10.6569.5580</td>
<td><a href="mailto:chinasupport@harmonicinc.com">chinasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Japan</td>
<td>+81.3.5565.6737</td>
<td><a href="mailto:japansupport@harmonicinc.com">japansupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Asia Pacific – Other Territories</td>
<td>+65.6542.0050</td>
<td><a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a></td>
</tr>
</tbody>
</table>

Table A–2: For Production and Playout (P&P, Legacy Omneon and Rhozet) Products

<table>
<thead>
<tr>
<th>Region</th>
<th>Telephone Technical Support</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>888.673.4896 (888.MPEG.TWO) or 408.490.6477</td>
<td><a href="mailto:omneon.support@harmonicinc.com">omneon.support@harmonicinc.com</a></td>
</tr>
<tr>
<td>EMEA</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:omneonemeasupport@harmonicinc.com">omneonemeasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Mainland China</td>
<td>+86.10.6569.5580</td>
<td><a href="mailto:chinasupport@harmonicinc.com">chinasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Japan</td>
<td>+81.3.5565.6737</td>
<td><a href="mailto:japansupport@harmonicinc.com">japansupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Asia Pacific – Other Territories</td>
<td>+65.6542.0050</td>
<td><a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a></td>
</tr>
</tbody>
</table>
The Harmonic Inc. support website is:
http://www.harmonicinc.com/content/technical-support

The Harmonic Inc. Distribution and Delivery product software downloads site is:
ftp://ftp.harmonicinc.com

The Harmonic Inc. Playout and Production software downloads site is:

The Harmonic Inc. corporate address is:

Harmonic Inc.
4300 North First St.
San Jose, CA 95134, U.S.A.
Attn: Customer Support

The corporate telephone numbers for Harmonic Inc. are:
Tel. 1.800.788.1330 (from the U.S. and Canada)
Tel. +1.408.542.2500 (outside the U.S. and Canada)
Fax.+1.408.542.2511
Appendix B
Safety and Regulatory Compliance Information

Legal Disclaimer

Information in this document is provided in connection with Harmonic products. Unless otherwise agreed in writing Harmonic products are not designed nor intended for any application in which the failure of the product could cause personal injury or death.

NOTE: The information in this appendix may apply to purchased products only.

Important Safety Instructions

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, noting especially those instructions related to risk of fire, electric shock or injury to persons. You must adhere to the guidelines in this document to ensure and maintain compliance with existing product certifications and approvals. In this document, we use “product,” “equipment,” and “unit” interchangeably.

This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if it is not installed and used in accordance with the instructions in this manual. Operation of this equipment in a residential area is likely to cause harmful interference If this occurs, the user will be required to correct the interference at his or her own expense.

In event of conflict between the information in this document and information provided with the product or on our website for a particular product, this product documentation takes precedence.

Safety Symbols & Translated Safety, Warning & Caution Instructions (English)

To avoid personal injury or property damage, before you begin installing or replacing the product, read, observe, and adhere to all the following safety instructions and information. Harmonic products and/or product packaging may be marked with the safety symbols used throughout this document, when it is necessary to alert operators, users, and service providers to pertinent safety instructions in the manuals.
Warning

Installing or Replacing the Product Unit Warning
- Only trained and qualified service personnel should be allowed to install, replace, or service this unit (refer AS/NZS 3260 Clause 1.2.14.3 Service Personnel).
- Read the installation instructions before connecting the system to the power source.
- When installing or replacing the unit, always make the ground connection first and disconnect it last.
- Installation of the unit must comply with local and national electrical codes.
- This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of special tool, lock and key or other means of security.
- Use only specified replacement parts.
- Do not use this unit in or near water. Disconnect all AC power before installing any options or servicing the unit unless instructed to do so by this manual.

Warning

Rack Mount Warning
- To prevent bodily injury when mounting or servicing this unit in a rack, special precautions must be taken to ensure your safety and stability of system:
  - Conform to local occupational health and safety requirements when moving and lifting the equipment.
  - Ensure that mounting of the unit by mechanical loading tools should not induce hazardous conditions.
  - To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed on it.

Warning

Chassis Warning
- Before connecting or disconnecting ground or power wires to the chassis, ensure that power is removed from the DC circuit.
- To prevent personal injury or damage to the chassis, lift the unit only by using handles that are an integral part of the chassis, or by holding the chassis underneath its lower edge.
- Any instructions in this guide that require opening the chassis or removing a board should be performed by qualified service personnel only.
- Slots and openings in the chassis are provided for ventilation. Do not block them. Leave the back of the frame clear for air exhaust cooling and to allow room for cabling - a minimum of 6 inches (15.24 cm) of clearance is recommended.
### Electric Shock Warning
- This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit.
- Before working on a chassis or working near power supplies, unplug the power cord on AC units.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- This unit is grounded through the power cord grounding conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product input or outputs.
- Route power cords and other cables so that they are not likely to be damaged. Disconnect power input to unit before cleaning. Do not use liquid or aerosol cleaners; use only a damp cloth to clean chassis.
- Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on. Do not insert anything into either of the system's two power supply cavities with power connected.
- Never install an AC power module and a DC power module in the same chassis.
- Do not wear hand jewelry or watch when troubleshooting high current circuits, such as the power supplies.
- To avoid fire hazard, use only the specified correct type voltage and current ratings as referenced in the appropriate parts list for this unit. Always refer fuse replacement to qualified service personnel.
- This unit relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).
- To avoid electrocution ensure that the rack has been correctly grounded before switching on the unit. When removing the unit remove the grounding connection only after the unit is switched off and unplugged.

### Electrostatic Discharge (ESD) Caution
- Follow static precaution at all times when handling this unit.
- Always wear an ESD-preventive wrist or ankle strap when handling electronic components. Connect one end of the strap to an ESD jack or an unpainted metal component on the system.
- Handle cards by the faceplates and edges only; avoid touching the printed circuit board and connector pins.
- Place any removed component on an antistatic surface or in a static shielding bag.
- Avoid contact between the cards and clothing.
- Periodically check the resistance value of the antistatic strap. Recommended value is between 1 and 10 mega-ohms (Mohms).
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
</table>
| ![Warning](image) | **Laser Radiation Warning**  
Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Never operate a unit with a broken fibre or with a separated fiber connector. |
| ![Warning](image) | **Lithium Battery Handling Safety Instructions**  
- **CALIFORNIA PERCHLORATE ADVISORY:** Some lithium batteries may contain perchlorate material. The following advisory is provided: "Perchlorate Material - special handling may apply, see: [www.dtsc.ca.gov/hazardous_waste/perchlorate/](http://www.dtsc.ca.gov/hazardous_waste/perchlorate/) for information". |
| ![Caution](image) | - Risk of explosion if battery is replaced incorrectly or with an incorrect type  
- Dispose of used batteries according to the manufacturer’s instructions  
- There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries |

**Symboles de sécurité et traduits de sécurité, d'avertissement et Attention Instructions (français)**

Pour éviter des blessures ou des dommages matériels, avant de commencer l'installation ou le remplacement du produit, lire, observer, et de respecter toutes les instructions et informations de sécurité suivantes. Produits harmoniques et / ou l'emballage du produit peuvent être marqués avec les symboles de sécurité utilisés dans le présent document, lorsque cela est nécessaire pour alerter les opérateurs, les utilisateurs et les fournisseurs de services de consignes de sécurité pertinentes dans les manuels.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Symbole de sécurité" /></td>
<td><strong>Installation ou remplacement de l'unité de produit</strong>&lt;br&gt; ■ Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés. (voir AS / NZS 3260 article 1.2.14.3 du personnel de service).&lt;br&gt; ■ Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.&lt;br&gt; ■ Lors de l'installation ou le remplacement de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier.&lt;br&gt; ■ L'équipement doit être installé conformément aux normes électriques nationales et locales.&lt;br&gt; ■ Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.&lt;br&gt; ■ Utilisez uniquement des pièces de rechange spécifiées.&lt;br&gt; ■ Ne pas utiliser ce produit dans l'eau ni à proximité de l'eau. Débrancher toutes les prises d'alimentation secteur avant d'installer des options ou d'effectuer l'entretien de l'unité, à moins d'instructions contraires dans le présent manuel.</td>
</tr>
<tr>
<td><img src="image2" alt="Symbole de sécurité" /></td>
<td><strong>Rack Monture</strong>&lt;br&gt; Pour éviter les blessures corporelles lors du montage ou l'entretien de cet appareil dans un rack, des précautions particulières doivent être prises pour assurer votre sécurité et la stabilité du système:&lt;br&gt; ■ Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel.&lt;br&gt; ■ Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses.&lt;br&gt; ■ Pour éviter tout risque d'électrocution, le rack et chaque élément de l'équipement installé dans le rack doivent être correctement reliés à la terre.</td>
</tr>
<tr>
<td><img src="image3" alt="Symbole de sécurité" /></td>
<td><strong>Châssis</strong>&lt;br&gt; ■ Avant de connecter ou de déconnecter les câbles d'alimentation (pôles et terre) du châssis, vérifiez que le circuit de courant continu est hors tension.&lt;br&gt; ■ Pour éviter toute blessure ou des dommages au châssis, soulevez l'unité uniquement par les poignées du châssis lui-même ou en portant celui-ci par le bord inférieur.&lt;br&gt; ■ Toutes les opérations du présent guide nécessitant l'ouverture du châssis ou le retrait d'une carte doivent être uniquement effectuées par du personnel d'entretien qualifié.&lt;br&gt; ■ Le châssis est muni de fentes et d'ouvertures d'aération. Ne pas les bloquer. Dégager l'arrière du cadre pour permettre le refroidissement de l'évacuation d'air et laisser de la place au câblage; un dégagement d'au moins 15.24 cm (6 po) est recommandé.</td>
</tr>
</tbody>
</table>
## Choc électrique Avertissement

- Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité.
- Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif.
- Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.
- Ce unité est mis à la terre par le conducteur de protection intégré au cordon d'alimentation. Pour éviter les chocs électriques, brancher le cordon d'alimentation dans une prise correctement cable avant de raccorder les entrées ou sorties du unité.
- Installer les cordons d'alimentation et autres cables de sorte qu'ils ne risquent pas d'être endommagés. Couper l'alimentation avant nettoyage. Ne pas utiliser de nettoyant liquide ou en aérosol; utiliser seulement un linge humide.
- Des courants électriques dangereux circulent dans cet appareil. Afin d'éviter les lessures, ne pas toucher les connexions et composants exposés lorsque l’appareil est sous tension. Ne rien insérer dans l'une ou l'autre des cavités des prises de courant du système lorsque l’appareil est sous tension.
- N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis.
- Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs.
- Pour prévenir les risques d’incendie, n’utiliser que le type, la tension et le courant nominal spécifiés dans la nomenclature des pièces de ce unité. Toujours confier le remplacement des fusibles à du personnel d'entretien qualifié.
- Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu’un disjoncteur de 120 V alt., 15 A U.S. maximum (240 V alt., 10 A international) est utilisé sur les conducteurs de phase (conducteurs de charge).
- Pour éviter l’électrocution, assurez-vous que le rack a bien été mis à la terre avant de mettre l’unité en marche. Lors du retrait de l'unité, retirer le raccordement de terre seulement après avoir mis l'unité à l’arrêt et l’avoir débranchée.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Les décharges électrostatiques (ESD) Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Attention</strong></td>
</tr>
<tr>
<td></td>
<td>- Respecter systématiquement les precautions relatives aux charges électrostatiques durant la manipulation de cet unité.</td>
</tr>
<tr>
<td></td>
<td>- Portez toujours un poignet ou la cheville bracelet antistatique préventive lors de la manipulation des composants électroniques. Branchez une extrémité de la sangle à une prise ESD ou d'un composant métallique non peinte sur le système.</td>
</tr>
<tr>
<td></td>
<td>- Manipulez les cartes en les faces avant et les bords seulement; éviter de toucher la carte de circuit imprimé et les broches du connecteur.</td>
</tr>
<tr>
<td></td>
<td>- Placer un composant retiré sur une surface antistatique ou dans un sac de protection statique.</td>
</tr>
<tr>
<td></td>
<td>- Éviter tout contact entre les cartes et les vêtements.</td>
</tr>
<tr>
<td></td>
<td>- Vérifier périodiquement la valeur de résistance de la sangle antistatique. Valeur recommandée est comprise entre 1 et 10 méga-ohms (Mohms).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mark</th>
<th>Rayonnement laser Attention</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Avertissement</strong></td>
</tr>
<tr>
<td></td>
<td>- Rayonnement laser invisible peut être émis à partir de fibres ou les connecteurs débranchés. Ne pas regarder en faisceaux ou regarder directement avec des instruments optiques. Ne jamais faire fonctionner une unité en cas de bris d'une fibre ou de séparation d'un connecteur de fibre.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mark</th>
<th>Batterie au lithium Manipulation instructions de sécurité</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Avertissement</strong></td>
</tr>
<tr>
<td></td>
<td>- Perchlorate pour la Californie Consultatif: Certaines batteries au lithium, peuvent contenir du perchlorate. Le texte qui suit consultatif est prévu: &quot;Présence de perchlorate - une manipulation spéciale peut s'appliquer, voir: <a href="http://www.dtsc.ca.gov/hazardous">www.dtsc.ca.gov/hazardous</a> waste/perchlorate/ for information&quot;.</td>
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</table>

<table>
<thead>
<tr>
<th>Mark</th>
<th>Attention</th>
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<tbody>
<tr>
<td></td>
<td><strong>Attention</strong></td>
</tr>
<tr>
<td></td>
<td>- Il y a danger d'explosion si la batterie est remplacée de manière incorrecte ou par une batterie de type incorrect.</td>
</tr>
<tr>
<td></td>
<td>- Mettre au rebut les batteries usagées conformément aux instructions du fabricant.</td>
</tr>
<tr>
<td></td>
<td>- Les batteries des produits Harmonic ne peuvent pas être réparées ni entretenues par l’utilisateur. Ne confier l’entretien des batteries remplaçables qu’à du personnel compétent de Harmonic.</td>
</tr>
</tbody>
</table>

**Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)**

Um Verletzungen oder Sachschäden zu vermeiden, bevor Sie mit der Installation oder Austausch des Produkts zu beginnen, zu lesen, zu beobachten, und sich an all den folgenden Sicherheitshinweise und Informationen. Harmonic Produkte und / oder Produktverpackungen können mit den Sicherheitssymbole in diesem Dokument verwendet werden, markiert, wenn es notwendig ist für die Betreiber, Anwender und Dienstleister, um relevante Sicherheitsanweisungen in den Handbüchern zu alarmieren.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>安装或更换产品的单元警告</td>
<td>安装或更换产品的单元警告</td>
</tr>
<tr>
<td>-</td>
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<tr>
<td>安装、更换或操作此设备应仅授权并经过培训的合格人员进行（参见AS / NZS 3260条款1.2.1 4.3Servicepersonal）</td>
<td></td>
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<tr>
<td>-</td>
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</tr>
<tr>
<td>请在安装系统之前阅读安装说明。</td>
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<td>-</td>
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<tr>
<td>安装时应首先接好地线并在最后断开。</td>
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</tr>
<tr>
<td>设备的安装必须符合安全标准。</td>
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<td>-</td>
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</tr>
<tr>
<td>此单元适用于限制区域的安装。限制区域是指只有通过特殊工具、锁和钥匙或其他安全措施才能进入的区域。</td>
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<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>只使用指定的替换零件。</td>
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<tr>
<td>-</td>
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</tr>
<tr>
<td>在系统和附件中使用冷水，在安装或维护系统时，除非在本手册中另有说明，否则应关掉电源。</td>
<td></td>
</tr>
<tr>
<td>架子警告</td>
<td>架子警告</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>严禁自行安装或维护本单元。</td>
<td></td>
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<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>安装或维护本单元时，请采取额外措施以确保系统保持稳定：</td>
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</tr>
<tr>
<td>为了防止可能的电击，必须为机架和每个装置安装适当的接地。</td>
<td></td>
</tr>
<tr>
<td>车架警告</td>
<td>车架警告</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>直流断路器 - 在连接或断开接地或电源电缆之前，确保直流电路断开。</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>为了防止人身伤害和车架损坏，请不要使用车架的把手来提升或翻转元件（如电源插座、冷却器或卡）；也不要将车架从下部下拉。</td>
<td></td>
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<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>所有提示在本手册中，打开或移除外壳或移除板的操作仅应由合格的工程人员进行。</td>
<td></td>
</tr>
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</tbody>
</table>
| 为了防止堵塞和通风，不要堵塞。保持框架背面的通风，以确保布线的灵活性 - 建议的最小距离为6英寸 (15.24 cm)。
## Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)

### Warnung

- **Elektroschock-Warnung**
  - Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.
  - Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten.
  - Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.
  - Dieses Gerät ist über das Netzkabel Erdungsleiter geerdet. Um einen Stromschlag zu vermeiden, stecken Sie das Netzkabel in eine Steckdose richtig verdrahtet, bevor Sie das Produkt Eingang oder Ausgänge.
  - Verlegen Sie Netzkabel und andere Kabel, so dass sie wahrscheinlich nicht beschädigt werden. Trennen Eingangsleistung Einheit vor der Reinigung. Verwenden Sie keine flüssigen oder Aerosolreiniger; nur mit einem feuchten Tuch zu reinigen Chassis.
  - Ein Wechselstromsmodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden.
  - Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung.
  - Um die Brandgefahr zu vermeiden, verwenden Sie nur den genannten richtige Art von Spannung und Strom Ratings als in der entsprechenden Stückliste für diese Einheit verwiesen. Beziehen sich immer auf Austausch der Sicherung von qualifiziertem Fachpersonal.
  - Um einen Stromschlag zu vermeiden, sicherzustellen, dass die Zahnstange wurde korrekt vor dem Einschalten des Gerätes geerdet. Beim Entfernen der Einheit entfernen Sie die Masseverbindung nur, nachdem das Gerät ausgeschaltet und der Netzstecker gezogen.
## Site Preparation Instructions

**Appendix B Safety and Regulatory Compliance Information**

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Site Preparation Instructions

<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Vorsich | **Elektrostatische Entladung (ESD) Vorsicht**  
- Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät.  
- Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte.  
- Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel.  
- Kontakt zwischen den Karten und Kleidung vermeiden.  
- Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm). |
| Vorsich | **Warnung**  
| Warnung | **Lithium-Batterie Handhabung Sicherheitshinweise**  
| Vorsich | Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr  
- Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.  
- Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service |
1. Site Preparation Instructions

- Choose a site with a dry, clean, well-ventilated and air-conditioned area.
- Choose a site that maintains an ambient temperature of 32 to 104°F (0 to 40°C)

2. Creating a Safe Environment

- Connect AC-powered systems to grounded power outlets or as per local regulations.
- Do not move or ship equipment unless it is correctly packed in its original wrapping and shipping containers.
- Only allow Harmonic trained personnel to undertake equipment service and maintenance. Do not permit unqualified personnel to operate the unit.
- Wear ear protection when working near an NSG Pro platform for a longer period of time.

3. Rack Mounting the Unit

- Install the system in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
- Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in the partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- The rack must be anchored to an immovable support to prevent it from tipping when the unit is mounted on it. The rack must be installed according to the rack manufacturer's instructions.
- Disconnect all power and external cables before lifting the unit. Depending on the weight of the unit, more than one person might be required to lift it.

4. Power Considerations

a. AC Power

- Adding to the system a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) is highly recommended.
- Installing the main power supply by a qualified electrician, according to power authority regulations. Make sure all powering are wired with an earth leakage, according to local regulations.
- It is recommended to install the encoder within 1.5m (approximately 5 feet) from an easily accessible grounded AC outlet.
- When the encoder is rack-mounted, ensure that the rack is correctly grounded.

b. DC Power

- Ensure a suitable overcurrent device is in-line between the equipment and the power source.
- Connect DC-input power supplies only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in the UL 60950-1, CAN/CSA-C22.2 No. 60950-1-03, AS/NZS 60950-1, EN/IEC 60825-1, 21 CFR 1040, EN 60950-1, and IEC 60950-1 standards.
- Ensure that power is removed from the DC circuit before installing or removing power supplies

5. Handling Fiber Channel Cables

- Always read and comply with the handling instructions on the shipping container.
- Follow all ESD precautions and approved fiber cleaning procedures.
The fiber is made of a very pure, expensive glass and should be treated with great care. Handle fibers only in areas that are very clean and do not contain sharp objects.

- Wear finger cots or gloves as dirt and oils can damage the fiber and contaminate connectors.
- Do not allow kinks or knots to develop in the fiber. If tangles occur, carefully work out the tangles avoiding pulling or bending the fibre beyond its bend radius.
- Always use the correct tools for stripping and cleaving the fiber. It will save time and reduce breakage caused by scratches.
- If you must secure a bundle of fiber cables together, avoid plastic and metal tie wraps; secure with velcro instead.

6. Disposing of the Unit
- Dispose of the unit and its components (including batteries) as specified by all national laws and regulations.

Product End-of-Life Disassembly Instructions

For disassembly instructions, please call the technical support in order to remove components requiring selective treatment, as defined by the EU WEEE Directive (2012/19/EU). See Contacting the Technical Assistance Center.

Product Disassembly Process
1. Disassemble equipment at a dedicated area only, gather the needed tools for disassembly.
2. Remove covers, housing, etc.
3. Remove and separate sub-assemblies (i.e. cables, metals, displays, fans, etc.).
4. Separate hazardous materials from the remainder of the material.
   a. Sort hazardous materials into their different types (i.e., batteries, hazardous liquids, hazardous solids, fiberglass, etc.).
   b. Proceed with hazardous waste management processes only.
5. Identify re-usable materials/sub-assemblies and separate these from the rest of the material.
6. Identify and separate recyclable materials as per below examples:
   a. Scrap material to be sent to smelter(s).
   b. E-waste such as displays, CPU’s, cables and wires, hard drives, keyboards, etc.
   c. Metals such as steel, brass, and aluminum.
   d. Plastics such as fan casings, housings, covers, etc.
   e. Fiber optics and plastic tubing not containing electrical or data wiring.

Safety Rules (English)
Recycler personnel are to wear personal protective equipment including proper eye protection, proper hand protection, and proper breathing protection if needed.

Recycler personnel shall be experienced with using the proper tools required for disassembling equipment. Untrained personnel shall not disassemble Harmonic products. Unfamiliarity with tools can cause damage and injury.

Règles de sécurité (French)
Le personnel du recycleur doit porter de l’équipement de protection individuelle, y compris des lunettes, des gants et un masque de protection appropriés au besoin.
Le personnel du recycleur doit avoir de l’expérience des outils de démontage de l’appareil. Les produits Harmonic ne doivent pas être démontés par du personnel non qualifié. Une mauvaise connaissance des outils peut causer des dommages et des blessures.

**EU Manufacturer’s Declaration of Conformity**

This equipment is in compliance with the essential requirements and other provisions of Directives 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

**NOTE:** For specifics, about which standards have been applied, refer to the Declaration of Conformity of the product on Harmonic website at Product Regulatory Compliance or contact Harmonic Compliance Team at regulatory.compliance@harmonicinc.com

**Electromagnetic Compatibility Notices – Class A**

a. **FCC Verification Statement (USA)**

   This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

   This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

   Connections between the Harmonic equipment and other equipment must be made in a manner that is consistent with maintaining compliance with FCC radio frequency emission limits. Modifications to this equipment not expressly approved by Harmonic may void the authority granted to the user by the FCC to operate this equipment and you may be required to correct any interference to radio or television communications at your own expense.

b. **ICES-003 Statement (Canada)**

   **English:** This Class A digital apparatus complies with Canadian ICES-003.

   **French:** Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

c. **CE Declaration of Conformity (European Union)**

   This product has been tested in accordance too, and complies with the Low Voltage Directive (2014/30/EU) and EMC Directive (2014/35/EU). The product has been marked with the CE Mark to illustrate its compliance.
d. VCCI Class A Warning (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the notice above:
This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this equipment is used in a domestic environment, it may cause radio interference. When such trouble occurs, the user may be required to take corrective actions.

e. BSMI EMC Notice (Taiwan)

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，
可能會造成射頻干擾，在這種情況下，使用者會
被要求採取某些適當的對策

English translation of the notice above:
This is a Class A Information Product, when used in residential environment, it may cause radio frequency interference, under such circumstances, the user may be requested to take appropriate counter measures.

f. Class A Warning (Korea)

주의 A급 기기 이 기기는 업무용으로 전자파 적합 등록을 한 기기이
오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약
저작 관계 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

English translation of the notice above:
This is a Class A device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this was sold or purchased by mistake, it should be replaced with a residential-use type.

g. Class A Statement (China)

中华人民共和国“A类”警告声明

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其采取切实可行的措施。

English translation of the notice above:
When labeled with the CCC marking, the product meets the applicable safety and EMC requirements for China. This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

h. Class A Warning – CISPR 22 (AS/NZS)

Warning (English)

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Attention (French)

Il s’agit d’un produit de classe A. Dans un environnement local, ce produit peut entraîner des perturbations radioélectriques, auquel cas l’utilisateur devra éventuellement prendre des mesures adéquates.

Product Regulatory Compliance

Harmonic products are typically tested to the latest safety and electromagnetic compatibility (EMC) specifications and test methods, and are marked with one or more of the following regulatory/certification markings. Some of the certification markings will vary depending on what certifier was used to obtain a certification.

Please visit Harmonic Product Regulatory Compliance page to view information on applied safety & EMC standards and regulatory marks on Harmonic products. You can also email us at regulatory.compliance@harmonicinc.com for assistance on regulatory compliance for Harmonic products.

Product Regulatory Compliance Markings

Table 13–1: Regulatory Compliance Markings

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Testing Standard/Specification</th>
<th>Certification Type</th>
<th>Regulatory Mark Name</th>
<th>Product Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA/Canada</td>
<td>FCC CFR 47 Part 15, Class A, ICES-003: Issue 5, 2012; Class A</td>
<td>EMC</td>
<td>FCC Class A Statement</td>
<td><img src="https://www.harmonicinc.com" alt="FCC Class A Statement" /></td>
</tr>
</tbody>
</table>

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Testing Standard/Specification</th>
<th>Certification Type</th>
<th>Regulatory Mark Name</th>
<th>Product Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>EN 60950-1; EN60825-1 (for laser)</td>
<td>Safety</td>
<td>GS</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>NOM-019-SCFI-1998</td>
<td>Safety</td>
<td>NOM</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>CNS 14336-1:2010; CNS 13438:2006; Class A</td>
<td>Safety and EMC</td>
<td>BSMI Certification (RPC Number &amp; Class A Warning)</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>VCCI V-3/2013.04; CISPR 22:2008, Class A</td>
<td>EMC</td>
<td>VCCI</td>
<td></td>
</tr>
<tr>
<td>Australia and New Zealand</td>
<td>AS/NZS CISPR22:2009+A1:2010; Class A</td>
<td>Safety</td>
<td>C-Tick</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>KN22 Class A and KN24</td>
<td>EMC</td>
<td>KC</td>
<td></td>
</tr>
</tbody>
</table>
Harmonic manufactures high quality and innovative IT and telecommunications equipment, video delivery infrastructure solutions and services for its customers worldwide. Harmonic is committed to providing our customers with safe and environmentally friendly products that are compliant with all relevant regulations, customer specifications, and environmental legislation, including the directives described below.

**EU RoHS**

In July 2006, the European Union’s (EU) Directive (2002/95/EC) on the Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment (EEE) went into effect, and in July, 2011, the European Union’s RoHS Recast Directive (2011/65/EU) also known as RoHS II entered into force.

Harmonic understands the environmental risks associated with the substances covered by the RoHS Directive and has committed to eliminating or reducing the use of these, as well as other environmentally sensitive substances in our products. Harmonic also continues to comply with the requirements under RoHS II.

For more information, please visit EU RoHS directive page at official EU website.


**Restricted Substance Statement**

Harmonic products contain less than the permitted limits for the six restricted substances except where exemptions published in the RoHS2 Directive are applicable. This statement is based on vendor-supplied analysis or material certifications, and/or lab test results of the component raw materials used in the manufacture of Harmonic products.

<table>
<thead>
<tr>
<th>Restricted Substance</th>
<th>Permitted Limit*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd)</td>
<td>≤ 0.01%</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>≤ 0.1%</td>
</tr>
<tr>
<td>Chromium (VI) (Cr (VI))</td>
<td>≤ 0.1%</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>≤ 0.1%</td>
</tr>
</tbody>
</table>

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Chapter 13-2: Restricted Substances

<table>
<thead>
<tr>
<th>Restricted Substance</th>
<th>Permitted Limit*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybrominated biphenyls (PBBs)</td>
<td>≤ 0.1%</td>
</tr>
<tr>
<td>Polybrominated diphenyl ether (PBDE)</td>
<td>≤ 0.1%</td>
</tr>
</tbody>
</table>

*Homogeneous material definition as per the EU Directive.

EU REACH

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) (EC 1907/2006) is a European Union’s regulation on chemicals and their safe use which came into force in June, 2007. Harmonic supports the basic aim of REACH in improving the protection of human health and environment through the better and earlier identification of intrinsic properties of chemical substances. Harmonic products are considered “articles” under REACH; therefore, we are required to provide recipients of our products with information on Substance of Very High Concern (SVHC) present in concentration above 0.1% (w/w).

Substances in our products are not intended to be released under normal or reasonably foreseeable conditions of use; therefore, the registration requirement in REACH Article 7(1) does not apply to our products.

For more information, please visit REACH regulation page at official EU website.

http://ec.europa.eu/environment/chemicals/reach/reach_en.htm

China RoHS

China’s regulation on restriction of the use of certain hazardous substances commonly (China RoHS), is applicable to all Electronic and Information Products (EIPs) and parts sold in China after March 01, 2007. China RoHS regulation restricts the use of the same six substances as the European Union’s ROHS, but has requirements for product labeling and regulated substance information disclosure.

Harmonic complies with China RoHS Phase I for labeling and information disclosure requirements and continues to monitor new developments in China RoHS Phase II towards substance restriction and certification program.

For more information, please visit China RoHS regulation page at official US export website.

http://www.export.gov/china/doingbizinchina/
### China RoHS Disclosure Report

Below table shows the presence of hazardous substances, or elements in Harmonic products, if the part is present.

This table shows those components where hazardous substances may be found in Harmonic products based on, among other things, material content information provided by third party suppliers. These components may or may not be part of the product.

除非特殊注明，哈雷公司产品的环保使用期限均为 20 年。该环保使用期限的有效条件为：必须遵循该产品使用手册的规定，对该产品进行使用或存储。

The Environmental Protective Use Period for Harmonic products is 20 years unless displayed otherwise on the product. The EPLUP period is valid only when the products are operated or stored as per the conditions specified in the product manual.

<table>
<thead>
<tr>
<th>部件名称 (Part name)</th>
<th>有毒有害物质或元素 (Hazardous Substance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>铅 (PB)</td>
</tr>
<tr>
<td>印刷线路板 (Printed Circuit Assemblies)</td>
<td>X</td>
</tr>
<tr>
<td>机械组件 (Mechanical Subassemblies)</td>
<td>X</td>
</tr>
<tr>
<td>光学组件 (Optical Subassemblies)</td>
<td>X</td>
</tr>
<tr>
<td>电源 (Power Supplies)</td>
<td>X</td>
</tr>
<tr>
<td>缆线 / 线束 (Cables, harnesses)</td>
<td>X</td>
</tr>
<tr>
<td>屏幕 / 显示器 (Screens, Monitors)</td>
<td>X</td>
</tr>
<tr>
<td>金属零件 (Metal Parts)</td>
<td>X</td>
</tr>
<tr>
<td>塑料 / 发泡材料 (Plastics, foams)</td>
<td>O</td>
</tr>
<tr>
<td>电池 (Batteries)</td>
<td>O</td>
</tr>
</tbody>
</table>

O: 表示在该部件的所有均质材料中，此类有毒有害物质的含量均小于 SJ/T11363-2006 标准所规定的限量。

O: Indicates the content of the toxic and hazardous substances at the homogeneous material level of the parts is below the limit defined in SJ/T 11363 2006 standard.

X: 表示至少在该部件的某一均质材料中，此类有毒有害物质的含量超出 SJ/T11363-2006 标准规定的限量。

X: Indicates that the content of the toxic and hazardous substances in at least one of the homogeneous materials of the parts is above the limit defined in SJ/T 11363 2006 standard.
Other RoHS and REACH type Regulations

Harmonic will comply with RoHS and REACH type regulations evolving in other countries, if they become relevant to our products or in markets where we sell our products.

Waste Electrical and Electronic Equipment (WEEE)

European Parliament and the Council of the European Union’s WEEE Directive (2002/96/EC) came into force on August, 2005 and, were more recently amended in July, 2012. This directive encourages the reuse, recycling, and recovery of WEEE and to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, especially those dealing with WEEE. Harmonic ensures that all requirements for registration, reporting, design and data tracking are complied with to meet the objectives of the WEEE directive.

For more information, please visit WEEE directive page at official EU website.


Battery Directive

In September 2006, the European Union’s Directive 2006/66/EC (Battery Directive) came into force with an aim to prohibit the sale of batteries and accumulators containing hazardous substances and to set rules and promote collection, treatment, recycling and disposal of waste batteries and accumulators. This directive applies to spent batteries collected together with WEEE and requires their removal and separate collection. Once removed from WEEE, spent batteries are governed by the Battery Directive. Harmonic uses lithium batteries in its products and our responsibility under the Battery Directive is taken care of under our WEEE Take-Back program.

For more information, please visit Batteries and Accumulators directive page at official EU website.

http://ec.europa.eu/environment/waste/batteries/

Harmonic is committed to manufacturing environmentally safe products for the community, and will make reasonable efforts and required adjustments to its practices, if necessary, to comply with various environmental directives and industry initiatives on the elimination of hazardous substances, labeling, marking, certification and registration as required in markets where we sell our products.

Download Harmonic’s Environmental Compliance Statement at the following location:


WEEE Take-Back Request Program

In order to assist EU member states to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally, Harmonic strives to recycle in compliance with the WEEE Directive any of its products that cannot be re-used.

Harmonic’s customers should:

- Not discard equipment in household or office garbage
- Arrange proper recycling of unneeded equipment. For the take-back of Harmonic equipment, customers must:
  - Collect the information required to complete Harmonic’s WEEE Take-Back Request form
Complete and submit the online WEEE Take-Back Request form. Please note that forms must be fully completed in order to prevent process delays. Receive instant online confirmation indicating the reference number. Receive the End of Life (EOL) asset return authorization number and instruction for EOL asset return. Not ship EOL product to Harmonic without a Harmonic-provided EOL asset return authorization number.

The crossed-out wheeled bin symbol on a Harmonic-branded commercial product indicates that the product should not be disposed of along with municipal waste, but invites our customers to return the product to us under Harmonic’s WEEE Take-Back program for product disposal. Harmonic will pay for the cost of shipping and will provide a Certificate of Recycling or a Certificate of Destruction upon request. For more information on collection, reuse and recycling or to initiate the WEEE take-back process, please complete the form at http://www.harmonicinc.com/webform/weee-takeback-request or contact Harmonic Technical Assistance Center (TAC) or email RMA team at rma.emea@harmonicinc.com.

Compliance with additional country specific environmental, safety and EMC standards:

In addition to above listed standards and compliance regulations, Harmonic products may also be compliant with other country specific environmental, safety and EMC requirements. Please contact Harmonic Compliance Team at regulatory.compliance@harmonicinc.com or your local sales representative for more information about compliance with particular country or standard.