Manual Part No. MAN-DMS-3.6
February 2015

Copyright © 2000—2015 Harmonic Inc. All rights reserved. Omneon, and the Omneon logo are trademarks of Harmonic Inc.

© 2014 Harmonic Inc. All rights reserved. Harmonic, the Harmonic logo, all other Harmonic products mentioned are trademarks, registered trademarks or service marks of Harmonic Inc. in the United States and other countries. Dolby, Dolby Digital, Dolby Digital Plus and Dolby E are registered trademarks of Dolby Laboratories. Implementations of AAC and HE-AAC by Fraunhofer IIS. Other company, product and service names mentioned herein may be trademarks or service marks of their respective owners. All product and application features and specifications are subject to change at Harmonic’s sole discretion at any time and without notice.

Disclaimer
Harmonic reserves the right to alter the equipment specifications and descriptions in this publication without prior notice. No part of this publication shall be deemed to be part of any contract or warranty unless specifically incorporated by reference into such contract or warranty. The information contained herein is merely descriptive in nature, and does not constitute a binding offer for sale of the product described herein. Harmonic assumes no responsibility or liability arising from the use of the products described herein, except as expressly agreed to in writing by Harmonic. The use and purchase of this product do not convey a license under any patent rights, copyrights, trademark rights, or any intellectual property rights of Harmonic. Nothing hereunder constitutes a representation or warranty that using any products in the manner described herein will not infringe any patents of third parties.

Third-Party Product Trademarks
Adobe® After Effects®, Photoshop®, Flash® Professional, Premiere®
Avid® Media Composer®
Dolby® E, Dolby Digital, Dolby Digital Plus
Jünger Audio™
Apple® QuickTime®
Microsoft® Mediaroom®
Microsoft® PlayReady®
DOCSIS® 3.0
Start Over® TV

Third-Party Copyright Notes
Dolby is a registered trademark of Dolby Laboratories. Dolby Digital, Dolby Digital Plus, Dolby Pulse, aacPlus, AC-3, and Dolby E are trademarks of Dolby Laboratories.
Level Magic and Jünger are trademarks of Jünger Audio Studiotechnik GmbH.
MPEG Audio technology licensed from Fraunhofer IIS http://www.iis.fraunhofer.de/amm/
PitchBlue® is a registered trademark of Vigor Systems.
QuickTime and the QuickTime logo are trademarks or registered trademarks of Apple Computer, Inc., used under license therefrom.

Trademark Acknowledgments
Harmonic and all Harmonic product names are trademarks of Harmonic Inc. All other trademarks are the property of their respective owners.
The software described in this document is furnished under a license agreement or nondisclosure agreement. The software may be used or copied only in accordance with the terms of those agreements.

May be covered by one or more of U.S. Patents No. 6,571,351; 6,696,996; 6,545,721; 6,574,225; 6,895,003; 6,522,649; 6,643,702; foreign counterparts and pending patent applications.
This system is distributed with certain other software that may require disclosure or distribution of licenses, copyright notices, conditions of use, disclaimers and/or other matter. Use of this system or otherwise fulfilling their conditions constitutes your acceptance of them, as necessary. Copies of such licenses, notices, conditions, disclaimers and/or other matter are available in any one of the following locations: the LEGAL NOTICES AND LICENSES directory of the distribution disk of the software, the root directory of the hard disk drive of the Products, or by contacting us at support@harmonicinc.com.

Notice
Information contained in this guide is subject to change without notice or obligation. While every effort has been made to ensure that the information is accurate as of the publication date, Harmonic Inc. assumes no liability for errors or omissions. In addition, Harmonic Inc. assumes no responsibility for damages resulting from the use of this guide.

License Agreement and Limited Warranty
1. AGREEMENT: This is a legal agreement (“Agreement”) between you (“you” or “your”) and Harmonic, or its appropriate local affiliate (“Harmonic”, “we”, “us” or “our”). Use of our products and any updates thereto purchased or validly obtained by you the “Products”, and/or the Software (as defined below) (collectively, the “System”), constitutes your acceptance of this Agreement. “Use” includes opening or breaking the seal on the packet containing this Agreement, installing or downloading the Software as defined below or using the Software preloaded or embedded in your System. As used herein, the term “Software” means the Harmonic owned software and/or firmware used in or with the Products and embedded into, provided with or loaded onto the
1. GENERAL: You shall not assign, delegate or sublicense your rights or obligations under this Agreement, by operation of law or otherwise, without our prior written consent, and any attempt without such consent shall be void. Subject to the preceding sentence, this Agreement binds and benefits permitted successors and assigns.

2. LICENSE: Subject to the terms and conditions of this Agreement (including payment), we hereby grant you a nonexclusive, nontransferable license to use the object code version of the Software embedded into, provided solely for use with or loaded onto the Product, and the accompanying documentation ("Documentation") for your internal business purposes. The Software and any authorized copies are owned by us or our suppliers, and are protected by law, including without limitation the copyright laws and treaties of the U.S.A. and other countries. Evaluation versions of the Software may be subject to a time-limited license key.

3. RESTRICTIONS: You (and your employees and contractors) shall not attempt to reverse engineer, disassemble, modify, translate, create derivative works of, rent, lease (including use on a timesharing, applications service provider, service bureau or similar basis), loan, distribute, sublicense or otherwise transfer the System, in whole or part except to the extent otherwise permitted by law. The Software may be operated on a network only if and as permitted by its Documentation. You may make one (1) back up copy of the object code of the Software for archival purposes only. Evaluation Software will be run in a lab, nonproductive environment. Results of any benchmark or other performance tests may not be disclosed to any third party without our prior written consent. Title to and ownership of the Software and Documentation, and all copyright, patent, trade secret, trademark, and other intellectual property rights in the System, shall remain our or our licensors’ property. You shall not remove or alter any copyright or other proprietary rights notice on the System. We reserve all rights not otherwise granted.

4. LIMITED WARRANTY: (a) Limited Warranty. We warrant to you that, commencing on your receipt of a Product and terminating 1 year thereafter, the System will perform substantially in accordance with its then-current appropriate Documentation. The Product including replacements may consist of new, used or previously-installed components. (b) Remedies. If the System fails to comply with such warranty during such period, as your sole remedy, you must return the same in compliance with our product return policy, and we shall, at our option, repair or replace the System, provide a workaround, or refund the fees you paid. Replacement Systems are warranted for the original System’s remaining warranty period. (c) Exclusions. EVALUATION SOFTWARE IS LICENSED ON AN-IS-BASED SUBJECT TO: (i) the Software is only for evaluation purposes, (ii) you will have no obligation under this limited warranty, if the Products or Software are damaged or destroyed by acts of God, such as unusual physical or electrical stress, misuse or accidents, (iii) use of the System other than in accordance with the Documentation, (iv) modifications, alterations or repairs to the System made by you or our representative, (v) the combination, operation or use of the System with equipment, data, documentation, software or data not supplied by us, (vi) any third party hardware or Third Party Software, whether or not provided by us, (vii) failure (other than by us to comply with handling, operating, environmental, storage or maintenance requirements for the System in the Documentation, including, without limitation, temperature or humidity ranges, (vii) Disclaimers. We are not responsible for your software, firmware, information, or data contained in, stored on, or integrated with any Product returned to us for repair or replacement. SUCH LIMITED WARRANTY IS IN LIEU OF, AND WE SPECIFICALLY DISCLAIM, ANY AND ALL IMPLIED WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF SATISFACTORY QUALITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. WE DO NOT WARRANT THAT THE SYSTEM WILL MEET YOUR REQUIREMENTS OR BE UNINTERUPTED OR ERROR-FREE. NO ADVICE OR INFORMATION, WHETHER ORAL OR WRITTEN, OBTAINED FROM US OR ELSEWHERE, WILL CREATE A WARRANTY NOT EXPRESSLY STATED IN THIS AGREEMENT. Some jurisdictions do not allow the exclusion of implied warranties or limitations on how long an implied warranty may last, so such exclusions may not apply to you. In that event, such implied warranties and limitations are limited to 60 days from the date you purchased the System or the shortest period permitted by applicable law, if longer. This warranty gives you specific legal rights and you may have other rights which vary from state to state or country to country.

5. LIMITATION OF LIABILITY: WE AND OUR AFFILIATES, SUPPLIERS, LICENSORS, OR SALES CHANNELS ("REPRESENTATIVES") SHALL NOT BE LIABLE TO YOU FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOST REVENUES, PROFITS OR SAVINGS, OR THE COST OF SUBSTITUTE GOODS, HOWEVER CAUSED, UNDER CONTRACT, TORT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE. EVEN IF WE WERE ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. NOTWITHSTANDING ANY OTHER PROVISIONS OF THIS AGREEMENT, WE AND OUR REPRESENTATIVES’ TOTAL LIABILITY TO YOU ARISING FROM OR RELATING TO THIS AGREEMENT OR THE SYSTEM SHALL BE LIMITED TO THE TOTAL PAYMENTS TO US UNDER THIS AGREEMENT FOR THE SYSTEM. THE FOREGOING LIMITATIONS SHALL NOT APPLY TO DEATH OR PERSONAL INJURY TO PERSONS OR TANGIBLE PROPERTY IN ANY JURISDICTION WHERE APPLICABLE LAW PROHIBITS SUCH LIMITATION. YOU ARE SOLELY RESPONSIBLE FOR BACKING UP YOUR DATA AND FILES, AND HEREBY RELEASE US AND OUR REPRESENTATIVES FROM ANY LIABILITY OR DAMAGES DUE TO THE LOSS OF ANY SUCH DATA OR FILES. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SUCH EXCLUSIONS MAY NOT APPLY TO YOU.

6. CONFIDENTIALITY: Information in the System and the associated media, as well as the structure, organization and code of the Software, are proprietary to us and contain valuable trade secrets developed or acquired at great expense to us or our suppliers. You shall not disclose to others or utilize any such information as expressly provided herein, except for information (i) lawfully received by the user from a third party which is not subject to confidentiality obligations; (ii) generally available to the public without breach of this Agreement; (iii) lawfully known to the user prior to its receipt of the System; or (iv) required by law to be disclosed.

7. SUPPORT: Updates, upgrades, fixes, maintenance or support for the System (an "Upgrade") after the limited warranty period may be available at separate fee. No Upgrade may be applied to the System without the express written permission of Harmonic, Inc.

8. TERM; TERMINATION: The term of this Agreement shall continue unless terminated in accordance with this Section. We may terminate this Agreement at any time upon default by you of the license provisions of this Agreement, or any other material default by you of this Agreement not cured with thirty (30) days after written notice thereof. You may terminate this Agreement any time by terminating use of the System. Except for the first sentence of Section 2 ("License") and for Section 4(a) ("Limited Warranty"), all provisions of this Agreement shall survive termination of this Agreement. Upon any such termination, you shall certify in writing such termination and non-use to us.

9. EXPORT CONTROL: You agree that the Products and Software will not be shipped, transferred, or exported into any country or used in any manner prohibited by the United States Export Administration Act or any other export laws, restrictions, or regulations the ("Export Laws"). You will indemnify, defend and hold us harmless from and against any claims, liabilities, damages, expenses, costs or losses arising from or relating to any such violations.

10. U.S. GOVERNMENT RIGHTS: The Software and the documentation which accompanies the Software are "Commercial Items," as that term is defined at 48 C.F.R. §227.7202-1, consisting of "Commercial Computer Software and "Commercial Computer Software Documentation," as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202-1, as applicable. Consistent with 48 C.F.R. §12.212 or 48 C.F.R. §§227.7202-1 through 227.7202-4, as applicable, the Computer Software and Computer Software Documentation are being licensed to U.S. Government as end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions hereunder. Harmonic, 4300 North First Street, Santa Clara, CA 95054 U.S.A.

11. GENERAL: You shall not assign, delegate or sublicense your rights or obligations under this Agreement, by operation of law or otherwise, without our prior written consent, and any attempt without such consent shall be void. Subject to the preceding sentence, this Agreement binds and benefits permitted successors and assigns. This Agreement is governed by California law, without regard to its conflicts of law principles. The U.N. Convention on Contracts for the International Sale of Goods is disclaimed. If any claim arises out of this Agreement, the parties hereby submit to the exclusive jurisdiction and venue of the federal and state courts located in Santa Clara County, California. In addition to any other rights or remedies, we shall be entitled to injunctive and other equitable relief, without posting bond or other security, to prevent any material breach of this Agreement. We may change the terms, conditions and pricing

© 2015 Harmonic Inc. All rights reserved.
relating to the future licensing of our Systems and other intellectual property rights, including this Agreement, from time to time. No waiver will be implied from conduct or failure to enforce rights nor effective unless in a writing signed on behalf of the party against whom the waiver is asserted. If any part of this Agreement is found unenforceable, the remaining parts will be enforced to the maximum extent permitted. There are no third-party beneficiaries to this Agreement. We are not bound by additional and/or conflicting provisions in any order, acceptance, or other correspondence unless we expressly agree in writing. This Agreement is the complete and exclusive statement of agreement between the parties as to its subject matter and supersedes all proposals or prior agreements, verbal or written, advertising, representations or communications concerning the System.

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

**NOTE:** You require Adobe Reader or Adobe Acrobat version 6.0 or later to open the PDF files. You can download Adobe Reader free of charge from www.adobe.com.
# Table of Contents

## Chapter 1: Introduction to DMS

- 9

## Chapter 2: Start Up and GUI Introduction

- Hardware Setup ................................. 10
- Running the DMS Client .................... 10
- The DMS GUI .................................. 10
  - Panels ....................................... 13
  - Open Panels Overview ..................... 14
  - The Dashboard Panel ....................... 15
  - The Groups Panel .......................... 16
  - The Device Browser Panel ................. 17
  - The Device Properties Panel ............. 20
  - Schedule Panel ............................ 21
  - The Service Plan Panel .................... 22
  - RF Panel .................................. 23

## Chapter 3: Redundancy

- 25

## Chapter 4: Device Database Administration

- Add Device .................................. 27
  - Adding a Single Device ................. 27
  - Authorize Entire TS ...................... 31
- Exporting Devices ....................... 31
- Importing Devices ...................... 31
- Reporting Devices ..................... 32
- Upgrading a Device .................... 32
- Cloning a Device ....................... 33
- Swapping Two Devices ................. 34
- Removing Devices .................... 34
- Group and Folder Operations ........ 35
  - Creating a Group and Adding Devices . 35
  - Performing Commands on Groups ..... 36
  - Editing a Group ......................... 37
  - Removing a Group ....................... 37
  - Creating a Folder ....................... 38
  - Removing a Folder ...................... 39
  - Editing a Folder ......................... 39

## Chapter 5: Device Commands

- 40

- Upgrading Firmware ..................... 40
- Activating Firmware ................... 43
- Rebooting Devices ..................... 43
Table of Contents

Downloading Configuration Files .......................................................... 44
Rolling Back Device Configurations .................................................... 45
Upgrading Licenses .............................................................................. 45
  Importing a License File .................................................................. 46
  Inserting a License Key .................................................................... 47
Set Model ............................................................................................... 47
Resume from Disaster Recovery ............................................................. 48
Set TS Bitrate ....................................................................................... 48
Bulk Update ......................................................................................... 49
General Device Command Functions .................................................... 51
  Command Scheduling ...................................................................... 51
  Canceling an active command from the Device Browser Panel ........... 52

Chapter 6: Affiliates ........................................................................... 53
Affiliates Management ......................................................................... 53
  Edit and Remove .......................................................................... 54
  Bulk Update ................................................................................. 54
Export Affiliates .................................................................................. 57
Import Affiliates ................................................................................. 58
Report Affiliates .................................................................................. 58

Chapter 7: Blackout ............................................................................ 59
Create Blackout Event ......................................................................... 59
Blackout Events .................................................................................. 61
Timeline ............................................................................................... 64

Chapter 8: Monitoring ....................................................................... 66
The Dashboard Panel ........................................................................... 66
  Elements Introduction ..................................................................... 66
  Adding Elements .......................................................................... 67
  Element Descriptions ................................................................... 67
The Alarms Panel .................................................................................. 71
Export Alarms Property Sheet ............................................................... 74
The Commands Panel .......................................................................... 74
  Displaying the Commands Panel .................................................... 74
  Displaying Command Details ......................................................... 75
  Displaying Target Devices ............................................................. 75
  Canceling a Command in Progress ................................................ 75
RF History ............................................................................................ 76
Schedule Panel .................................................................................... 76
The Audit Log Panel ............................................................................ 76
Exporting the Audit Log ...................................................................... 78
Alerts .................................................................................................... 78

Chapter 9: Distribution Network Setup ................................................. 79
Service Plan ......................................................................................... 79
## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding a Transport Stream</td>
<td>79</td>
</tr>
<tr>
<td>Updating a Transport Stream</td>
<td>80</td>
</tr>
<tr>
<td>Removing a Transport Stream</td>
<td>80</td>
</tr>
<tr>
<td>Adding a Program</td>
<td>80</td>
</tr>
<tr>
<td>Updating a Program</td>
<td>81</td>
</tr>
<tr>
<td>Removing a Program</td>
<td>81</td>
</tr>
<tr>
<td>BISS Keys.</td>
<td>82</td>
</tr>
<tr>
<td>Uplinks</td>
<td>83</td>
</tr>
<tr>
<td>Input Profiles</td>
<td>85</td>
</tr>
<tr>
<td>Importing from NMX</td>
<td>87</td>
</tr>
<tr>
<td>Chapter 10: Processing Profiles</td>
<td>88</td>
</tr>
<tr>
<td>Decoding</td>
<td>88</td>
</tr>
<tr>
<td>Transcoding</td>
<td>90</td>
</tr>
<tr>
<td>DTA</td>
<td>93</td>
</tr>
<tr>
<td>DPI</td>
<td>94</td>
</tr>
<tr>
<td>Chapter 11: Custom Device Attributes</td>
<td>96</td>
</tr>
<tr>
<td>Adding Custom Device Attributes</td>
<td>96</td>
</tr>
<tr>
<td>Editing Custom Device Attributes</td>
<td>96</td>
</tr>
<tr>
<td>Removing Custom Device Attributes</td>
<td>97</td>
</tr>
<tr>
<td>Custom Device Attribute List Type</td>
<td>97</td>
</tr>
<tr>
<td>Chapter 12: Setup</td>
<td>98</td>
</tr>
<tr>
<td>Network Connection</td>
<td>98</td>
</tr>
<tr>
<td>Firmware Versions</td>
<td>100</td>
</tr>
<tr>
<td>Uploading a Firmware Version</td>
<td>101</td>
</tr>
<tr>
<td>Removing a Firmware Version</td>
<td>101</td>
</tr>
<tr>
<td>Configuring Alerts</td>
<td>101</td>
</tr>
<tr>
<td>Sync Entitlements</td>
<td>102</td>
</tr>
<tr>
<td>User Management</td>
<td>103</td>
</tr>
<tr>
<td>Adding a User Profile</td>
<td>103</td>
</tr>
<tr>
<td>Editing a User Profile</td>
<td>103</td>
</tr>
<tr>
<td>Removing a User Profile</td>
<td>103</td>
</tr>
<tr>
<td>Roles</td>
<td>104</td>
</tr>
<tr>
<td>Chapter 13: The Help Tab</td>
<td>107</td>
</tr>
<tr>
<td>Displaying Help Topics</td>
<td>107</td>
</tr>
<tr>
<td>Visiting Harmonic’s Web Site</td>
<td>107</td>
</tr>
<tr>
<td>DMS License</td>
<td>107</td>
</tr>
<tr>
<td>Displaying the DMS Version Number</td>
<td>107</td>
</tr>
<tr>
<td>Appendix A: Contacting the Technical Assistance Center</td>
<td>108</td>
</tr>
<tr>
<td>Appendix B: Safety and Regulatory Compliance Information</td>
<td>110</td>
</tr>
<tr>
<td>Important Safety Instructions</td>
<td>110</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Safety Symbols &amp; Translated Safety, Warning &amp; Caution Instructions</td>
<td>110</td>
</tr>
<tr>
<td>(English)</td>
<td></td>
</tr>
<tr>
<td>Symboles de sécurité et traduits de sécurité, d’avertissement et Attention Instructions (français)</td>
<td>113</td>
</tr>
<tr>
<td>Sicherheit Symbole und übersetzt Sicherheit, Achtung &amp; Vorsicht Anleitung (Deutsch)</td>
<td>116</td>
</tr>
<tr>
<td>Site Preparation Instructions</td>
<td>119</td>
</tr>
<tr>
<td>Product End-of-Life Disassembly Instructions</td>
<td>121</td>
</tr>
<tr>
<td>Product Disassembly Process</td>
<td>121</td>
</tr>
<tr>
<td>Safety Rules (English)</td>
<td>121</td>
</tr>
<tr>
<td>Règles de sécurité (French)</td>
<td>121</td>
</tr>
<tr>
<td>EU Manufacturer’s Declaration of Conformity</td>
<td>122</td>
</tr>
<tr>
<td>Electromagnetic Compatibility Notices – Class A</td>
<td>122</td>
</tr>
<tr>
<td>Product Regulatory Compliance</td>
<td>124</td>
</tr>
<tr>
<td>Product Regulatory Compliance Markings</td>
<td>124</td>
</tr>
<tr>
<td>Product Environmental Compliance</td>
<td>126</td>
</tr>
<tr>
<td>EU RoHS</td>
<td>126</td>
</tr>
<tr>
<td>EU REACH</td>
<td>127</td>
</tr>
<tr>
<td>China RoHS</td>
<td>127</td>
</tr>
<tr>
<td>Other RoHS and REACH type Regulations</td>
<td>129</td>
</tr>
<tr>
<td>Waste Electrical and Electronic Equipment (WEEE)</td>
<td>129</td>
</tr>
<tr>
<td>Battery Directive</td>
<td>129</td>
</tr>
<tr>
<td>WEEE Take-Back Request Program</td>
<td>129</td>
</tr>
<tr>
<td>Compliance with additional country specific environmental, safety and EMC standards:</td>
<td>130</td>
</tr>
</tbody>
</table>
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 3.6 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
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**.

![Figure 2–2: Panel GUI operations](image)

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.

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 DMS GUI

Figure 2–4: Groups panel

**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.*
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.

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.

<table>
<thead>
<tr>
<th>Device Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Return channel, no alarms</td>
</tr>
<tr>
<td></td>
<td>Return channel, alarms</td>
</tr>
<tr>
<td></td>
<td>Warning alarm</td>
</tr>
<tr>
<td></td>
<td>Major alarm</td>
</tr>
<tr>
<td></td>
<td>Critical alarm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Conditions</th>
<th>Operands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Icon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

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 check boxes of several devices.
  
  - Click **All** next to **Check**: to mark the check boxes of all devices in the displayed list.
  
  - Click **None** next to **Check**: to clear the check boxes of all devices in the displayed list.
  
  - Click **Selected** next to **Check**: to mark the check boxes 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*.
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.
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 check box 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.
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:** Apply the DMS Redundancy only after syncing both servers to an NTP server, otherwise undetermined behavior can be experienced.

**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>
</tbody>
</table>

The following DMS alarms:
- No Available Backup
- No Primary Available
- Backup Server Not Synced
- SW Version Mismatch with Backup Server

See Table 8–1 for details.
Chapter 4
Device Database Administration

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. All previous authorization configurations are deleted from the DMS DB/GUI.
   - Deployed (Default for ProView 7000/8000)
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/SAG and front panel of the ProView 7000/8000. 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** check box 1.

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 28**.

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 28**.

---
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.

**NOTE:** It is also possible to authorize the entire TS. For more information, see *Authorize Entire TS*.

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** check box.
   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**.
Authorize Entire TS

The entire TS can be authorized by clicking the Authorize Entire TS button after the Input Profile field. The following options are available:

- **Schedule Authorization** – Using the following parameters:
  - Authorize Indefinitely
  - Authorize with Start/End Dates
  - Recurrence Authorization
  - Suspended Authorization
- **DTA Profile** – Choice out of pre-configured DTA profiles.
- **DPI Tiers** – Choice out of pre-configured DPI Tiers.

When clicking OK, the selection will be applied to the entire TS.

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 check box.

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 (including custom attributes, such as pending activation and actual firmware version). 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 check box.
   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 check box 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.
   - Use the Add Device to Blackout Event button to add devices to blackout events.
   - 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.

7. Click OK.

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 check box.

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 is similar to 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. The device type and model will not be copied.

Swapping between devices of a different type or model is allowed if the target device has:
- Fewer decoders than the source: the matching entries will be copied (i.e. the configuration of decoder #1 will copied to decoder #1 of the target device)
- More decoders than the source: the extra entries will be set to None.
- Similar logic for TX and DTA

If the new authorization configuration for the target device doesn’t pass the regular validation (input profile cannot be applied, unsupported CA devices are used in the service plan, etc.), the DMS will provide a warning message to the user and leave the target device in the Defined state.

**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 check box.
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](Image)

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**
- **Editing 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>.
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.
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.

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, XML Configuration, 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, Bulk Updates, and XM Configuration are relevant.

- Upgrade Firmware
- Activate Firmware
- Reboot Devices
- Download Configuration File
- Rollback Configuration
- Configuration Activation
- Upgrade Licenses
- Set Model
- XML Configuration (for ProView 8000 devices only)

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.

![Upgrade Firmware property sheet](image)

*Figure 5–1: Upgrade Firmware property sheet*

**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.
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.
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.

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 or ProView 8000s 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 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 or ProView 8000 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. On a ProView 8000 you can use the front panel or SAG. To check these details in DMS double-click a device in the Device Browser.

The ProView 7000 and ProView 8000 save the file as a preset file. The filename for the ProView 7000 has the .pvr extension. See Manage Presets in the ProView 7000 User Manual for instructions on saving a preset file. The filename for the ProView 8000 has the .xml extension. See Manage Presets in the ProView 8000 User Manual for instructions on saving a preset file.

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

To download a ProView 7000 or ProView 8000 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. If the Device Model is a ProView 8000 and its State is Defined, you can either append or replace the existing configuration file.
7. If the Device Model is a ProView 8000 and its State is Deployed or the Device Model is ProView 7000, you can only replace the existing configuration file.
8. Click **Next**.

   Validation message displays.
9. Click **Send**.

   DMS downloads the configuration, using either the Configuration Download command when the Replace option is used or the XML Configuration command when the Append option is used.
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 (Only ProView 7000).

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 to 200 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**.
3. Select **Commands > Set TS Bitrate**.
   *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>
<tbody>
<tr>
<td>Affiliate Association</td>
<td>- Affiliate</td>
</tr>
<tr>
<td></td>
<td>- Affiliate City</td>
</tr>
<tr>
<td>Program Replacement</td>
<td>- Current Program (From)</td>
</tr>
<tr>
<td></td>
<td>- New Program (To)</td>
</tr>
<tr>
<td></td>
<td>- Processing Type: All, DTA, TX, Decoding</td>
</tr>
<tr>
<td></td>
<td>- Processing Profile</td>
</tr>
<tr>
<td></td>
<td>- DPI Profile</td>
</tr>
<tr>
<td>New Program Authorization</td>
<td>- New Program (To)</td>
</tr>
<tr>
<td></td>
<td>- Processing Type: DTA, Decoding, TX</td>
</tr>
<tr>
<td></td>
<td>- Processing Profile</td>
</tr>
<tr>
<td></td>
<td>- DPI Profile</td>
</tr>
<tr>
<td>Input Profile Replacement</td>
<td>- Current Input Profile (From)</td>
</tr>
<tr>
<td></td>
<td>- New Input Profile (To)</td>
</tr>
<tr>
<td></td>
<td>- Program aliasing: Replaced Program, Substitute Program</td>
</tr>
<tr>
<td>Processing Profile Replacement</td>
<td>- Profile Type: DTA, TX, Decoding, DPI Profile</td>
</tr>
<tr>
<td></td>
<td>- Program</td>
</tr>
<tr>
<td></td>
<td>- Current Profile (From)</td>
</tr>
<tr>
<td></td>
<td>- New Profile (To)</td>
</tr>
<tr>
<td>Change Device State</td>
<td>- Device State: Not Authorized, Defined, Deployed</td>
</tr>
<tr>
<td></td>
<td>- Input Profile</td>
</tr>
<tr>
<td>Change Device Property</td>
<td>- Name: Select one of the defined Custom Device Attributes</td>
</tr>
<tr>
<td></td>
<td>- Value</td>
</tr>
<tr>
<td>Program Authorization Re-</td>
<td>- Current Program (From)</td>
</tr>
<tr>
<td>Scheduling</td>
<td>- Authorize indefinitely</td>
</tr>
<tr>
<td></td>
<td>- Authorize with start/end dates</td>
</tr>
<tr>
<td></td>
<td>- Recurrent authorization</td>
</tr>
<tr>
<td></td>
<td>- Suspended authorization</td>
</tr>
</tbody>
</table>

**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.
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 you 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.
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 check box.
4. Click **Export Affiliates** in the **Affiliates** group of the **Home** tab.

### 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 ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ System ID</td>
<td>■ Search/Replace ■ 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 ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ Street Address</td>
<td>■ Search/Replace ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ City</td>
<td>■ Search/Replace ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ County</td>
<td>■ Search/Replace ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ State/Province</td>
<td>■ Search/Replace ■ Replace</td>
</tr>
<tr>
<td></td>
<td>■ Zip Code</td>
<td>■ Search/Replace ■ 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 ■ Replace ■ Delete</td>
</tr>
</tbody>
</table>
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 check box.
   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.
- **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>
</tbody>
</table>
| Incomplete   | The blackout event is not fully defined.
|              | - Target devices are not selected.
|              | - The blacked-out program has not been defined.
|              | - The End Time has not been defined.                                        |
| Preparing    | 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. |
| Running      | 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. |
| Scheduled    | The event definition is complete and a start time has been defined (regardless of the activation mode). |
| Skipped      | The event was scheduled but never activated.                                |
| Stopped      | The event was running and had a defined End Time, yet the user stopped it manually. |

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.
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
Figure 7–1: Timeline

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.
Chapter 8
Monitoring

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.
Chapter 8 Monitoring

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*. 

© 2015 Harmonic Inc. All rights reserved.
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. |
Chapter 8 Monitoring

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 check boxes.
4. Select entries to export with the check boxes.
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.

---

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>
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.
Chapter 8 Monitoring

The Audit Log Panel

Figure 8–2: 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 check boxes.
4. Select entries to export with the check box.
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*.

   ![Create Transport Stream](image)

   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.

The Program property sheet displays. See Adding a Program for parameter information
3. Enter new data.
4. 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.

   The Key property sheet displays.
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.

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.
- 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.

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.
  - 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 check box 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.
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**.
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**
- **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
5. Click OK.

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:
Transcoding

- **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)
    - 19:9
  - **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.
Transcoding

- **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)
  - **Very Weak**
  - **Weak**
  - **Normal**
  - **Strong**
  - **Very Strong**

- **Pass all Data PIDs**
  - **Enable** (default)
  - **Disable**
- **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

**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**.
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 Device Attributes can be of different types such as numeric, boolean, string or a list of entries and you can categorize these attributes.

You can enter Custom Device Attributes when:

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

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** check box.
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 Device 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 Entry:
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.

Custom Device Attribute List Type

When selecting the type List, you can perform the following actions in the List of Entries:
- Add
- Remove
- Move Up
- Move Down
- The first entry in the list is considered the default. Any devices that use the List Type is assigned with the default entry.
Chapter 12
Setup

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.
- **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**.

![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)
   - **PIDs 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**.

![DMS Network Connection Setup](image)

6. Configure the following parameters in the **CAS Configuration** step:
- **Enable CAS** – This check box 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.

![DMS Network Connection Setup]

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.
Chapter 12 Setup

Sync Entitlements

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.

Figure 12–1: Alert Configuration property sheet

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

© 2015 Harmonic Inc. All rights reserved.
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 check boxes.
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 check boxes.
4. Click OK.

To remove a role:
1. Select a role in the list.
2. Click Remove.
3. Click OK.

### Table 12–1: Privileges Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Privileges to manage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing Profiles</td>
<td>Decoding, TX, DTA, DPI</td>
</tr>
</tbody>
</table>

© 2015 Harmonic Inc. All rights reserved. 106 DMS Release 3.6, Rev A
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>+7495.926.4608</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.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
</table>
| ![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).
### 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>Laser Radiation Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>![triangle]</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mark</th>
<th>Lithium Battery Handling Safety Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>![triangle]</td>
<td>• CALIFORNIA PERCHLORATE ADVISORY: Some lithium batteries may contain perchlorate material. The following advisory is provided: &quot;Perchlorate Material - special handling may apply, see: [<a href="http://www.dtsc.ca.gov/hazardous">www.dtsc.ca.gov/hazardous</a> waste/perchlorate/](<a href="http://www.dtsc.ca.gov/hazardous">http://www.dtsc.ca.gov/hazardous</a> waste/perchlorate/) for information&quot;.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mark</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>![triangle]</td>
<td>• Risk of explosion if battery is replaced incorrectly or with an incorrect type</td>
</tr>
<tr>
<td></td>
<td>• Dispose of used batteries according to the manufacturer's instructions</td>
</tr>
<tr>
<td></td>
<td>• There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries</td>
</tr>
</tbody>
</table>
## Installation ou remplacement de l'unité de produit

**Avertissement**

- 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).
- Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.
- 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.
- L'équipement doit être installé conformément aux normes électriques nationales et locales.
- Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones aux quelles 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.
- Utilisez uniquement des pièces de rechange spécifiées.
- 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.

---

## Rack Monture

**Avertissement**

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:

- Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel.
- Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses.
- 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.

---

## Châssis

**Avertissement**

- 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.
- 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.
- 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.
- 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.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Choc électrique Avertissement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif.</td>
</tr>
<tr>
<td></td>
<td>Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.</td>
</tr>
<tr>
<td></td>
<td>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 câblée avant de raccorder les entrées ou sorties du unité.</td>
</tr>
<tr>
<td></td>
<td>Installer les cordons d'alimentation et autres câbles 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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis.</td>
</tr>
<tr>
<td></td>
<td>Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Mark</td>
<td>Les décharges électrostatiques (ESD) Attention</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>- Respecter systématiquement les précautions 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 mégao-hms (Mohms).</td>
</tr>
<tr>
<td></td>
<td><strong>Attention</strong></td>
</tr>
<tr>
<td>Mark</td>
<td>Rayonnement laser Attention</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------</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>
<tr>
<td></td>
<td><strong>Avertissement</strong></td>
</tr>
<tr>
<td>Mark</td>
<td>Batterie au lithium Manipulation instructions de sécurité</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------</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/](<a href="http://www.dtsc.ca.gov/hazardous">http://www.dtsc.ca.gov/hazardous</a> waste/perchlorate/) for information&quot;.</td>
</tr>
<tr>
<td></td>
<td><strong>Attention</strong></td>
</tr>
<tr>
<td>Mark</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>
</table>
| Warnung | **Installation oder den Austausch des Produkts Einheit Warnung**  
- Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden (siehe AS / NZS 3260 Clause 1.2. H.3 Servicepersonal)  
- Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.  
- Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden.  
- Die Installation der Geräte muss den Sicherheitsstandards entsprechen.  
- Verwenden Sie nur die angegebenen Ersatzteile  
| Rack-Montage-Warnung | Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt:  
- Entsprechen den lokalen Arbeitsschutzanforderungen beim Bewegen und Heben der Ausrüstung.  
- Stellen Sie sicher, dass die Montage des Gerätes durch mechanische Belastung Werkzeuge sollten nicht gefährlichen Bedingungen zu induzieren.  
- Um das Risiko von möglichen elektrischen Schlag zu vermeiden, muss mit einer angemessenen Erdung für Rack und jedes Gerät installiert ist implementiert werden. |
| Warnung | **Chassis Warnung**  
- Gleichstrom-Unterbrechung Bevor Sie Erdungs- oder Stromkabel an das Chassis anschließen oder von ihm abtrennen, ist sicherzustellen, daß der Gleichstrom-Stromkreis unterbrochen ist.  
- Um Verletzungen und Beschädigung des Chassis zu vermeiden, sollten Sie das Chassis nicht an den Henkeln auf den Elementen (wie z.B. Stromanschlüsse, Kühlenungen oder Karten) heben oder kippen; oder indem Sie es unterhalb der Unterkante packen.  
- Alle Hinweise in diesem Handbuch, die das Öffnen benötigen Sie das Gehäuse oder das Entfernen eines Board sollte nur von qualifiziertem Fachpersonal durchgeführt werden.  
- Für Schlitze und Öffnungen im Chassis vorgesehen. Blockieren Sie sie nicht. Lassen Sie die Rückseite des Rahmens frei für Abluftkühlung und um Platz für die Verkabelung ermöglichen - ein Minimum von 6 Zoll (15,24 cm) Abstand wird empfohlen |
### Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)

<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warnung</strong></td>
<td><strong>Elektroschock-Warnung</strong></td>
</tr>
<tr>
<td></td>
<td>- Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.</td>
</tr>
<tr>
<td></td>
<td>- Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten.</td>
</tr>
<tr>
<td></td>
<td>- Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>- Ein Wechselstromsmodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden.</td>
</tr>
<tr>
<td></td>
<td>- Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung.</td>
</tr>
<tr>
<td></td>
<td>- 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 Fachpersonnel.</td>
</tr>
<tr>
<td></td>
<td>- Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß-bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 10 A (bzw. in den USA 120 V Wechselstrom, 15 A) an den Phasenleitern (allen Stromführenden Leitern) verwendet wird.</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
</tbody>
</table>
## Site Preparation Instructions

**NOTE:** Only trained and qualified service personnel (as defined in IEC 60950 and AS/NZS 3260) should install, replace, or service the equipment. Install the system in accordance with the U.S. National Electric Code if you are in the United States.

1. **Preparing & Choosing a Site for Installation**
   - To ensure normal system operation, plan your site configuration and prepare the site before installation.
   - Install the unit in a restricted access area.

### Site Preparation Instructions

<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td><strong>Elektrostatische Entladung (ESD) Vorsicht</strong></td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Tragen Sie immer einen ESD-präventive Handgelenk oder Knöchel-Riemen beim Umgang mit elektronischen Komponenten. Schließen Sie ein Ende des Bandes an einem ESD-Buchse oder ein unlackiertes Metallteil auf dem System.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Kontakt zwischen den Karten und Kleidung vermeiden.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>- Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm).</td>
</tr>
<tr>
<td><img src="image" alt="Warnung" /></td>
<td><strong>Laserstrahlungen Warnung.</strong></td>
</tr>
<tr>
<td><img src="image" alt="Warnung" /></td>
<td><strong>Lithium-Batterie Handhabung Sicherheitshinweise</strong></td>
</tr>
<tr>
<td><img src="image" alt="Warnung" /></td>
<td>CALIFORNIA PERCHLORATE ADVISORY: Einige Lithium-Batterien kann Perchlorat enthalten. Die folgende Beratungs gesetzt: &quot;Perchlorat - Sonderbehandlung kann erforderlich sein, finden Sie unter: [<a href="http://www.dtsc.ca.gov/hazardous">www.dtsc.ca.gov/hazardous</a> waste/perchlorate/ for information](<a href="http://www.dtsc.ca.gov/hazardous">http://www.dtsc.ca.gov/hazardous</a> waste/perchlorate/ for information).&quot;</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.</td>
</tr>
<tr>
<td><img src="image" alt="Vorsich" /></td>
<td>Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service zu leisten.</td>
</tr>
</tbody>
</table>
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 UL60950-1, 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](https://www.harmonicinc.com) 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/ELU) and EMC Directive (2014/35/ELU). 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 절못 판매 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，在生活环境巾，该产品可能会造成无线电干扰。在这种情况下，
可能需要用户对其进行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 B–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.fcc.gov/" 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 B–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>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 KN 24</td>
<td>EMC</td>
<td>KC</td>
<td></td>
</tr>
</tbody>
</table>
Product Environmental Compliance

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.

*http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm*

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 B–2:Restricted Substances

<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>

Table B–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>China</td>
<td>GB4943.1-2011</td>
<td>Safety and EMC</td>
<td>CCC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GB9254-2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GB17625.1-2012</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B Safety and Regulatory Compliance
Information

© 2015 Harmonic Inc. All rights reserved. 127 DMS Release 3.6, Rev A

EU REACH


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/

Table B–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.
### 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.

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。

**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。
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
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.