Spectrum System Release Notes 8.0.0.0

Company: Harmonic Inc.

Date: 09 November 2015

Release: Spectrum 8.0.0.0, Revision A

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Introduction

These notes provide important information regarding Spectrum System Software Release 8.0 including installation instructions, known issues, and workarounds for the release.

Please read these notes prior to upgrading software as all sections contain important information. Release 8.0 includes fixes for specific issues which have been reported in the field, integrates hot fixes which were released to specific customers during the life-cycle of the previous release, and adds new functionality described below.

> ⓘ **Important**
>
> Spectrum 8.0 introduces the Spectrum X, the MediaDirector 2252B/2251B, and the MediaCenter 2200B. For existing Spectrum devices, release 8.0 supports only the ChannelPort and MediaStore 5000 series. Support for MediaPort 7000, MediaCenter 2200 and 2200A, MediaDirector 2251 and 2252, and MediaDeck 7000 will be added in the 8.1 release.
>
> Spectrum 8.0 systems require SystemManager release 6.3 or later. For Spectrum X, you may also use Spectrum Management.

Verifying Your Downloads

The Spectrum software and documentation packages (.zip and .exe files) contain checksum files (.md5 extensions) that you can use to verify that your downloads are correct. To use the checksum file to compare the contents of your downloads against those of the original Spectrum software and documentation packages, use a utility such as the MD5 and SHA Checksum Utility.

High Impact Notices

- Spectrum X does not support AVC-Long GOP media formats in release 8.0. When configuring a player in SystemManager or Spectrum Management, disregard the AVC-Long GOP option.
- In this release, using **EE Mode**: **Record** for record players attached to the Spectrum X does not work as expected. Use only the **Normal** or **Never** options for EE Mode.
- If you are using Spectrum Management in addition to SystemManager, please note that Players created with Spectrum Management cannot be modified, deleted, activated, or de-activated using SystemManager. SystemManager will display players created with Spectrum Management in read-only mode. To modify these players, use Spectrum Management. For Help with using Spectrum Management, click the Help button in the application.

Compatibility and Packaging

Compatibility

The components of a Spectrum System (SystemManager, MediaDirector, MediaStores, and MediaPorts) are designed and tested to run together. Interoperability between components running different versions of the system software is not supported. All components of a Spectrum System should be upgraded to Spectrum System Software Release 8.0 together.

Spectrum provides backwards compatibility, that is, a newer release can play content from an older release. Recommended practice is to upgrade Playout servers, then upgrade Ingest servers, if Playout and Ingest are on different systems.
Harmonic does not guarantee that older releases can play clips generated by newer releases.

Product:	Spectrum™ System
Software Version:	Release 8.0
Supports SystemManager:	6.3.0.0
Supports Harmonic MediaGrid:	3.4.x, 3.5
Supports MAS:	3.7.0.9
Supports ProBrowse:	2.6 Uses media.dll 6.2 to import Spectrum compatible content
Supports ProXchange:	1.7.2 Uses media.dll 6.2 to import Spectrum compatible content
Supports ProMedia Carbon:	3.28.00.51077 Uses media.dll 6.1 to import QuickTime Ref generated by Spectrum Uses non-spectrum dll to import all other wrapper types. Supportability is not deterministic. Clips that do not import will need to be examined on a case by case basis.

Supports Workflow System (WFS):	2.2.0.6
	Uses media.dll 6.1 to import QuickTime Ref generated by Spectrum
	Uses non-spectrum dll to import all other wrapper types. Supportability is not deterministic. Clips that do not import will need to be examined on a case by case basis.
Supports Polaris Play: Ingest:	2.0.X
Supports Polaris Play: Advanced	1.3.0
Supports Polaris Play: Live	2.0.0.0

> ⚠ **Note**
>
> If you are upgrading from a very old release of Spectrum software, before upgrading your system to the latest release, contact Harmonic Technical Support to obtain copies of the Release Notes for all intermediary releases, up to and including the release you wish to install. Carefully review "High Impact Notices," "Known Issues," and "Fixed in Release x.x" in the Release Notes for each intermediary release.

Immediately after upgrading the SystemManager, upgrade all Spectrum video servers and I/O modules on a given EFS, and restart as described in the Spectrum 8.0 Software Installation Instructions. Contact Harmonic Technical Support to discuss upgrade planning or to discuss specific configuration or interoperability issues.

API Compatibility

Existing API interfaces, in Player API, Media API, or RMAPI (version 7+) are unchanged from previous 7.x releases.

Applications using these API calls are expected to continue to work, as they do now. Such applications may not be able to take advantage of new features or possible bug fixes. The recommended practice for applications that *dynamically* link to our API libraries is to update the API library to 8.0. The recommendation for *statically* linked applications is to upgrade to the latest Spectrum API at the next available opportunity.

System Software Release Packaging

Software updates are available from the Harmonic Software Downloads page at: https://harmonic.force.com/SWAccess/SWDownloadLogin

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The full download consists of several files:

- **Spectrum-v8.0.0.0-Software.zip**. This includes system software.
- **Spectrum-v8.0.0.0-Documentation.exe**. This includes product documentation.
- **HarmonicTemplatesAndTools-v8.0.0.0-SWandDoc.exe**. This includes the template authoring package, tools, and documentation, as well Polaris Play: Playlist Control tools and documentation.

Acrobat® Reader® is needed to view the product documentation. Download this for free from: http://www.adobe.com.

Locating the Latest Documentation on the Harmonic Website

The latest product documentation, as well as information provided for older releases, is available on the Harmonic website at: http://www.harmonicinc.com/documents-detail.

Obtaining Spectrum APIs

Spectrum APIs are available for use following the terms outlined in a Non-Disclosure Agreement (NDA). Contact TechPartners@harmonicinc.com to obtain the NDA.

New Features

Introduction of the Spectrum X

Feature	Description
Spectrum X	The Spectrum X combines file and baseband ingest with comprehensive integrated channel playout (ICP) capabilities, including graphics, branding, and DVE. The Spectrum X can operate in either internal storage mode or shared storage mode. In internal storage mode, Spectrum X operates as a Spectrum server with four hot-swappable SAS drives and up to 12 TB of usable storage in addition to installed I/O modules. In shared storage mode, the Spectrum X operates as a MediaPort/ChannelPort with installed I/O modules, and can be connected to a MediaDirector 2252B/2251B or MediaCenter 2200B. The Spectrum X series can include one or two SDI I/O cards. Each SDI I/O card provides 8 DIN 1.0/2.3 connectors and two bi-directional channels. Note that I/O connector functionality depends on whether the SDI I/O card is in Standard Channel or Enhanced Channel mode. Each SDI I/O card on the Spectrum X includes a 60-pin connector, which provides connections for RS-422, GPIO, reference video, and multi-function I/O using a Harmonic-provided breakout cable. For installation and hardware reference details, see the *Spectrum System 8.0 Installation Guide*. For configuration details, see "Spectrum X Configuration," in the *Harmonic SystemManager User Guide*.
Support for 3G SDI (1080p)	The Spectrum X supports record of AVC I-Frame Class 100 at 3G SDI (two ingest channels per I/O module), and playout of AVC I-Frame Class 100 at 3G SDI (four concurrent play channels per I/O module).
HD independent branding on both primary and secondary outputs	In addition to HD/SD independent branding support, Spectrum X can play HD content from both the primary and secondary outputs. For details on configuring Independent branding on the Spectrum X, see "Enabling and Configuring Independent Branding" in the *Harmonic SystemManager User Guide*.

Introduction of the MediaDirector 2252B/2251B

Feature	Description
MediaDirector 2252B	The MediaDirector 2252B includes 12 connections for Spectrum I/O modules, as well as 10 Gb Ethernet ports for file transfers, 12 Gb SAS connections for MediaStore 5000 storage arrays, and EFS (extended file system) connections. For installation and hardware reference details, see the *Spectrum System 8.0 Installation Guide*.
MediaDirector 2251B	The MediaDirector 2251B includes 6 connections for Spectrum I/O modules, as well as 10 Gb Ethernet ports for file transfers, 12 Gb SAS connections for MediaStore 5000 storage arrays, and EFS (extended file system) connections. For installation and hardware reference details, see the *Spectrum System 8.0 Installation Guide*.

Introduction of the MediaCenter 2200B

Feature	Description
MediaCenter 2200B	The MediaCenter 2200B includes 10 connections for Spectrum I/O modules, as well as 10 Gb Ethernet ports for file transfers. It also provides 12 hot-swappable disk drives in a 2 x (4 +2) RAID set, and up to 32 TB of usable storage. For installation and hardware reference details, see the *Spectrum System 8.0 Installation Guide*.

General Features

Feature	Description
Support for MXF ARD_ZRD_HDF01/02/03 wrapper formats	This release adds support for the MXF ARD_ZRD_HDF01/02/03 wrapper formats for use with MPEG-2 XDCAM HD and AVC-Intra players. For details, see *Spectrum 8.0 Media and Wrapper Formats*.

Polaris Play: Playlist Control Features

Feature	Description
Shared file format for playlists	With this release, Playlist, Scheduler, and PreviewTool all use the same file format that Playlist Control uses (XML). A shared file format adds convenience to your workflow by allowing you to create a playlist in Scheduler, preview it in PreviewTool, and then load it into Playlist.
Improvements to Configure Channel Group dialog	For convenience, the Configure Channel Group dialog in Playlist, Scheduler, and PreviewTool now displays the Player Name that is attached to the Playout Channel.
Up to five connections to a playout channel	With this release, the number of client connections to a playout channel has increased from three to five. In addition, if the maximum number of connections is exceeded, an error message appears indicating as such.
Looped schedules	With this release, you can set schedules to loop in Scheduler and play out looped schedules in Playlist.
Default clips for missing material	You can now configure a default clip to play instead of the traditional "black" clip in the event that the scheduled clip is missing. Default clips are based on material type and duration, and will not be deleted by MediaFetch. For more information, refer to "About Playlist Control Default Clips" in the *Polaris Play: Playlist User Guide*.
Default clips for Channel Override and Mixer Override	This feature gives you the option to designate a clip to play out when Channel Override or Mixer Override is activated. These clips will not be deleted by MediaFetch. For more information, refer to "About Playlist Control Default Clips" in the *Polaris Play: Playlist User Guide*.
Change playout events with BXF messaging	This release includes support for adding, deleting, and modifying a playlist via BXF messaging.
Support for audit trails	This release includes support for audit trails, which are logs that record operator actions and may be used to determine the cause of an on-air disruption. For more information, refer to "Retrieving an Audit Log via the Filesystem" in the *Polaris Play: Playlist User Guide.*
Support for setting Traffic and Billing defaults on all playout channels	With this release, you can enable and configure default Traffic and Billing settings for all playout channels on a Spectrum video server. Note that any settings you configure for an individual playout channel will override the global settings. For details, see "Enabling and Configuring Global Traffic and Billing Settings" in the *Harmonic SystemManager User Guide*.

Polaris Play: Playlist Features

Feature	Description
Support for replacing on-air primary events	With this release, you may modify the on-air primary event by selecting a different clip or by switching to a different source. For more information, refer to "Replacing On-air Primary Events" in the *Polaris Play: Playlist User Guide*.
Timeline markers for GPO secondary events	Playlist now marks GPO secondary events on the timeline. The marker is color-coded to indicate the status of the GPO event. For more information, refer to the *Polaris Play: Playlist User Guide.*
Improvements to Find Material	This release offers material ID and duration entry assistance with the Find Material side pane. The Find Material side pane automatically filters clips based on the frame rate that has been configured for the player and allows you to drag-and-drop material into the Event List.
Support for saving the Missing Material List	In Playlist, you may now save the Missing Material list to a file for sharing among operators.

Polaris Play: Scheduler Features

Feature	Description
Support for publishing finished schedules to Playlist Control	With this release, you can publish a finished schedule directly to the traffic folder for the Playout Channel. For more information, refer to "Publishing Finished Schedules to Playlist Control" in the *Polaris Play: Playlist User Guide*.
Integrated diagnostic logs	Previously, diagnostic logs were available for the MediaDeck 7000 only. Diagnostic logs are now integrated in the Scheduler application and are available for all Spectrum video servers.
As-run log viewing and editing	This release includes support for opening as-run logs in Scheduler and limited editing. For more information, refer to "Viewing and Editing an As-Run List" in the *Polaris Play: Playlist User* Guide.

Feature	Description
Improvements to Material List and Find /Replace	With this release, the Material List and Find/Replace dialogs have been replaced with an expandable side pane that allows you to quickly insert and edit events, including drag and drop capability. It also adds new keyboard shortcuts. For more information, refer to "Using the Find Material Side Pane" in the *Polaris Play: Playlist User Guide*.
Support for larger schedules	This release offers improved handling of larger schedules, and can support schedules of up to 10,000 events.

Polaris Play: Media Fetch Features

Feature	Description
Support for FTP groups	With this release you can configure multiple FTP groups, which will prevent conflicts when transferring files that have the same file name, but are stored on different video severs. For more information, refer to "Configuring Media Fetch for the Video Server" in the *SystemManager User Guide*.
Support for playout of growing files	With this release, you can configure an FTP server to allow playout of clips while they are still recording or copying.

Spectrum Management Features

Feature	Description
Support for Spectrum X management	With this release, you may use the Spectrum Management application running on the Spectrum X to configure, operate, and monitor the Spectrum X. For details on accessing Spectrum Management, see Spectrum Management. For help with using Spectrum Management, click the Help button in the application to access the online help system.
Support for adding users	With this release, the User Management page allows you to add new users to Spectrum Management and assign them either "user" or "admin" privileges. For details, see "Adding a user" the Spectrum Management online help system.

Spectrum Release 8.0.0.0 Fixed Issues

Key	rn summary
VSG-12854	This release includes improvements to the way schedules are reloaded in Polaris Play: Scheduler following a restart. Previously, schedules that were interrupted due to a system or playout engine restart did not restart correctly.
VSG-11670	With this release, timecode in Polaris Play: Scheduler appears in the same format that it does in Polaris Play: Playlist.
VSG-11194	Previously, the Spectrum system was unable to connect over CIFS/Samba after a network reconfiguration or DHCP change.

3 issues

Additional Fixed Issues

Key	RN Summary
PPLY-109	When opening large schedules (1000 events or more), an unresponsive script warning could appear.
PPLY-35	In some cases, in the Detail Display for an event in Scheduler, using the up/down arrow keys to modify a field that involves timecode, such as Duration, could result in the updated value appearing in the Event List but not appearing in the Detail Display for that event.
PPLY-24	In Playlist and Scheduler, adding a Subtitle with the same Index number as an existing entry, or adding a Text Update with same Box number as an existing entry resulted in the existing Subtitle or Text Update entry being overwritten.
PPLY-19	Searching by Subtitle Filenames (primary event) and Text Updates (secondary event), with Field set to "All text fields" did not work as expected.

Software Installation Instructions

- Quiescent System State During Upgrade
- Handling Device Upgrade Failures
- Installing or Upgrading the SystemManager Software
- Overview: Upgrading Spectrum Video Server and I/O Module Firmware
- Upgrading Spectrum Video Server Firmware
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- Restarting the Spectrum Video Server
- Verifying Disk Drive Firmware
- Upgrading Disk Drive Firmware
- Verifying that MediaDirectors in EFS Have Common View of Disks, RAID Sets, and File System

> ℹ **Note**
>
> Spectrum 8.0 introduces the Spectrum X, the MediaDirector 2252B/2251B, and the MediaCenter 2200B. For existing Spectrum devices, release 8.0 supports only the ChannelPort and MediaStore 5000 series. Support for MediaPort 7000, MediaCenter 2200 and 2200A, MediaDirector 2251 and 2252, and MediaDeck 7000 will be added in the 8.1 release.

Please carefully review the *Spectrum System Installation Guide*, *SystemManager Installation Guide*, and the release notes for each product prior to commencing firmware, or SystemManager application installation.

Refer to the *SystemManager Installation Guide* for the most up-to-date SystemManager installation procedure. Refer to the *SystemManager Release Notes* for the latest product information. To download the installation guide and the latest release notes, navigate to the Harmonic Software Downloads page at: https://harmonic. force.com/SWAccess/SWDownloadLogin and download the following: **SystemManager-v6.3.0.0-Documentation.exe**.

Quiescent System State During Upgrade

When upgrading Spectrum I/O modules, ensure that no recording or playback is taking place; make sure all players are stopped. Also ensure that no file copies or transfers are in progress internally or on the Ethernet port. Upgrade all Spectrum I/O modules at the same time. Before commencing any player or file activity, verify that all Spectrum I/O modules and Spectrum servers are running the same version of firmware as shown on the SystemManager **Upgrade Firmware** page under the **Home** tab. In addition, prior to upgrading disk drive firmware, stop the file system on every Spectrum server. If you attempt to upgrade the Spectrum server or I/O module during player or file activity, playout may be compromised, or file corruption may occur.

> ⊖ **Important!**
>
> MediaDirectors on an EFS need to run the same firmware revision or risk file system corruption. To
> avoid corruption, when upgrading MediaDirectors on an EFS, first stop the file system on all
> MediaDirectors, then upgrade all MediaDirectors at the same time. Once upgrades are complete on all
> MediaDirectors, restart the file system on each MediaDirector. (VID-5691, VSG-5053)

Handling Device Upgrade Failures

If a failure occurs when upgrading a device, the SystemManager will generate an Upgrade Failed alarm. If a
device has an Upgrade Failed alarm, the SystemManager will not let you perform another upgrade until the
Upgrade Failed alarm is cleared. To clear alarms, follow these steps:

1. Click on the **Diagnostic** tab on the SystemManager menu bar.
2. Click on the **View Alarms** icon on the left of the screen to display the **View Alarms** field.
3. Click on the **Clear alarms** button to clear the **Upgrade Failed** alarms.
4. Start another upgrade.

Installing or Upgrading the SystemManager Software

The SystemManager application is packaged in a comprehensive installer file which installs the
SystemManager application and other components required for the successful operation of the
SystemManager. An installation wizard is available to guide you; however, you will need to choose between
options during the installation process. Refer to the *SystemManager Installation Guide* for an explanation of the
procedure and the choices you need to make during the installation process.

Overview: Upgrading Spectrum Video Server and I/O Module Firmware

It is important that you upgrade the Spectrum video server firmware and I/O Module firmware in the following
order:

1. Follow the instructions for Upgrading Spectrum Video Server Firmware.
   Do not restart the video server at this time.
2. Follow the instructions for Upgrading I/O Module Firmware.
3. Follow the instructions for Restarting the I/O Modules.
4. Follow instructions for Restarting the Spectrum Video Server.

> ⊖ **Important!**
>
> If you upgrade the video server and *restart* before upgrading your I/O module, you may not be able to perform the I/O module upgrade.

Upgrading Spectrum Video Server Firmware

> ⚠ **Note**
>
> Bring the system to a quiescent state as discussed in Quiescent System State During Upgrade before commencing a video server upgrade.

Before upgrading to the latest version of firmware, check with your automation, archival, and third party software vendors for compatibility information.

Use the following steps to upgrade video server firmware from the **Upgrade Firmware** page. This method allows you to upgrade one or more Spectrum video servers.

> ⊖ **Warning!**
>
> You cannot have Spectrum servers with different versions on the same file system; to ensure file system integrity, upgrade all Spectrum servers at the same time.

With the SystemManager software properly installed, log on to the SystemManager application.

1. Click the **Home** tab.
2. In the left-hand column, click the **Firmware Selection** icon to display the **Firmware Selection** page.
3. Click the radio button for the desired version of firmware. When the confirmation dialog box appears, click **OK**. Note that this selection chooses the directory from which firmware upgrade files will be selected; the selection does not perform the upgrade.
4. From the **Home** tab, click the **Upgrade Firmware** icon in the left-hand column to display the **Upgrade Firmware** page.
5. In the **Spectrum servers** section, select the video servers you want to upgrade.
6. Click the **Upgrade** button. A dialog box will appear asking you to confirm or cancel the upgrade.
7. Click **OK** to upgrade the selected video servers, or click **Cancel** to exit the procedure safely without upgrading.

8. When the upgrade process is complete, proceed with Upgrading I/O Module Firmware.

⊖ **Warning**

Do not restart the video server(s) until you have finished upgrading and restarting the I/O modules.

Upgrading I/O Module Firmware

Before upgrading to the latest version of software, check with your automation, archival, and third party software vendors for compatibility information.

Use the following steps to upgrade your I/O module (for example, ChannelPort) firmware from the **Upgrade Firmware** page. This method allows you to upgrade one or more I/O modules.

⊖ **Warning!**

You cannot have I/O modules with different versions on the same system.

If you have received a new SystemManager CD-ROM that includes a specific I/O module, the **Software Installation** instructions must be followed completely. This ensures that new software is placed properly in the **D:\Upgrades** directory.

To upgrade a Spectrum I/O module:

1. With the SystemManager software properly installed, log on to the SystemManager application.
2. Click the **Home** tab.
3. In the left-hand column, click the **Firmware Selection** icon to display the **Firmware Selection** page.
4. Click the radio button for the desired version of firmware. When the confirmation dialog box appears, click **OK**. Note that this selection chooses the directory from which firmware upgrade files will be selected; the selection does not perform the upgrade.
5. Click the **Home** tab.
6. In the left-hand column, click the **Upgrade Firmware** icon to display the **Upgrade Firmware** page.
7. Scroll to the **I/O Modules** section of the page.
8. Click the check boxes for the I/O modules whose firmware you want to upgrade.
9. Click the **Upgrade** button. The **Upgrade I/O Modules Now** page appears with a list of the selected I/O modules.
10. Click **OK** to upgrade the selected I/O modules, or click **Cancel** to exit the procedure safely.
11. When the upgrade process is complete, continue to Restarting the I/O Modules.

Restarting the I/O Modules

1. On the SystemManager **Upgrade Firmware** page, scroll to the **I/O Modules** section.
2. Select the I/O modules you just upgraded, and then click the **Reboot** button. The **Reboot I/O Modules Now** page appears.
3. Click **OK** to restart the selected I/O modules or click **Cancel** to exit the procedure safely.
4. Proceed with Restarting the Spectrum Video Server. Note that you can begin restarting your video server while the MediaPort/ChannelPort(s) are still restarting.

Restarting the Spectrum Video Server

1. On the SystemManager **Upgrade Firmware** page, scroll to the **Spectrum Servers** section.
2. Select the Spectrum video servers that you recently upgraded and then click the **Reboot** button. The **Reboot Spectrum Servers Now** page appears.
3. Click **OK** to restart the selected Spectrum video servers, or click **Cancel** to exit the procedure safely.

Verifying Disk Drive Firmware

1. From the **Configuration** tab, click the **Disk Utilities** icon in the left-hand column and then click the icon for any MediaDirector to open the **Disk Utilities** page for that MediaDirector.
2. Click the **Upgrade Disk Firmware** button.
3. Compare the **Firmware Rev. Level** and **New Firmware Available** columns for each drive. If any drives are running earlier firmware than is available, proceed to upgrade disk drive firmware.

Upgrading Disk Drive Firmware

> ⚠️ **Note**
>
> If you wish to upgrade disk drive firmware for a MediaCenter disk drive, please contact Harmonic Technical Support for assistance.

Before upgrading disk drive firmware, check the following:

- Verify that startup is complete
- Ensure that the most recent release of SystemManager has been installed.
- Ensure that no recording or playback is taking place on the entire system.
- Ensure that all players have been stopped.

- Ensure that no file copies or transfers are in progress.

To install the Spectrum 8.0 firmware upgrade:

⊖ **Warning!**

- Failure to perform this procedure in the correct order could cause performance issues or data loss.
- Be sure to maintain power to the system throughout the drive firmware upgrade procedure. Loss of power during upgrade may render a drive inoperable and require a replacement or cause a loss of content.

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1. From SystemManager, click the **Configuration** tab.
2. Click **Disk Utilities** to display the **Disk Utilities** for all MediaDirectors and MediaCenters.
3. Click the device that contains the disk drive(s) you want to upgrade. The **Disk Utilities** for the selected device will appear.
4. Under **Logical View**, click the link to the file system.
5. On the **Filesystem Properties** page, click **Stop FS**.

⚠ **Note**

Make sure that ALL MediaDirectors connected to the file system show that the file system is stopped. Failure to stop the file system before the disk drive firmware upgrade can cause file system corruption.

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6. Return to the **Disk Utilities** page.
7. Under **Physical View**, click **Upgrade Disk Firmware**.
8. Select the check boxes for the drives you want to upgrade, or select **Select all Disks** (recommended). You cannot have disks with different versions within a RAID set.
9. Click **Start Upgrade Firmware**, and then click **OK** on the confirmation dialog that appears to start the upgrade, or click cancel to the exit the procedure safely without upgrading.
10. Once the upgrade is complete, reboot the MediaDirector, MediaCenter, or MediaDeck.

After you reboot the MediaDirector, the file system should start automatically. If this does not happen, refer to "Starting a File System" in the *Harmonic SystemManager User Guide* for instructions on restarting the file system.

Verifying that MediaDirectors in EFS Have Common View of Disks, RAID Sets, and File System

Prior to taking any action on a Disk Drive, RAID Set, File System, or MediaStore interface, it is important to verify that all MediaDirectors in an Extended File System (EFS) have a common view of disks, RAID Sets and MediaStores. This procedure can be found in the *Harmonic SystemManager User Guide*. It is also available in the Help System and can be found by entering "Common View of Disks" in the Search box and selecting the "Verifying that MediaDirectors in EFS have a Common Views of Disks, Raid Sets, and File System" link.

When a drive is dead and has been removed from the system, the drive's information still remains on the **Disk Utilities** screen and in the SystemManager database. Select the **Remove Drive** button on the Drive Properties page of the SystemManager to remove the drive from the associated MediaDirector. In an EFS setup, you must remove the "dead" drive from each of the MediaDirectors in the system or you will receive alarms in the SystemManager stating F/C Loop views are inconsistent between MediaDirectors.

Spectrum X Configuration Guidelines and Limitations

Spectrum X supports four channels of record or play at 100 Mbps, or less, in any combination of codec, wrapper, track count, and active transfer with the exception of MPEG-2 Long GOP (50 Mbps restriction). This section discusses these limits and the process for properly provisioning high-bit rate systems.

For MPEG Long GOP above 50 Mbps, only certain combinations of play and record are supported:

- Four play channels with active transfer, without restriction
- Four record channels with active transfer, self-contained formats only
- Four channels mixed play and record (1+3, 2+2, 3+1) are restricted to self-contained wrappers

If your Spectrum X channel requirements are not specified by the cases described above, contact your Harmonic Systems Engineer prior to ordering the equipment. Harmonic will perform an analysis based on your requested operational parameters and will either approve the configuration as requested or specify the changes required to bring the system into compliance with Spectrum X system specifications.

LXF Support

When you add an LXF watch folder, to improve performance, SystemManager automatically configures the Network/File System Performance settings as follows:

- Low Priority Bandwidth Limit (FTP & SAMBA): Default setting (100 MB/s)
- Low+ Priority Bandwidth Limit (AFP): 100 MB/s

For 50 Mbps material, Spectrum supports *one* LXF import with a re-wrap speed no higher than 3x. For 100 Mbps or 150 Mbps LXF material, the re-wrap speed must be set no higher than 1x.

MediaDirector Configuration Guidelines

> ⊖ **Warning!**
>
> If you have more than two Final Cut Pro seats, which are used simultaneously on an active MediaDirector 2252B/2251B, a Final Cut Pro "Dropped Frame" warning might occasionally be seen in the editor if frames are dropped. This issue will be addressed in a future release.

> ⊖ **Warning!**
>
> If you have more than two Adobe Premiere seats, which are used simultaneously on an active MediaDirector 2252B/2251B, an increase in the number of dropped frames might occasionally be seen in the "Show Dropped Frame Indicator" of the editor. This issue will be addressed in a future release.

MediaDirector 2252B

Spectrum MediaDirector 2252B supports up to 24 channels of video record and play at a bit rate of 50 Mbps. If your MediaDirector 2252B channel requirements fall outside these operating points, contact your Harmonic Systems Engineer before ordering the equipment. Harmonic will perform an analysis based on your requested operational parameters and project timeline and will either approve the configuration as requested or specify the changes required to bring the system into compliance with MediaDirector 2252B system specifications.

MediaDirector 2251B

Spectrum MediaDirector 2251B supports up to 600 Mbps of real-time play in any combination of codec or wrapper.

LXF Support

When you add an LXF watch folder, to improve performance, SystemManager automatically configures the Network/File System Performance settings as follows:

- Low Priority Bandwidth Limit (FTP & SAMBA): 300 MB/s
- Low+ Priority Bandwidth Limit (AFP): 200 MB/s

For 50 Mbps material, Spectrum supports *two* LXF imports with a re-wrap speed no higher than 3x. For 100 Mbps or 150 Mbps LXF material, the re-wrap speed must be set no higher than 1x.

MediaCenter 2200B Configuration Guidelines

> ⊖ **Warning!**
>
> If you have more than two Final Cut Pro seats, which are used simultaneously on an active MediaCenter 2200B, a Final Cut Pro "Dropped Frame" warning might occasionally be seen in the editor if frames are dropped. This issue will be addressed in a future release.

> ⊖ **Warning!**
>
> If you have more than two Adobe Premiere seats, which are used simultaneously on an active MediaCenter 2200B, an increase in the number of dropped frames might occasionally be seen in the "Show Dropped Frame Indicator" of the editor. This issue will be addressed in a future release.

The MediaCenter 2200B supports 20 channels of record or play at 50 Mbps or less, or ten channels of record or play at 51-100 Mbps. This is supported for any combination of codec and wrapper.

When using Active Transfer for all channels, the following guidelines apply:

- Up to 20 channels record or play at 50 Mbps
- Up to 10 channels record or play at 100 Mbps
- Up to 14 channels of record at 50 Mbps

When using EIP on a MediaCenter 2200B, the following configuration is supported in combination with up to 14 channels of record or play:

- Two seats of EIP with Quicktime Self-wrapped clips at 100 Mbps media or lower, no Active Transfer
- One seat of EIP with Quicktime Reference-wrapped clips at 100 Mbps media or lower, no Active Transfer
- One seat of EIP with MXF Self-wrapped clips at 100 Mbps media or lower, no Active Transfer

If your MediaCenter 2200B channel requirements fall outside these operating points, contact your Harmonic Systems Engineer before ordering the equipment. Harmonic will perform an analysis based on your requested operational parameters and project timeline and will either approve the configuration as requested or specify the changes required to bring the system into compliance with MediaCenter 2200B system specifications.

LXF Support

When you add an LXF watch folder, to improve performance, SystemManager automatically configures the Network/File System Performance settings as follows:

- Low Priority Bandwidth Limit (FTP & SAMBA): Default setting (185 MB/s)
- Low+ Priority Bandwidth Limit (AFP): 200 MB/s

For 50 Mbps material, Spectrum supports *two* LXF imports with a re-wrap speed no higher than 3x. For 100 Mbps or 150 Mbps LXF material, the re-wrap speed must be set no higher than 1x.

Spectrum Management

Spectrum Management runs directly on a Spectrum X in internal storage configuration, and allows you to configure, monitor, and maintain your Spectrum X without SystemManager.

Accessing Spectrum Management

Spectrum Management can be accessed from a client system with one of the following operating systems and web browsers.

On a Windows* Desktop Platform or Linux Computer:

- Internet Explorer 9 or newer
- Mozilla Firefox (latest)
- Google Chrome (latest)

On a Macintosh* Computer:

- Safari 6 or newer

To access Spectrum Management:

1. Make sure you have connected a client computer to your Ethernet network as described in "Connecting your Gigabit Ethernet Network" in the *Spectrum Installation and Hardware Reference Guide*.
2. Follow the steps in the following procedure, "Using Monitor.exe to Identify or Set the Spectrum X IP Address," to identify your Spectrum X IP address.
3. Open a web browser on your client computer, and then type the Spectrum X IP address in the address bar to open the Spectrum Management interface.
4. Log in using one of the following accounts:

- **User Account**: The "user" account allows you to only view configurations for your Spectrum X, wink devices, and create schedules using Polaris Play: Scheduler.
    - User name: user
    - Password: user
- **Admin Account**: The "admin" account allows you to perform all supported Spectrum X configuration. The administrator log in is as follows:
    - User name: admin
    - Password: omneon

Using Monitor.exe to Identify or Set the Spectrum X IP Address

You can use monitor.exe to identify the IP address of a Spectrum X that has been assigned one by DHCP, or to assign a static IP address to the Spectrum X.

Before you begin:

- Make sure your Spectrum X and your client system are on the same subnet.
- Consult with your network administrator before setting or changing the Spectrum X IP address.

1. Download monitor.exe from the pcapps folder in the MediaDeckAndSpectrum-vx.x.x.x-Software.exe file and save it to your client system.
2. Double-click monitor.exe to open it.
3. From the main window, click **View** > **Serial Number** to open the Director List. A list of all Spectrum video servers appears.
4. The Spectrum X serial number will appear as D13_nnnnn. The first 5 n's make up the 5-digit unit ID, which electronically identifies the unit. If your Spectrum X has been assigned an IP address by DHCP, the IP address will appear in this list. Use this IP address to access Spectrum Management as described in the previous procedure.
   If you wish to assign a static IP address to your Spectrum X, continue to the next step.
5. Right-click on the entry for the Spectrum X you wish to change, and then select **Set IP address** to open the Set IP address dialog.
6. From the Set IP address dialog, click the **Static IP** check box and, and fill in the following required fields: **Address**, **Net Mask**, and **Gateway**.

7. Click **OK**, and then verify that the new IP address appears in the Director list.

Changing Your Password

To change the log in password:

1. Click the profile icon in the upper right-hand corner of the Spectrum Management window, and then select **Change Password**.
2. From the Change Password dialog box, in the **Old Password** field, enter the current password, and then enter the new password in the **New Password** and **Confirm Password** fields
3. Click **OK**.

Supported Functionality with Spectrum 8.0

With this release, Spectrum Management supports most Spectrum functionality. Note the following limitations:

- Spectrum Management allows you to manage only the Spectrum X on which it's running, and no other Spectrum devices in your network.
- Players created using Spectrum Management can be viewed in a read-only mode using SystemManager. However, they cannot be modified, activated/de-activated, or deleted using SystemManager.
- Spectrum Management does not provide support for track tags.

Known Issues

The following tables detail significant known issues for this release.

- Known Issues Related to Spectrum X
- Known Issues Related to the MediaDirector 2251B/2252B, and the MediaCenter 2200B
- Known Issues Related to ChannelPort, MediaPort Chassis, and I/O
- Known Issues Related to Polaris Play
- Known Issues Related to Player or File Type
- Known Issues Related to the Media API
- Known Issues Related to MediaTools (Applications)
- Known Issues Related to Third Party Equipment and Material

Known Issues Related to Spectrum X

Synopsis	Description
No AVC-Long GOP support for Spectrum X	Spectrum X does not support the AVC-Long GOP media formats in this release. When configuring a Spectrum X player in SystemManager, disregard the AVC-Long GOP option.
Do not use EE Mode: Record option	In this release, using **EE Mode**: **Record** for record players attached to the Spectrum X does not work as expected. Use only the **Normal** or **Never** options for EE Mode. (VSG-13478)
No audio scrub	Spectrum X does not support audio scrub in this release. (VSG-13575)
Front panel LED colors	For the Spectrum X front panel LEDs, the light blue state as described in the documentation may appear greenish on the actual LED.
Cannot wink drives	For a Spectrum X in internal storage configuration, the drives do not support winking. To identify drives using SystemManager, look at the **Slot** value on the **Storage Properties** page, or the **MediaStore Slot Number** on the **Drive Properties** page. Drives are numbered 1-4 from left to right when facing the front panel.
Behavior when switching between external key/fill input pairs	For a Spectrum X in enhanced channel mode, when switching between one pair of external key/fill inputs to another pair of external key/fill inputs, the second input pair appears visible one reference frame too early as compared to ChannelPort. (VSG-13549)

Synopsis	Description
Offspeed play error messages	In some cases, when doing offspeed play on a Spectrum X, Spectrum may report errors such as the following: ``` E kernel [53987.054614] CIFS VFS: Server 127.0.0.1 has not responded in 120 seconds. Reconnecting... E T800206 extractSgl: srcSgList too small entries 2 offset 208569 needed 167 67602 ``` These messages may be safely ignored. (VSG-13778, VSG-13672)
Error messages when playing clips with long timelines	In some cases, when playing clips with timelines of approximately an hour or more in length on the Spectrum X, Spectrum may report error messages such as the following: ``` E T800210 StreamHwTap8::XferPictureForPlayout/B:StreamHwTap8::XferPictureForPlayout:playout queue has reached max capacity: 2 ``` These messages may be safely ignored. (VSG-13370)
Error messages during AVC play	In some cases, when playing AVC content on the Spectrum X, Spectrum may report errors such as the following: ``` DecA0: dpytsk no frame to send to FPGA for fw:54686.3 ts:+1.7 arv:+6.7 dS:+1 6.8 now:+16.8 2&2 avc 0Ia&0 dis,data 1920x1080 59.94hzi tc:inv sz:2439 ss:1 ``` If this occurs following a reboot, the messages may be safely ignored. If the messages continue to appear during normal operation, contact Harmonic Technical Support for assistance. (VSG-13693)

Known Issues Related to the MediaDirector 2251B/2252B, and the MediaCenter 2200B

Synopsis	Description
10 connections for I/O modules on MediaCenter	On the MediaCenter 2200B, the "MediaPort Ethernet Array" on the rear panel includes 12 ports. However, Harmonic only supports 10 connections to I/O modules.
Incorrect placement of MediaPort Ethernet array ports on MediaDirector 2251B	On the rear panel of the MediaDirector 2251B, all six of the Ethernet ports on the left-hand MediaPort Ethernet array card are enabled, and none of the ports on the right-hand card are enabled. Note that there may be plugs in three of the ports on each card. To connect the MediaDirector 2251B to I/O modules, remove any plugs from Ethernet ports on the left-hand MediaPort Ethernet array card, and use only the ports on that card. (VSG-13854)
Front panel LED colors	On the front panel LEDs, the light blue state as described in the documentation may appear greenish on the actual LED. For some early models of the MediaDirector 2251B/2252B and MediaCenter 2200B, the yellow state of the RAID set indicator may be affected by the color of adjacent LEDs and not appear completely yellow. (VSG-13857)
Drive status during rebuild	During a drive rebuild, if the rebuild is suspended, the software may not show the correct rebuild status. (VSG-13641)
No LED states for boot drive	The boot drive LED on the rear of the MediaDirector 2252B/2251B and MediaCenter 2200B chassis does not display any meaningful states. (VSG-13343)
Error messages with 20 channels of MPEG-2 play on MediaCenter	When playing 20 channels of MPEG-2, MXF self-contained, low-latency content at 720p, 59.94 Hz on the MediaCenter, Spectrum may report error messages, which include the text. "media read cache miss." These messages can be safely ignored. (VSG-12974)
Watch folder deleted when updated with invalid path	If you attempt to update an existing watch folder entry using an invalid path for the destination folder, Spectrum deletes the existing watch folder and does not create the new one. As a workaround, make sure to use a valid path for the destination folder. To be valid,

Synopsis	Description
	the path must be complete. For example: Invalid: /watch_folder Valid: /fs0/watch_folder (VSG-12136)
Issue with initiating 16 or more FTP transfers too quickly on MediaDirector	On the MediaDirector, initiating 16 or more file transfers via FTP with each transfer initiated in less than two seconds of the other could result in general system disruptions (for example, loss of connectivity or disruption of encodes or decodes). As a workaround, stagger the initiation of your FTP file transfers by at least 2-4 seconds. (VSG-12584, VSG-12580)
Issue with encoding 10 or more hours of QuickTime or MXF self-contained to MediaCenter	On the MediaCenter, encodes of QuickTime or MXF self-contained files greater than 10 hours in duration can run the system out of memory. As a workaround, avoid encodes of those formats exceeding 10 hours. If the system runs out of memory, restart the MediaCenter. (VSG-11904, VSG-11883)
Issue when joining Active Directory domain with invalid credentials	In some cases, joining a Windows 2008 Active Directory domain with invalid credentials will incorrectly report as a success. (VSG-11231)
FTP transfers from MediaDirector to MediaGrid need custom timeouts for open and status requests	For help setting custom timeouts for open and status requests for FTP transfers from a Spectrum Video Server to the Harmonic MediaGrid, contact Harmonic Technical Support. (VSG-9131)
MediaDirectors with mixed firmware versions sharing a file system can	Since Release 6.3.0.0, MediaDirectors on an EFS need to run the same firmware revision or risk file system corruption. To avoid corruption when upgrading MediaDirectors on an EFS, first stop the file system on all MediaDirectors, then upgrade all MediaDirectors at the same time. Once upgrades are complete on all MediaDirectors, restart the file system on each MediaDirector. (VID-5691)

Synopsis	Description
cause file system corruption	
Erroneous messages in the MediaDirector and MediaCenter logs about Harmonic MediaGrid file deletions	When performing FTP-based active transfers on a MediaDirector or MediaCenter, there may be warning/error messages in the logs indicating that a file on the Harmonic MediaGrid could not be deleted. The file does get deleted; the messages should be ignored. (VID-5037, VSG-4593)
Timecode from a Spectrum server overrides VITC from the I/O module	If a LTC timecode source is connected to a MediaCenter or MediaDirector, the MediaCenter or MediaDirector automatically uses that as the timecode source for any attached player. This overrides the reference VITC from the I/O module (for example, MediaPort) for purposes of automation. However, if the attached player is configured with a different frame rate than that of the LTC input, then its reference will not be overridden. For example, a LTC input with a frame rate of 25 Hz will not override the reference for a player configured with a frame rate of 29.97 Hz. (VID-3432)
Use MediaPort Ethernet Array for I/O modules only	Do not attempt to use the MediaPort Ethernet Array interfaces on a MediaDirector or MediaCenter for any purpose other than I/O module connectivity. Connecting these interfaces to a public network may cause network disruptions. (VID-5114, VSG-4661)
MirrorTool and TransferTool are not supported on the MediaDirector or MediaCenter	Harmonic does not support the use of MirrorTool or TransferTool on the MediaDirector, MediaCenter, or Spectrum X.

Known Issues Related to ChannelPort, MediaPort Chassis, and I/O

Synopsis	Description
Change to license structure	Due to changes in the license structure, ChannelPort licenses issued for releases 7.0 and 7.1 will not have full graphics capabilities when used with the current release. To correct this problem, contact Harmonic Technical Support to request a new ChannelPort license key.
Upgrade may cause Enhanced Channel mode to be set incorrectly	In rare cases, upgrading a ChannelPort to 7.5 or later may cause the ChannelPort to be set to Enhanced Channel mode incorrectly. For assistance, contact Harmonic Technical Support. (VSG-11342)
PreviewTool sometimes fails to refresh clip and template inventory when switching between multiple connections	If you have multiple connections configured with PreviewTool, and you rapidly switch between the connections, PreviewTool may appear to get "stuck" on a connection. If this happens, the clip and template inventory lists will be empty, and the refresh button will be red, indicating an error in fetching inventory. Clicking the Refresh button will fail without refreshing the inventory. Workaround: When changing connections, wait for a connection to complete refreshing its inventory before switching to the other connection. If PreviewTool appears to be "stuck" on a connection, switch to a different connection and wait for the inventory to refresh. (VSG-7322)
The ChannelPort Module QRG rev B contains incorrect information in the GPIO/RS-422 Signals table	Rev B states: Rev B table follows The corrected Rev C states:

Rev B states:

Function	RX (-/+)	TX (-/+)
Serial 1	2-3	10-11
Serial 2	4-5	12-13
Serial 3	6-7	14-15
Serial 4	8-9	16-17
Ground	1	

The corrected Rev C states:

Function	RX (-/+)	TX (-/+)

Synopsis	Description

Serial 0	2-3	10-11
Serial 1	6-7	14-15
Serial 2	4-5	12-13
Serial 3	8-9	16-17
Ground	1	

Synopsis	Description
PreviewTool/FXTool cannot load files named with certain characters	The following characters should not be used when naming files or when creating templates to preview in PreviewTool or FXTool: • \ or / • " • # • % (VSG-7310)
Do not use the highest numbered layer for graphics (4 or 8, depending upon license) if ChannelPort is configured to support an Emergency Alert System (EAS).	When a ChannelPort is configured to support an EAS, EAS templates are placed on the highest graphics layer (4 or 8, depending upon license) to ensure they are not obscured by other graphics. If your ChannelPort is configured to support an EAS, do not use the highest layer for other graphics.
SDI audio configuration issues cause phase shifts in audio samples	When devices that are connected to the SDI input of the ChannelPort do not have the same number of audio groups configured for embedded SDI audio as the ChannelPort, small phase shifts in audio samples may occur. Workaround: Ensure all devices that are connected to the SDI input of the ChannelPort have the same number of audio groups configured for SDI audio. (VSG-7589, VSG-7767)
PreviewTool default setting of 0.01 second duration results in offset from end, not short duration clip	PreviewTool allows layer settings that may not make sense for every combination of primary and secondary events. For example, certain values for "offset from start" and "offset from end" may be valid for some primary and secondary events, but for

Synopsis	Description
	others, it may result in a secondary event that ends before it starts. Similarly, a secondary duration may be too small to express in frames for the channel's frame rate. When you drag a template onto the sequence timeline, if PreviewTool detects that the default settings for that layer result in meaningless start or end times for that secondary event, it will ignore the layer defaults and create a secondary event that spans the full available time. Workaround: Make sure the layer default configuration is compatible with the primary and secondary events being used in your workflow. When a primary duration causes the first dragged secondary for a layer to occupy an interval other than the configured default when the configured default is impossible for the primary duration, edit the secondary offset(s) and/or duration to acceptable values. (VSG-7424)
Issue with the front panel display on a MediaPort 7000 chassis during power cycling	When a single module is installed in a MediaPort 7000 series chassis, rebooting the module will cause the LCD and light bar on the front panel to go dark. When the module has rebooted, the LCD will resume its normal behavior/output. If two modules are installed, and both are rebooted simultaneously, the LCD on the front panel will go dark. The LCD will resume normal behavior when either module has restarted. If two modules are installed, the front panel LCD will continue to operate normally as long as one of the modules is online. (VID-4629, VSG-4233)
Toggling off-speed play may result in audio artifacts	In some cases, when playing back MXF material on an I/O module, changing the speed to an off-speed setting (for example, -2x, 2x, or 3x), playing the content, and then changing the speed back to 0, or pausing, may result in audio artifacts, which last less than a second in duration. (VID-3206)
VITC issue under certain off-speed play conditions	VITC timecode from the I/O module does not display current time on media in reverse mode or on jumping to an arbitrary still frame. This does not affect VITC output via BVW protocol or the Spectrum Player API.
Connect Reference for I/O modules	When using a Spectrum server, external reference must be connected when using an I/O module (for example, MediaPort) for playout, but is not required with I/O modules used for record. For additional information regarding MediaPort timing and the MediaDirector, refer to "About MediaPort Timing" in the *Spectrum System Installation Guide*.

Known Issues Related to Polaris Play

Synopsis	Description
Edit mode in Scheduler isn't turned off correctly	In Polaris Play: Scheduler, after editing a field in the event list and applying changes by pressing 'Enter,' edit mode isn't turned off as expected.
Playlist Control Playout Channel timecode support	The Playlist Control Playout Channel supports 25/29.97/50/50.94 Hz frame rates, but for 29.97/59.94 Hz only drop-frame timecodes can be used. (VSG-7478)
Playlist Control Playout Channel settings are not changed when corresponding player settings are changed	When a player on a ChannelPort is updated, System Manager does not update the configuration for the associated Playlist Control Playout Channel, and the Playlist Control Playout Channel cannot communicate with or control the player because the configurations no longer match. Workaround: After the updating the player in SystemManager, navigate to the Playout Channel configuration page, and click Apply, even though no updates were made to that page. (VSG-7599)

Known Issues Related to Player or File Type

Synopsis	Description
Issues when using QuickTime wrapper with XAVC-Intra (Sony) and RP 2027	Using the QuickTime wrapper with XAVC-Intra class 100 (Sony) and RP 2027 class 50/100 (generic) clips results in timecode issues with those clips. As a workaround, either use an MXF wrapper or use Panasonic AVC-Intra. (VSG-13500)
Increased bandwidth with players configured for 3G SDI (1080p)	Note that AVC-Intra players configured for 3G SDI (1080p) will consume roughly twice as much bandwidth as equivalent AVC-Intra players configured for HD, and plan your system configuration accordingly. For example, note the difference in supported bit rates: • XAVC-I Class 100 (Sony), 50 fps at 1080i/720p = 112 Mbps • XAVC-I Class 100 (Sony), 50 fps at 1080p = 223 Mbps For details about specific formats and bit rates, refer to the standards for those formats.

Synopsis	Description
No API override of captions or subtitles	With this release, you cannot use the API interface to override the caption or subtitle configuration for a player. As a workaround, if you use an automation system you may use it to place the insertion file in the subtitle.dir directory with a proper name for the given configuration. (VSG-13683)
Captions or subtitles still displayed after file is removed	If a closed caption or subtitle insertion file is removed after a clip begins to play, the captions or subtitles will continue to be inserted until the clip finishes or is stopped. (VSG-13397)
No support for open captions in release 8.0	Open captions are not supported in release 8.0.
Errors when passing through XDS data with closed captions	When inserting closed caption data on for a clip that contains XDS data, errors appear in the system log related to the XDS. The caption data appears correctly, but some XDS data may be lost. (VSG-13755)
PitchBlue® re-wrap to QuickTime results in larger files than re-wrap to MXF	Due to limitations in the QuickTime format, using the Watch Folder feature to demultiplex PitchBlue files and re-wrap to QuickTime results in files that are roughly 30% larger than equivalent re-wrapped MXF files. (VSG-12847)
Issues from improved Samba performance	Depending on the client, Spectrum's SMB/CIFS/Samba networking performance has improved. This is due to a few factors, including Spectrum's new Samba service, Spectrum's new kernel, and new Windows* clients. In previous Spectrum releases, FTP was always faster than SMB/CIFS/Samba. Now, using a powerful PC to do a drag and drop file transfer and writing to Spectrum via Samba can fill a 1 Gbit/sec network link. Additionally, when using a Windows 2008 client, Windows Explorer receives a higher priority than an FTP solution, such as FileZilla*, so that a drag and drop transfer to a Spectrum server can take all the bandwidth away from FTP running on the same server. As a result of this change in Spectrum's Samba networking performance, Samba bandwidth levels may compete with other networking flows (for example, FTP or AFP) and you may need to re-evaluate your networking balance. If you wish to disable the SMB2/SMB3 protocol on your Windows client in order to maintain previous behavior, refer to the following article: http://support.microsoft.com/kb/2696547. (VSG-12478)
	When using the Auto-Export to Harmonic MediaGrid feature, note the following:

Synopsis	Description
Auto-Export to Harmonic MediaGrid limitations	• Auto-export watch folders are intended specifically for use with content that is recorded directly from a player to the watch folder. Harmonic does not support manually copying files into an auto-export watch folder. • When using the Auto-Export feature to actively transfer files via FTP, Harmonic supports transfers of low latency clips only. • If you are using the Auto-Export feature and you stop and start the Spectrum file system, you must restart the Spectrum video server before continuing to use Auto-Export. (VSG-12472, VSG-12407, VSG-12368, VSG-12418, VSG-12410)
Issue with Sony Cinemon/Smart render plugin and some MXF clips	Some MXF OP1a RDD9 clips published from Apple Final Cut Pro v. 7 with the Sony Cinemon/Smart render plugin may not be generated correctly and will show black frames on playout. Contact Harmonic Technical Support for a workaround to correct this issue. (VSG-9214)
Jog/shuttle of GXF-wrapped clips is not supported	Spectrum does not support doing jog/shuttle of GXF-wrapped clips. As a work-around, rewrap the GXF files into a file type that has an index table, such as MXF OP1a. (VSG-8529, VSG-8632)
Some non-Spectrum MXF clips do not play correctly	Some clips do not contain the necessary information about the video sample rate. The clip will play properly, but you may not be able to properly create black frames when necessary. This issue cannot be corrected by Harmonic. (VID-913)
XDCAM HD off-speed /advance play while transfer fails	If a clip is played off speed (32x) or the play head is advanced beyond the current transfer point, video will freeze or disappear entirely and error messages will appear in the system log. (VID-946)
Performance and file size issue with QuickTime recordings	The performance of QuickTime recordings may suffer and the associated file size may be unusually large when there are problems with, or interruptions in, the audio input. (VID-4125, VSG-3830)
Generic MXF files may be incorrectly identified as incomplete and stuck in scan mode	Loading actively recording MXF movies on another host in an EFS may result in a file being reported as incomplete and treated as such until the recording is complete. If this occurs, the workaround is to eject the movie from the playback Player timeline and reload. (VID-4636, FI-3924, VSG-4240)
Players unable to play QuickTime clips recorded at the	Spectrum players do not correctly load and play QuickTime clips at 59.94 Hz that are 5178816 frames in length (almost 24 hours). A "clip too long" message will appear. (VID-3124)

Synopsis	Description
maximum supported length	
One frame difference between start timecode in MXF essence file and burned-in timecode for XDCAM HD and OP0a files	For XDCAM HD and OP0a files, the Start Timecode in the MXF essence file is one frame off from the burned-in timecode. (VID-2245)
Error messages for incomplete MXF files	Attempting to load an incomplete MXF file can result in error messages stating that the file length is either too long or too short. These messages can be safely ignored. (VID-2261)
Error messages when using the IRT MXF Analyzer	For MXF clips containing AES3 audio recorded with Spectrum firmware preceding release 5.3, an IRT MXF Analyzer older than version 1.7.0.79 produces the following error message:

```
1590 Error: The correct value for property Quantization bits is 16
and not 24 as encoded in the file.
```

For MXF clips containing AES3 audio recorded with Spectrum firmware release 5.3, an IRT MXF Analyzer older than version 1.7.0.79 produces the following error message:

```
1590 Error: The correct value for property Quantization bits is 20
and not 24 as encoded in the file.
```

For MXF clips containing AES3 audio recorded with any version of Spectrum firmware, the IRT MXF Analyzer version 1.7.0.79 and later product an informational message indicating that the MXF Quantization Bits property exceeds that encoded in the file.

Synopsis	Description
	These error messages can be safely ignored. (VID-2215)
Descriptive metadata cannot be set in some MXF IF50 clips	In certain circumstances, the descriptive metadata cannot be set for MXF IF50 clips. (VID-2188)
Index Start Position in some OP1a eVTR clips may result in audio defects	In certain Spectrum-generated OP1a eVTR clips, the Index Start Position item may incorrectly appear in a material package when it should only appear in an index table segment. As a result, when played back, these clips may contain audio defects such as "popping" or "fuzzy" noise. (VID-2143)
Incorrect I-Frame movie length reported	The Media API may incorrectly report the length of an I-Frame movie that has more than one clip per track. (VID-1519)
Note on MXF clips	With an eVTR Op1a wrapper, IMX 50 4:2:2 accompanied by 8 channels of 24-bit AES3 audio is supported. While the SystemManager will allow the creation of an IMX 30, 40, or 50-only recorder (that is, no audio), you will not be able to record MXF with a video-only player. When creating MXF recorders you must specify one MPEG track configured for IMX 50 4:2:2 and one audio track with 8 channels of 24-bit AES3 audio. MXF, GXF, and QuickTime clip names are distinguished by extensions (.mxf, .gxf, and .mov); however, many applications refer to clips without extensions. Therefore, mixing clips of the same name but different extensions (for example, foo.mxf and foo.mov) in the same directory will lead to unpredictable results. QuickTime players cannot playback 24-bit AES3 MXF audio. If you intend to operate your system using both QT and MXF files, you should change all players to MXF including playback players. MXF playback players allow the playback of both MXF and QuickTime audio.

Known Issues Related to the Media API

Synopsis	Description
Active transfers from a MediaDeck 7000 to a Harmonic MediaGrid system could result in an error	Performing active transfers from a MediaDeck 7000 with SSDs to a Harmonic MediaGrid system using the Media API may result in the transfers failing. The failure may be preceded by errors such as the following: "E main [MGC] doMgcIpc: ipcRecvMsg failed waiting for code=0x1003, seq=2942207: 0x100". To recover, restart the MediaDeck 7000 or contact Harmonic Technical Support for assistance. (VSG-12902)
Recommendations regarding resource management in the Media API	All Media API usage should be prefaced with a call to omMediaInit(), and followed by a call to omMediaShutdown(). A call to omMediaInit(), ensures that resources have been initialized. A call to omMediaShutdown()ensures that those resources have been released, allowing the application to exit safely. Calls to omMediaInit() and omMediaShutdown() are thread-safe, and may be intermingled. An internal reference counter ensures that resources are not released until the final omMediaShutdown(). Note that DLL unloading will still leak memory. (VID-5612, VID-4557)
Media API does not understand newer AIFF files	Spectrum Firmware and the Spectrum Media API do not handle all AIFF chunk types. This prevents the Spectrum software from working with some types of AIFF material. There is no workaround for this issue. (VID-4969, VSG-4530)

Known Issues Related to MediaTools (Applications)

Synopsis	Description
Using crash record in ClipTool Pro for 24 hours creates a file which cannot be played back	A crash record of the maximum length, 24 hours, cannot be played back. During the record process, the clip somehow becomes two frames longer than allowed and cannot be played back in Clip Tool Pro 3.0. (APP-1112)
Failure to enable "Trim Audio Precharge" feature when editing a file with TrackTool may cause audio distortion	Editing a file with TrackTool without enabling the "Trim Audio Precharge" feature can result in audio distortion during playback of the edited file. (VID-2152, FI-1047)
ClipTool Pro record issue	During the record process, clips become 2 frames longer than allowed and cannot be played back in ClipTool Pro 3.1. (APP-1112)

Synopsis	Description
No warning is issued when more than 96 audio channels are configured per video clip	When attempting to configure more than 96 channels of audio with TrackTool, there is no error reported via TrackTool. A maximum of 96 audio channels can be used for a video clip. Harmonic does not recommend configuring more than 96 tracks. (APP-1611)

Known Issues Related to Third Party Equipment and Material

Synopsis	Description
RDD9 support with older Sony XDCAM-HD decks	Some older Sony XDCAM-HD decks do not import RDD-9 clips created using Spectrum MediaPorts because they do not support structural metadata in the footer partition. However, most new Sony XDCAM-HD decks do support RDD-9 clips created using Spectrum. (VID-3241)
Using KDE drag and drop copier to copy files to Spectrum system may result in files being written as "no stripe", resulting in very poor read performance	As a workaround, Harmonic recommends that you use a Windows or Macintosh computer to copy files to a Spectrum system or, if using a Unix computer, use the "cp" command from a terminal
XDCAM-HD 4:2:2 50 Mb/s clips exported from Final Cut Pro require greater than nominal 50 Mb/s player bandwidth	Spectrum includes support for record and play out of Apple Final Cut Pro exported XDCAM-HD 4:2:2 50 Mb/s clips on MediaPort 5300, 5320, and 4000 series. The supported clip formats are 1920x1080i 29.97, 1920x1080i 25, 1280x720p 59.94, and 1280x720p 50. Since clips generated by Final Cut Pro often require more bandwidth than expected, in order to play back XDCAM-HD 50 Mb/s clips exported from Final Cut Pro, Spectrum players must be set higher than the nominal 50 Mb/s. While this value will vary depending upon the clip, a value of 60 Mb/s should be sufficient. To record and play Final Cut Pro-exported XDCAM-HD 4:2:2 50 Mb/s clips, Harmonic recommends that you create two separate players using the Simple configuration: one player for record set at 50 Mb/s, and another player for play-out, with the bit rate set high enough to account for any variances in the exported file (60 Mb/s or above). For more information on creating Players, refer to "Player Configuration" in the *Harmonic SystemManager User Guide*. (VID-1869)
	There are a number of known issues with this analyzer which do not have workarounds at this time.

Synopsis	Description
| Issues with IRT MXF Analyzer Pro Version 2.2.19 | From IRT51: (Sound element followed by S436M element)<br><br>```
Error: The Content Package contains a Sound Element followed by a
SMPTE 436M VBI or ANC Element.
```<br><br>(VID-4442, VID-4455)<br><br>From IRT9: (Audio sample rate should be 48000/1 not 25/1)<br><br>```
Error: The correct value for property SampleRate is 48000/1 and not 25/
1 as encoded in the file.
```<br><br>(VID-4448)<br><br>From IRT6:<br><br>```
2226 Error: No Locator could be found for external essence referenced
by Track Number 402718976 | 0x18010100
```<br><br>(VID-4447)<br><br>From IRT3: (Invalid DV Essence Element)<br><br>```
212431 Error: Invalid essence element payload in Generic Container
Element with Track Number 402718976 | 0x18010100 of Essence Container
with BodySID 2. Reason: Unknown DV video type Essence analyzer: DV-
DIF. Essence Container Label: 06.0e.2b.34.04.01.01.01.0d.01.03.01.02.02
.01.01. Terminating essence parsing while processing edit unit number 1
.
``` |

Synopsis	Description
	(VID-4446)
	From IRT2: (Sound descriptor quantization bits should be 16 and not 24)
| | ```
3392 Error: The Sound Essence Descriptor signals that the number of
quantization bits is 24, which is higher than actually required (16)
as determined by parsing the essence. Note: In the case of AES3
Essence, the four most significant bits may not contain audio but
auxiliary data.
``` |
| | **(VID-4445)** |
| | From IRT11: (Incorrect bit rate) |
| | ```
Error: The correct value for property BitRate is 8308800 and not 900000
0 as encoded in the file.
``` |
| | **(VID-4444)** |
| | From IRT11: (Color siting for MPEG is 255 and not 3) |
| | ```
Error: The correct value for property Color Siting is 255 and not 3 as
encoded in the file
``` |
| | **(VID-4443)** |
| | Essence container not identified as Data Essence Coding |

Synopsis	Description

The RP224 value 06.0e.2b.34.04.01.01.07.0d.01.13.01.01.04.01.00 of "Ess ence Container" does not identify a data essence coding.

(VID-4231, VSG-3912)

From IRT1: (Invalid BER Length value of 6 for Wave Clip Wrapped Essence Element with KLV Key value of 06.0e.2b.34.01.02.01.01.0d.01.03.01.16.01.02.00)

```
Error: Invalid BER Length value of 6 for Wave Clip Wrapped Essence
Element with KLV Key value of 06.0e.2b.34.01.02.01.01.0d.01.03.01.16.01
.02.00
```

(VID-4450)

From IRT4: (Edit Boundary is not aligned)

```
135649 Error: The edit boundary is not aligned with the frame-wrapped
Generic Container element KLV value boundary. The edit unit number 1
ends 19212 bytes after the KLV packet boundary. Essence analyzer: PCM
Audio. Essence Container Label: 06.0e.2b.34.04.01.01.01.0d.01.03.01.02.
06.01.00. The SampleRate of 30000/1001 is a integer multiple of the
EditRate of the Package of 30000/1001. Therefore, edit units must be
aligned with KLV boundaries in the case of a frame wrapped Generic
Container. Note: This is reported only once for each element of a
Generic Container.
```

(VID-4453, VSG-5803)

From IRT4: (Zero sized generic container size)

Synopsis	Description
| | ```
265329 Error: The size of this Generic Container Element of 0 differs
from the size of the previous Element of 9600. Note: This is reported
only once for each element of a Generic Container.
```<br><br>(VID-4454, VSG-5804)<br><br>From IRT51:<br><br>```
Error: The Content Package contains a Sound Element followed by a
SMPTE 436M VBI or ANC Element
```<br><br>(VID-4455, VSG-5805)<br><br>From IRT51:<br><br>```
15493 Error: Invalid essence element payload in Generic Container
Element with Track Number 352388352 | 0x15010500 of Essence Container
with BodySID 2. Reason: avcHeaders_.sequenceParameterSet.get () != 0:
File contains a VCL NAL unit without a previous Sequence Parameter
Set. Essence analyzer: MPEG AVC Video. Essence Container Label: 06.0e.
2b.34.04.01.01.01.0d.01.03.01.02.10.61.01. Terminating essence parsing
while processing edit unit number 1.
```<br><br>(VID-4456, VSG-5806) |