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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.

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

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<td>Typed Command</td>
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<tr>
<td><code>&lt;Ctrl&gt;</code>, <code>&lt;Ctrl&gt;+&lt;Shift&gt;</code></td>
<td>A key or key sequence to press.</td>
</tr>
<tr>
<td><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>
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Introduction

Congratulations on choosing the Media Application Server™ (MAS) from Harmonic. This consolidated web services platform performs the following functions:

- Provides unified content management capabilities across various storage systems.
- Provides a common view of content stored across multiple file systems.
- Enables partners to manage workflows from a single programming interface.

The Media Application Server is based on a service-oriented architecture (SOA), so it can simplify application interfaces by exposing key functionalities of existing Application Programming Interfaces (API's), such as:

- Searching file systems
- Transferring clips
- Creating and managing metadata
- Manipulating clips
- Extracting closed-captioning from broadcast-encoded media files
- Performing audio, video, and quality checks on assets
- Archiving and restoring assets, clips, files and folders
- Generating H.264 proxies
- Using new APIs to support workflows

About This Guide

This guide provides information on how to use the Pro Application Suite to manage the Media Application Server. Choose from the following chapters:

- **Introduction** (this chapter) provides an overview of the Media Application Server and the Documentation Suite; lists terms and conventions; and provides background information about Media Application Server.
- **Chapter 1, About the Media Application Server** provides an in-depth overview of the Media Application Server and its various workflows.
- **Chapter 2, Getting Started** explains how to get started with MAS and the ProXplore application.
- **Chapter 3, About the ProXplore User Interface** provides an overview of the ProXplore interface, which provides access to your media.
- **Chapter 4, Using the Access Control App** provides instructions on how to use the Access Control app for managing user accounts, roles, and system access.
- **Chapter 5, Using the Alarm App** explains how to use the Alarm app to get a quick overview of configuration problems in MAS.
- **Chapter 6, Using the Appliance App** explains how to use the Appliance app to manage the different MAS configurations.
- **Chapter 7, Using the Archive App** explains how to use the Archive app to archive and restore media using MAS and a third-party archival system.
- Chapter 8, Using the Asset App provides instructions on how to use the Asset app to managing different media in MAS.
- Chapter 9, Using the Browse App provides instructions on how to use the Browse app to manage low-resolution versions (proxies) of full-resolution material from Spectrum, MediaDeck, MediaGrid, or MediaPort.
- Chapter 10, Using the Closed Caption App explains how to use the Closed Caption app to extract closed captions and subtitles from files located in MAS folders.
- Chapter 11, Using the Database App provides instructions on how to use the Database app to manage the MAS database status, backup, and restore functions.
- Chapter 12, Using the Dashboard App provides instructions for using the Dashboard app.
- Chapter 13, Using the File Browser App provides instructions for using the File Browser app to manage standard folders, folder short cuts, and virtual folders.
- Chapter 14, Using the File Management App provides instructions for using the File Management app to manage files in MAS.
- Chapter 15, Using the Ignore Patterns App explains how to use the Ignore Patterns app to exclude certain files from MAS events.
- Chapter 16, Using the Jobs App provides instructions for using the Jobs app to view the status of MAS jobs.
- Chapter 17, Using the Logs App provides instructions for using the Logs app to manage MAS logs.
- Chapter 19, Using the Metadata Templates App provides instructions on using the Metadata app to add descriptive metadata values to clips.
- Chapter 20, Using the Quality Check App explains how to use the Quality Check (QC) app to manage Quality Checks of clips in MAS.
- Chapter 21, Using the Scheduler App provides instructions on using the Scheduler app for monitoring and managing scheduled tasks in MAS.
- Chapter 22, Using the Search App explains how to use the Search app to search in the MAS database.
- Chapter 23, Using the Sequences App provides instructions for using the Sequences app to manage sequences in MAS.
- Chapter 24, Using the Settings App explains how to use the Settings app to manage MAS settings.
- Chapter 25, Using the Setup App provides instructions for using the Setup app to manage server and service settings in MAS.
- Chapter 26, Using the Software Builds App explains how to use to the Software Builds app to upload the system software on a MAS system.
- Chapter 27, Using the Storage Watches App provides instructions for using the Storage Watches app in MAS.
- Chapter 28, Using the Subclip App explains how to use the Subclip app to manage subclips in MAS.
- Chapter 29, Using the Track Tags App provides instructions for using the Track Tags app to manage track tags in MAS.
Chapter 30, Using the Transcode App provides instructions on using the Transcode app to create transcode presets and transcode rules to convert audio and video clips from one format to another in MAS. Information in this chapter applies to content from ProXchange, Harmonic, or other third-party systems.

Chapter 31, Using the Transfer App provides instructions for using the Transfer app to transfer content to and from managed systems on a network.

Chapter 32, Using the Unresolved Issues App provides instructions for using the Unresolved Issues app to manage unresolved issues in MAS.

Appendix A, Contacting the Technical Assistance Center provides information for contacting Harmonic Technical Support.

Installation

The UI is an application built on the Media Application Server to provide a mechanism to manage multiple video server systems and the content stored within them. Pro Application Suite does not need to be installed, as it is a web-based interface. Launch the service by pointing the browser to the Media Application Server:

http://<server ipaddress>/

Media Application Server Models

The Media Application Server 3.6.2 is available in the following models:

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS-1000</td>
<td>One Harmonic 1U, rack mount server for use by ProBrowse, ProXchange, and ProXplore.</td>
</tr>
<tr>
<td>MAS-1100</td>
<td>Two Harmonic 1U, rack mount servers for use by ProBrowse, ProXchange, and ProXplore. Installed as a two-node, high availability (HA) configuration.</td>
</tr>
<tr>
<td>MAS-2000</td>
<td>One Harmonic 2U, rack mount server for use by ProBrowse, ProXchange, and ProXplore. Includes an integrated BrowseStore with six disks for storing proxies.</td>
</tr>
<tr>
<td>MAS-2100</td>
<td>Two Harmonic 2U, rack mount servers for use by ProBrowse, ProXchange, and ProXplore. Includes an integrated BrowseStore with six disks for storing proxies. Installed as a two-node, high availability (HA) configuration.</td>
</tr>
</tbody>
</table>

System Software Release Packaging

All items are packaged in self-extracting files and available for download from the Support Server at the following location: http://support.omneon.com/Updates/0mneon/Current/MediaApplicationServer/3.6.2.0.

The full download contains several files:

- MAS-v3.6.2.0-Software.exe - System Software
System Compatibility

The Media Application Server is compatible with the following operating systems and browsers:

## Browsers

<table>
<thead>
<tr>
<th>Browser</th>
<th>Minimum Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Internet Explorer</td>
<td>6.0</td>
</tr>
<tr>
<td>Mozilla Firefox</td>
<td>2.0.0.3</td>
</tr>
<tr>
<td>Apple Safari</td>
<td>3.0.2</td>
</tr>
</tbody>
</table>

**NOTE:** Safari 6 and above with QuickTime 7.7.1 plugin does not support playback of MPEG-1 proxies in the MAS Player.

## Operating Systems

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Minimum Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows XP</td>
<td>Service Pack 2</td>
</tr>
<tr>
<td>Mac OS</td>
<td>10.5</td>
</tr>
</tbody>
</table>

## Media Players

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Minimum Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Flash Player</td>
<td>10.0.22</td>
</tr>
<tr>
<td>QuickTime Player</td>
<td>7.6.6</td>
</tr>
</tbody>
</table>

**NOTE:** Adobe Flash Player is required for all browsers. Download Flash Player from [http://www.adobe.com/downloads](http://www.adobe.com/downloads) if this version is not installed on your system.

**NOTE:** QuickTime is used to play content within the Media Application Server User Interface (UI). Make sure that version 7.6.6 is installed on your system before using the Media Application Server. Download this version from [http://www.apple.com/quicktime/download/](http://www.apple.com/quicktime/download/) if this version is not installed on your system.

## Hardware and Software Support

Media Application Server 3.6.2 supports the following versions of products and services:

**NOTE:** MAS version 3.6.2 supports SystemManager version 5.25. If you are running MAS 3.6.2, Harmonic recommends that you upgrade to SystemManager version 5.25. If you running an older version of MAS (3.4.1 and older) do not upgrade to SystemManager 5.25. MAS versions 3.4 and 3.4.1 only support SystemManager 5.23.
<table>
<thead>
<tr>
<th>Firmware</th>
<th>Supported Version</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>SystemManager</td>
<td>5.25</td>
<td>Required</td>
</tr>
<tr>
<td>Spectrum</td>
<td>6.4.2, 7.0, 7.1, 7.2</td>
<td>7.0 required for IPV storage servers</td>
</tr>
<tr>
<td>MediaCenter</td>
<td>6.4.2, 7.0, 7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>MediaDeck</td>
<td>6.4.2, 7.0, 7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>MediaDeck 7000</td>
<td>6.4.2, 7.0, 7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>MediaGrid</td>
<td>3.0.1, 3.1.1, 3.1.2, 3.1.3, 3.2</td>
<td></td>
</tr>
<tr>
<td>Media API</td>
<td>6.2, 6.3, 6.4, 7.0, 7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>Player API</td>
<td>6.2, 6.3, 6.4, 7.0, 7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>MediaGrid API</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>ProBrowse Generator</td>
<td>2.6.0.1, 2.6.0.2</td>
<td>If you have a ProBrowse Generator, 2.6.0.1 is required</td>
</tr>
<tr>
<td>ProXchange JobScaler</td>
<td>1.7.0.4, 1.7.0.5</td>
<td></td>
</tr>
<tr>
<td>Harmonic WFS</td>
<td>1.4.4, 1.4.6, 1.4.7, 1.4.8</td>
<td></td>
</tr>
</tbody>
</table>

**Maximum Supported Transfers Per Host**

Below are the maximum active transfer reads/writes and maximum FTP reads/writes supported by Media Application Server per transfer host. The numbers default to different values based on the type of transfer host:

<table>
<thead>
<tr>
<th></th>
<th>Maximum Active Transfer Reads</th>
<th>Maximum Active Transfer Writes</th>
<th>Maximum FTP Reads/Writes</th>
<th>Maximum FTP Reads/Writes for ContentBridge (CB)</th>
<th>Maximum FTP Reads/Writes for High Bandwidth ContentBridge (HCBCB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>16</td>
<td>16</td>
<td>24</td>
</tr>
</tbody>
</table>

**NOTE:** Contact Technical Support (Appendix A, Contacting the Technical Assistance Center) for suggestions regarding limits for your specific media format and workflow.

**Third-Party Requirements**
Media Application Server 3.6.2 supports the following services:

<table>
<thead>
<tr>
<th>This service</th>
<th>Is documented in this chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy Service</td>
<td>Chapter 9, Using the Browse App</td>
</tr>
<tr>
<td>Closed Captioned Service</td>
<td>Chapter 10, Using the Closed Caption App</td>
</tr>
<tr>
<td>Quality Control Service</td>
<td>Chapter 20, Using the Quality Check App</td>
</tr>
<tr>
<td>Archive Service</td>
<td>Chapter 7, Using the Archive App</td>
</tr>
<tr>
<td>Manual Job Service</td>
<td>Chapter 18, Using the Manual Jobs App</td>
</tr>
<tr>
<td>Distribute Service</td>
<td>Chapter 25, Using the Setup App</td>
</tr>
</tbody>
</table>

**Client PC**

The following are required to view the Pro Application Suite on your computer:

- 1 GB RAM Memory
- 2.8 GHz CPU
- page Resolution = 1280 x 1024
Chapter 1
About the Media Application Server

This chapter provides an overview of the Media Application Server. Choose from the following topics:

- MAS Overview
- MAS Services
- Pro Application Suite
- Important Concepts
- Clip Flow
- Content Usage

MAS Overview

File-based workflows allow content creators to maximize production efficiencies and enable the delivery of more content to more devices in less time. To realize these objectives, an agile and accessible centralized media asset management (MAM) solution must sit at the heart of any media organization. The foundation of Harmonic’s MAM solution is MAS, a SOA-based platform that hosts and coordinates applications that comprise an enterprise-class content management, preparation and delivery platform: ProXplore and ProBrowse.

MAS provides a single virtualized, federated view of all managed storage — including Spectrum, MediaStore and Harmonic MediaGrid shared storage, as well as third-party storage platforms — to simplify the management of media assets across your entire enterprise. Comprehensive, configurable metadata management tools enable rich categorization and organization capabilities, ensuring that content can be located and repurposed with ease.

At the core of MAS is a workflow engine that provides a common control center for all of your media processing tasks, including transfers, transcoding, caption processing, file-based QC and archive management. This combination of functionality allows complex workflows to be orchestrated and enforced, ensuring content is efficiently routed throughout your facility.

For a fully customized MAM solution, MAS combines standardized third-party service interfaces with comprehensive web service APIs, providing the perfect platform for your in-house-developed applications, as well as applications from Harmonic’s growing list of software development partners.
MAS Services

The Media Application Server, delivered as a software and hardware appliance, provides a collection of services for both managing and processing media. Foundation Services are designed to provide fundamental functions for managing media in video server and storage systems such as metadata management, transfer services, and system-wide search. Optional Application Services provide media processing capability, such as proxy creation and transcoding.
Foundation Services

Table 1–1: MAS Foundation Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>Captures structural metadata and supports the creation of custom descriptive metadata models. Accepts external data through XML imports and supports standard SQL query commands for advanced functions.</td>
</tr>
<tr>
<td>Search</td>
<td>Provides consolidated search across multiple file systems based on structural or descriptive metadata. Search settings can be saved and reused, populate dynamic virtual folders, or drive graphic system dashboards.</td>
</tr>
<tr>
<td>Organization</td>
<td>Creates and maintains collections of content relationships regardless of data type and allows other services to treat those collections as single objects.</td>
</tr>
<tr>
<td>Rules</td>
<td>Allows the creation of workflow and processing rules based on system event, time, metadata changes or manual parameters.</td>
</tr>
<tr>
<td>Transfer</td>
<td>Manages the movement of content as defined by rules or user requests. Automatically senses growing and static files and selects the most appropriate transfer method. Suitable for manual or automated transfers, in addition to comprehensive mirroring capabilities.</td>
</tr>
<tr>
<td>Notification</td>
<td>Sends alerts and status notification messages to users and external applications based on workflow events using standard messaging protocols. Support for email, XML, JMS and SNMP.</td>
</tr>
<tr>
<td>Platform</td>
<td>Coordinates the activities of all services and applications running on the server. Monitors the progress of workflow steps to keep administrators informed. Allows for the reprioritization of jobs on the fly.</td>
</tr>
</tbody>
</table>

Optional Application Services

Table 1–2: MAS Application Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy</td>
<td>A powerful automatic proxy-generation service. Links low-res proxies to the corresponding full-res content and maintains metadata integrity. Enables viewing of content over standard corporate networks, VPN or Internet connections. Provision for sub-clipping and edit decision list (EDL) creation.</td>
</tr>
<tr>
<td>Transcode</td>
<td>Provides the fastest video transcoding on the market by leveraging the Grid Processing capability of the Harmonic MediaGrid clustered storage system.</td>
</tr>
<tr>
<td>Archive</td>
<td>A direct integration service with 3rd party HSM (Hierarchical Storage Managers) providers to extend the management to data tape library systems. Provides rules for automatic archive &amp; restore operations.</td>
</tr>
</tbody>
</table>
The Media Application Server is deployed on top of existing video server infrastructure. The Harmonic Pro Application Suite includes three applications that seamlessly integrate with the Pro Application Portal and provide optional services for the Media Application Server:

- ProXplore
- ProBrowse
- ProXchange

Separate licenses are required to use the applications. Refer to the Harmonic Media Application Server Installation and Configuration Guide for information on product licensing.

MAS also provides a single, virtualized view of all managed storage — including Harmonic’s Spectrum, MediaStore, and Harmonic MediaGrid shared storage, as well as third-party storage platforms — to simplify the management of media assets across an entire enterprise. Configurable metadata management tools enable categorization and organization capabilities, ensuring that content can be located and repurposed with ease.

### Table 1–2: MAS Application Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File-based QC</td>
<td>A third-party service interface to file-based quality control applications, enabling MAS to automatically route content through QC at the appropriate step of the workflow, and store the QC report with the central metadata records for the content.</td>
</tr>
<tr>
<td>Captioning</td>
<td>A third-party service for content with captioning or subtitles. Automatically extract that valuable temporal metadata, view the captions with the proxy, and search for a word or phrase mentioned in the video content.</td>
</tr>
</tbody>
</table>

Pro Application Suite

The Media Application Server is deployed on top of existing video server infrastructure. The Harmonic Pro Application Suite includes three applications that seamlessly integrate with the Pro Application Portal and provide optional services for the Media Application Server:
Figure 1–2: Managed Storage

ProXplore

Harmonic ProXplore, a browser-based application for clip and metadata management on video server systems, maximizes the benefits of file-based workflows by supporting multisystem searches, facilitating efficient content movement, and enabling content organization based on physical or user-defined metadata properties. Powered by the Media Application Server, ProXplore enables organizations to manage their digital media workflow, enforce business rules, and streamline the flow of content through the facility.

Workflow

ProXplore supplies the following workflow capabilities:

- **Content Staging and Playout**: Manage media transfers and mirroring.
- **News and Sports Highlights**: Active transfers, mirroring and metadata management.
- **Content Repackaging**: Manage metadata relating to content and group multiple distribution formats as assets.
- **Video Library Management**: Create, manage, maintain, and monetize content libraries.

Table 1–3: ProXplore Workflow

<table>
<thead>
<tr>
<th>Work Flow</th>
<th>ProXplore</th>
<th>ProBrowse</th>
<th>ProXchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content staging and playout</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>News and sports highlights</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared Edit</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content Repurposing</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Library Management</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studio Production</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ProBrowse**

The Harmonic ProBrowse proxy system creates, organizes, and serves low resolution “browse” copies of stored high-resolution media and enables users across an organization to view content right from the desktop. Designed to improve content management workflows, ProBrowse creates and makes accessible low-resolution media for previews, clip selections, research and approvals. Tightly integrated with Harmonic MediaGrid, Spectrum and MediaDeck systems, ProBrowse can manage browse material and create proxies from any video format, wrapper or bit rate supported by Harmonic video servers.

Because ProBrowse automatically generates proxies, you can deploy browse capabilities using your current ingest processes, including baseband, Transport Streams, and FTP. With ProBrowse writers and editors can access proxies during ingest and frame-accurately mark in and out points to create virtual or physical sub-clips. All the decisions they make are synchronized back to the high-res content immediately. To further streamline applications, approvers can receive links to content via e-mail.

The ProBrowse does not run on MAS. It is a separate system that works with Spectrum systems and Harmonic MediaGrid. It provides a view of content stored on those systems using a standard web browser.

**Workflow**

ProBrowse supplies the following workflow capabilities:

- **Content Staging and Playout**: Low resolution previews of broadcast material, shot-logging, and remote production (compliance editing, audio translation, transcode creation).

- **News and Sports Highlights**: Shot-logging, subclipping, and sequence creation.
Video Library Creation: Review, shot-list and organize content, identify content reuse, and publish for content reuse.

Table 1–4: ProBrowse Workflow

<table>
<thead>
<tr>
<th>Work Flow</th>
<th>ProXplore</th>
<th>ProBrowse</th>
<th>ProXchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content staging and playout</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>News and sports highlights</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Shared Edit</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Content Repurposing</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Library Management</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Studio Production</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Constraints

- MAS requires at least one ProxyGenerator Server
- ProxyGenerator version 2.5 or greater
- ProxyGenerator must be licensed
- MAS-2000 has an integrated proxy storage (BrowseStore)

See Using the Browse App for complete information.

ProXchange

Harmonic ProXchange is a transcoding system designed for high-volume multi-format media environments. It can transcode media files between a wide range of DV and MPEG-2 formats, including both SD and HD, as well as to additional low bit-rate distribution formats such as H.264, Windows Media, or Flash.

ProXchange software streamlines the transcoding process to enable more efficient workflows and lower operating costs by eliminating external file management and the need for multiple add-on systems associated with traditional transcoding applications.

Using MAS presets and rules, ProXchange can produce multiple output formats. For example, ProXchange can take MPEG-2 50 Mbps I-Frame content, automatically create a transmission copy in MPEG-2 12 Mbps Long GOP, and at the same time create an H.264 clip for distribution to IPTV or the web. Full monitoring and reporting functions keep users informed on the progress and transcoding performance of their jobs.

ProXchange is built on the Harmonic Media Application Server, which automates and integrates ProXchange into the workflow. The Media Application Server’s built-in rules engine respond to system events, such as the arrival of new content, or time-based criteria.

Workflow

ProXchange supplies the following workflow capabilities:

- Broadcast Transmission Workflow Transcoding: Format normalization between acquisition, ingest, production, archive and transmission formats and create low resolution proxies for Media Prep tasks such as subtitling, previews and approvals.
- **Transmission / Production Workflow Transcoding**: Content exchange between the Harmonic environment and production editors including Final Cut Pro or Avid Media Composer.

Table 1–5: ProXchange Workflow

<table>
<thead>
<tr>
<th>Work Flow</th>
<th>ProXplore</th>
<th>ProBrowse</th>
<th>ProXchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content staging and playout</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>News and sports highlights</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Shared Edit</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Content Repurposing</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Library Management</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Studio Production</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Constraints**

- Works with only one Harmonic MediaGrid
- MAS Installation requires at least one JobScaler
- JobScaler must be licensed
- Version of JobScaler must match the “embedded version of Grid Service” on MAS

See *Using the Transcode App* for complete information.

**Important Concepts**

**Archive Agent**

An Archive Agent is a software component running on a third-party Archive server. It communicates via an XML/socket/HTTP connection written by the Archive server vendor. MAS communicates with this agent to manage archiving and restoring files, folders, assets, and clips. An agent is identified by an IP address, a port, and the maximum number of archive and restore jobs it can handle.

**Archive File**

An archive file is an object that represents a file in archive. This object is used to construct data from an MAS client to represent the file, folder, asset, or clip to be restored.

**Asset**

An asset is a collection of clips of different types and related metadata. An asset can be made of many physical files and located in various physical directories. All related media files are collated as an asset and treated as one digital asset for operations, such as a file transfer or a copy. Assets are uniquely identified by a Global Unique Identifier (GUID).

**Clip**

A clip is a complex media object that contains “tracks” and has an associated “proxy,” “picon,” and “storyboard.” A discovered clip is automatically assigned an asset. Clip properties, called “structural metadata,” reside along with the clip. A clip is identified by a UMID and GUID.
CRON Expression

CRON expressions are used for scheduling tasks within the Media Application Server. This function is used to create a “firing” schedule, such as “firing a task at 8:00 A.M. every Monday.”

File System

A file system resides on a Storage Server. It contains folders with physical media instances of assets, clips, sequences, tracks, and other files. File systems are automatically imported into the ProXplore UI when a Storage Server is added to MAS.

Folder

A folder contains the physical media instances. It is a directory representation in a file system. There are certain workflows that can be performed on a per-directory basis, such as the transfer of a new file that appears in a directory.

Global Unique Identifier (GUID)

A clip is identified by a GUID. In addition to a GUID, it is also identified by the asset to which it belongs. Media is identified in the following format: assetGUID—clipGUID. If the media is a clip, this information is written into the file so that it can be easily identified at a later stage in the workflow.

Assets are also uniquely identified by a GUID.

Managed Folder

A managed folder is a folder that has been selected by an administrator to be monitored by the Media Application Server.

Media Application Server (MAS)

An appliance to run the Pro Application Suite and the MSF Web Services APIs.

Media Services Framework (MSF)

Web Service APIs for managing all processing media across all Harmonic products.

Media

Media is a representation of a physical file digitally stored on a Harmonic storage system. It is of following types: video file, audio file, or clip.

Media has some file-specific metadata information. It may also have additional, descriptive metadata information. A media may be associated with other media files in the same asset. For example, a referenced QuickTime movie file may be associated with the hi-resolution video and the associated audio files. A media may also be derived from another media file.

Media Instance

A Media Instance is a copy or occurrence of a media file that can be present at different locations. If a media is located in three different locations, it is treated as three different instances of the same media file. Instances may be used to access the copy of the file from the closest location in distributed asset management or deployment.

Metadata

Metadata refers to data that describes the asset, clip, subclip, and sequence characteristics such as name, description, or length. Metadata can be structural (such as a clip’s format), or descriptive (a summary of the media).
Picon
A picon is a Joint Photographic Experts Group (jpeg) file or thumbnail of a movie file.

**IMPORTANT:** To work with picon files, ProBrowse is required.

Rule
A rule is an action that occurs based on a set of specified criteria. The following are examples of rules that can be set up using the Media Application Server:

- When a file is created in a specified source folder, mirror the file to a specified destination folder.
- When a file has been modified, send an e-mail to a specific user.

Sequence
A sequence is a series of clips that can be played in the Player pane of the ProXplore UI.

Storage Servers
A Storage Server is one of the following types provided by Harmonic:

- Archive storage system
- Harmonic MediaGrid
- Spectrum
- MediaDeck
- MediaDeck II
- BrowseStore
- IPV server
- Aspera storage server
- Third-party storage server

Storage servers have one file system and provide access through its multiple hosts. With the exception of BrowseStore, the Archive server, the IPV server, and general storage servers, all other storage servers are discovered by SystemManager and imported into MAS.

BrowseStore; however, can be added externally. It is also supplied with R200 MAS systems.

Subclip
A subclip is an exact copy or portion of a clip.

**IMPORTANT:** To create subclips and sequences, ProBrowse is required.

Task
A task is a set of operations that is executed to achieve a desired result. For example, creating a proxy for an object is a task. A task can be scheduled to execute at a later time. The Media Application Server uses tasks to perform various operations. A task can also be executed using the web service.

Unique Material Identifier (UMID)
The UMID is an identifier that helps to locate clips in the file system if the database information is lost, or a clip is moved. The UMID is assigned by the Media API version 5.2 (or greater) for both Apple QuickTime (QT) or Material eXchange Format (MXF) clips.
**Users**

MAS provides a list of default roles that can be assigned to users. You can also create custom roles and assign feature groups and views to those roles to best fit your needs.

**Virtual Folder**

A Virtual Folder is a logical collection of various assets that may be related to certain user-assumed characteristics. For example, you may want to categorize all assets related to a particular sport or a particular news item. A virtual folder allows easier searching of assets, if required. Virtual folders do not impact the physical storage location of content.

**Volume Group**

A volume group identifies where file(s) reside on archival system. A volume is a single tape or a set of tapes.

**NOTE**: Nomenclature differs across different vendors. In MAS, the term, “volume group,” is used to identify a group of tape or volumes.

---

**Object Models**

Following are visual representations and descriptions of some of the Media Application Server entities.

**Abstract Task Model**

An AbstractTask contains a task ID, creation time, source folder, and destination folder designation. An AbstractFolderTask is an abstract representation of a folder in a file system on which tasks can be performed. An AbstractMediaTask is an abstract representation of a media on which different tasks can be performed.

![Abstract Task Model Diagram]

**Figure 1–3: Abstract Task Model**

**Storage Server Model**

A StorageServer/File system is a physical Storage Server: Harmonic MediaGrid, Spectrum, or MediaDeck. Each server has one or more NetworkInterface/Host. A host is the Spectrum or ContentDirector that provides access to the managed file systems. Each NetworkInterface has properties that can be configured. Depending on the task, the appropriate interface must be used.
Physical Directory Structure

A user defines one or more shared network Folders. A shared network Folder contains files and subfolders. A Folder is a physical object in a file system. A MediaInstance/File is a copy or occurrence of a file in a folder. A file system is a logical representation (similar to mapping of a network drive).

Folder Task Model

A Folder can be assigned one or more Tasks based on the files contained within it, such as transcoding, mirroring, or transferring tasks.
**Asset Data Model**

An Asset is a collection of related media objects. A Media can refer to other media files. A Media can assume various types and have one or more instances. Metadata can be defined for an Asset and a Media. A user can create a Catalog to categorize Assets.

**Media Data Model**

A Media is of various types (wrapper, video, audio, etc.) A Media can refer to other media files (such as a wrapper). A Media can have structural as well as descriptive metadata.
Metadata Type (MDT) Model

Metadata is data about an asset or media file. A MetaDataType is a parameter that presents different value options, such as Boolean, MDTText, MDTNumber, MDTEnumeration, or MDTList. A MetaDataValue is string based on the interaction between a logical operator and the MetaDataType.
Media Task Model

Each Media can have defined for it different tasks, such as MediaProxyTask, MediaTranscodeTask, or PMediaFromPlayListTask, populated by the requestor.

Figure 1–10: Media Task Model

Clip Flow

This workflow example explains the path of a clip from ingest to playout, with several stops in between.

1. A clip is ingested and then stored on a Harmonic MediaGrid file system.

   Two tasks are performed in this step:
   
a. Next, you set up the Media Application Server by connecting all the cables and importing the SystemManager configuration information into the Media Application Server.

   This action enables the Media Application Server to recognize the Harmonic MediaGrid file system and make it available for storage on the File System page in the Media Application Server interface. A file system can be any of the following:
   
   - Harmonic MediaGrid
   - Spectrum
   - MediaDeck
   - MediaDeck II
   - BrowseStore (localstore)
   - IPV server
   - Aspera storage server
   - Third-party storage server

   Refer to the Media Application Server Installation and Configuration Guide for instructions.
b. Next, you store the clips by placing them in the designated file system directory. Managed file systems are available on the File System app in the Media Application Server interface. See Using the File Management App for instructions.

2. You then move the clips from a Spectrum ingest directory to the Harmonic MediaGrid source folder.

3. MAS reads the clips in the Harmonic MediaGrid source folder. During this time, you can modify the clips as needed.
   - Edit the clips, such as generating new master clips or changing inpoints and outpoints. See Using the MAS Player for information.
   - Verify the integrity of the clips using the Harmonic WFS and Quality Control System (QCS) and then transcode them. See Using the Quality Check App for information.
   - Alternatively, you might want to transcode the clips to another format (using ProXchange features) and then store them on another Harmonic MediaGrid file system. Transcoding the clip involves converting the clip to another format. Refer to Using the Transcode App for instructions.

4. Next, you move the clips to an output playout folder before submitting them to a server for playout.

5. You then playout the final clips.

6. Afterward, you might want to generate and save a proxy of the clip to another folder or to a BrowseStore, and at the same time, mirror it to another Harmonic MediaGrid file system as a backup.
   - Creating a proxy of the clip involves creating a rule to generate the proxy (low-resolution version of a high-resolution clip), called a Browse Generation rule. See Managing Browse Generation Rules for instructions.
   - Mirroring the clip involves backing up the clip to another location. Prior to file mirroring being available, you must first set up a File Mirroring rule. See Managing File Mirroring Rules for instructions.

Figure 1–11 is an example of a common Media Application Server workflow and how it incorporates the entire video server system.
Content Usage

Stored content can be administered in various ways. Access to stored content can be restricted. Users can be alerted when content is created, moved, copied, or deleted. Content can be collected from different file systems and folders and then edited together. With respect to content usage, the administrator can perform the following tasks:

1. Set up a role, then add views and features that the role can perform.
2. Set up a metadata template.
   
   As content is stored on the Storage Servers, an administrator can edit or create a metadata template for users of the system.

   Six metadata templates are available for use to make searching for key information fast and easy. The default templates are asset, clip, subclip, track, sequence, and picon. Within the templates, you can set the metadata types for all assets and media objects. In addition to the default templates, you can create new templates, as needed.
3. Enter searchable metadata in templates.

Figure 1–11: Clip Flow
Once templates are set up, an administrator can set up certain data fields within the templates so that key information is searchable within the stored media.

4. Enable Track Tagging.

Track Tagging is a media manipulation function provided by the Media Application Server. The Track object stores the current tag, and users update the tag using the <set> tag. A list of tags available is returned by a call to the <get> tag with the trackTag objectType given. This will return all possible track tags across all systems.

Different tags are used for audio tracks and video tracks. Audio track tags are defined in the TracKeyValueDefs.txt file in a Director's file system (under the config directory). Video tags are the same across all systems, and are defined as follows:

- **SD clips can be converted in the following ways:**
  - (no tag): conversion depends on player configuration
  - pillarbox: image shown full height with black side bars
  - anamorphic: image stretched to fill 16x9
  - 14x9: top and bottom cropped to display as 14x9

- **HD Clips can be converted in the following ways:**
  - (no tag): conversion depends on player configuration
  - letterbox: image shown full width, black bars top and bottom
  - anamorphic: image squeezed to fit 4x3
  - 14x9: sides cropped to display as 14x9
  - full height: sides cropped to fit 4x3
Chapter 2
Getting Started

This section explains how to get started with MAS and the ProXplore application. Choose from the following topics:

- Using the Default User Name and Password
- Logging on to ProXplore
- Verifying the Media Application Server License
- Installing the Media Application Server License File
- Verifying Media Application Server Services

Using the Default User Name and Password

Harmonic provides a default user name and password to initially access the ProXplore application:

Name: admin
Password: admin

**NOTE:** User names and passwords are case sensitive.

Use these defaults until the Administrator assigns to you a unique user name and password. For system security, this should be done as soon as possible.

Changing the Password

You can change the password from the MAS UI.

**To change the password:**
1. From the Home page, click Administration.
2. Click User Settings.
3. Click Change Password.
4. Enter a new password and then confirm it.
5. Click OK.
6. Click Save Changes.

**IMPORTANT:** If you have changed or are changing the password for user "admin" you will need to run the following utility script to be able to run other scripts in the system:

```
cd /opt/msf/bin/
sudo ./updatePassword.sh <newpassword>
```

Logging on to ProXplore

**NOTE:** Adobe Flash Player 10.0.22 is required for all browsers. If this version is not installed on your system, download the Flash Player from [http://www.adobe.com/downloads](http://www.adobe.com/downloads).
To log onto ProXplore:
1. From your desktop or client PC, launch a Web browser (Internet Explorer, Safari, or Firefox).
2. In the address bar, type in the IP address or domain name (if set up) of the MAS appliance. This address can be obtained from your system administrator.
3. Enter the User Name and Password in the dialog box.
4. Click OK to log in.
5. When you log in for the first time you will be required to enter the license key as follows:
   - For a standalone system, enter the license key provided by Harmonic and click OK.
   - For an HA system, use either the virtual IP address when installing the license.
   - For a clustered system, use either the virtual IP address of the Application server (not the Database server) when installing the license.

The ProXplore Home window opens.

Verifying the Media Application Server License

Follow these steps to verify installation of the MAS license.

To verify the MAS license:
1. From the Home page, click Appliance.
2. Look for License Status, and check the Value column to verify that the license is installed. It should display OK.

NOTE: If the Value column indicates that a licence is not found then follow the instructions in Installing the Media Application Server License File to install the license file.

Installing the Media Application Server License File

To install the license file:
1. From the Banner at the top of the window, click Log Out.
2. Copy the license file provided by Harmonic to the following directory on the Media Application Server:
   /opt/msf/license/.msf.lic

   NOTE: Note that the file name starts with a dot, which means it is a hidden file.
3. Restart the Media Application Server.
   The Media Application Server may take up to two minutes to recognize the license file.
4. Log back in to the Pro Application Suite by following the steps in Logging on to ProXplore.

Verifying Media Application Server Services

Follow these steps to verify that the Media Application Server services are running.

To verify MAS server services:
1. From the Home page, click Setup.
2. From the Navigation panel, click Server Settings.
3. Click the License tab.
4. Check the **Key** and **Status** columns to verify that each licensed service is running.
Chapter 3
About the ProXplore User Interface

This section provides an overview of the ProXplore user interface, which provides access to your media. Choose from the following topics:

- **ProXplore UI**
- **Setting ProXplore Preferences**
- **Setting Display Options**
- **Determining Your MAS Software Version**
- **Viewing the Documentation**

**ProXplore UI**

ProXplore is a task-based UI for clip and metadata management. It supports multi-system searches, facilitates efficient content movement, and enables content organization based on physical or user-defined metadata properties.

The Home page provides an interface from which you can access all apps and functions provided by the Media Application Server.

Each subsequent connection to ProXplore begins with this view.

![ProXplore Home Window](image1)

*Figure 3–1: ProXplore Home Window*

*Figure 3–2* identifies some of the components in the ProXplore application. The UI can change depending on the tab you are using or the app you are in.
Figure 3–2: ProXplore Components

The following table describes the UI components seen in *Figure 3–2*.

<table>
<thead>
<tr>
<th>Number</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Banner</td>
</tr>
<tr>
<td>2</td>
<td>Page Bar</td>
</tr>
<tr>
<td>3</td>
<td>Navigation Panel</td>
</tr>
<tr>
<td>4</td>
<td>Content Pane</td>
</tr>
<tr>
<td>5</td>
<td>Toolbar</td>
</tr>
<tr>
<td>6</td>
<td>Preview Pane</td>
</tr>
<tr>
<td>7</td>
<td>Status Bar</td>
</tr>
<tr>
<td>8</td>
<td>Player Pane</td>
</tr>
</tbody>
</table>

**Banner**

The Banner displays the product name, MAS installation name, user name, menu buttons, and the Log Out icon.

**Page Bar**

The Page bar provides tabs that are used to select the different apps, as described in this section.
**TIP:** If the full tab names do not appear in the Page bar, maximize the window, close ProXplore, and then reopen the portal again.

**Navigation Panel**

The Navigation panel is used to select different functions based on the currently-displayed page, as well as customize the information shown in the *Content Pane*. Navigation and exploration are performed much like standard folder browsing on a computer using a tree and node metaphor.

![Navigation Panel](image)

Figure 3–3: Navigation Panel

You can also resize the Navigation panel by grabbing the “drag line” and moving it to a new location.

The default maximum viewable folder count is 100. To change this default value, see the *Harmonic Media Application Server Troubleshooting Guide*.

**Pop-up Menus**

Pop-up menus provide quick access to many Media Application Server procedures. Right clicking on a tree node or Content pane object displays actions related to that particular node.
Figure 3–4: Pop-up Menu

Toolbar

A Toolbar, which appears above the Content pane, contains icons for basic tasks that can be performed on the current page. These icons differ depending on the page or function selected in the Navigation panel. Toolbar functions include creating, editing, and deleting objects.

Figure 3–5: Toolbar

Many of the Toolbar functions are also available through the pop-up menu for the selected object.

Filter Panel

The Filter panel displays in the UI whenever you click the Filter button in the Toolbar. Filter options differ depending on the object selected in the Navigation pane.
Tool Tips

Tool tips provide additional information on the selected object. For example, clicking on a pull-down menu provides tool tips on that menu.

Hints

Many dialog boxes that contain user-configurable properties, parameters, and text-entry fields contain a “Hints” panel at the bottom of the window. The hints provide additional help on a selected object. Many of the hints are also available as tool tips.

Content Pane

The Content pane is the main data area in the interface, displaying information specific to the following (what is shown depends on the page selected):

- Assets and clips selected or filtered
- Search results
- Managed file systems
- File notification rules that have been created
- Created, pending, and current jobs
- Information about the devices managed by Media Application Server
- Logs for the various Media Application Server features

From this pane, further details and settings are accessible using the Toolbar or by clicking an item in the pane.
Figure 3–7: Content Pane

**Preview Pane**

Below the Content pane is the Preview pane, which shows details of the item selected in the Content pane. More detail and additional functions are available by clicking the item in the Preview pane.

Figure 3–8: Preview Pane
Status Bar

The status bar, at the bottom of the window, displays useful system information, including the last time the content was refreshed from the database, the number of assets and files, the current date/time and the IP address of the Media Application Server.

Figure 3–9: Status Bar

Alarm Icons

The alarm bell icon provides an at-a-glance view into the status of the system events. The overall status of the system is represented by a colored alarm bell in the Status bar at the bottom of the ProXplore window.

Table 3–1: Alarm Bells

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Bell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational</td>
<td>![Blue Bell]</td>
<td>Informational messages that highlight the progress of the application (blue alarm).</td>
</tr>
<tr>
<td>Warning</td>
<td>![Yellow Bell]</td>
<td>Potentially harmful situations (yellow alarm).</td>
</tr>
<tr>
<td>Error</td>
<td>![Orange Bell]</td>
<td>Error events that may allow the application to continue running (orange alarm).</td>
</tr>
<tr>
<td>Critical</td>
<td>![Red Bell]</td>
<td>Very severe error events that usually stop the application from working properly (red alarm).</td>
</tr>
</tbody>
</table>

Left-clicking the alarm bell at the bottom of the Pro Application Pro window displays the Alarms app where you can review the status of system events. Right-clicking the alarm bell provides an option for you to Clear All Events. Refer to Using the Alarm App for more information.

Server Status

You can view the status of the MAS server using the Server Status button.

Clicking the green Server Status button in the lower-right corner of the UI, shows the status of services on the server. For a cluster configuration, it shows the services for both nodes.
Chapter 3 About the ProXplore User Interface

ProXplore UI

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Figure 3–10: Service Status Window

Clicking on an Actions icon in the Service Status dialog box enables you to re-initialize a service, or dump a service to get log information for troubleshooting.

The Service Status window also shows the status of the license for a service, as well as a list of metadata keys and values assigned to this service.

Player Pane

The Player pane is the main viewing area and control panel for playback of assets and clips. You can also create subclips, create sections of clips, or sequences of clips using the MAS Player controls. Refer to Using the MAS Player for more information about the Player and using its controls.

Figure 3–11: Player Pane
IMPORTANT: To use the MAS Player pane, ProBrowse is required.

Setting ProXplore Preferences

You can configure ProXplore preferences from any app.

To configure ProXplore preferences:
1. Click Administration > User Settings to display the options dialog box.
2. Complete the dialog box as follows:
   - **Show Server Time**: The server time is displayed in the lower-right corner of the ProXplore application. When this option is checked, the date and time that appears in columns in the Content pane show the time from the server. When this option is cleared (unchecked), the UI shows the client time on which the application is launched. This option is useful when the server is running on a time zone that differs from the one where the application server is launched.
   - **Enable Debug Window**: Select the check box to display the debug window in the lower panel of the ProXplore application. The Debug window shows the requests and responses between the client and the server.
   - **Dialog with Horizontal List**: Select this check box to display the tabs for a dialog box in a horizontal list. Clear this option to display the tabs in a vertical list on the left side of the dialog box.

   **NOTE**: Illustrations in this guide use the Horizontal List option.

   - **Events Alarm Frequency**: Choose the frequency (in seconds) with which event alarms are reported in the Logs app. Event Logs are not overwritten, but can be purged after a specified number of days in the Settings app (Settings > General > Data Purge Cut Off Days).
   - **Items Per Page**: Select the number of items you would like displayed in the Content pane. The default number is 50. If additional items exist, use the arrow icons above the Content pane to navigate to the next set of viewable items. The number of items shown in the pane can be set from 10 to 100. Depending on your preference, setting this value to a lower number is useful when browsing large numbers of items, such as all the assets in the MAS database.

   **NOTE**: Selecting the column header on the Content pane sorts only the current set of viewable items displayed on the Content pane.

   - **Aspect Ratio**: Select 4 x 3 or 16 x 9 aspect ratio to display the ProXplore application. This option applies to thumbnail displays in Asset and Clip views, mainly to avoid the gap between the image and the reflection when a clip is recorded using 16x9 recording.
   - **Show Captions in Player**: Select this option to display closed captions in clips playing in the MAS Player. This option only applies to clips that have had closed captions extracted. (Refer to Using the Closed Caption App for more information.) If this option is disabled, clips play without closed captions being shown.
   - **Use Time Code**: Select this option to display time code in clips playing in the MAS Player.
   - **Clear Cookie**: MAS stores user names, passwords, and settings cookies in the MAS database. Click this icon to clear cookies.
Email Address: Enter the logged on user’s e-mail address and change the login password.

Change Password: Click to open the change password dialog box. You will need to enter and confirm a new password for accessing your MAS user settings.

3. Click OK to save the settings.

These settings are persistent across reboots of the Media Application Server and through different user logins.

Setting Display Options

The interface provides different ways to display and view content, as described below.

Setting Views

You can customize how items look and display in the Content pane using the View drop-down menu.

- **Details**: Displays items in a list preceded by icons, along with details about the item. Depending on the item, the following details may be shown: name, GUID, status, IP address.

- **Thumbnails**: Displays items as images. The name of the item—asset, clip, folder, file system, rule—accompanies the image for easy identification.

- **List**: Displays items in a list preceded by icons. Choosing this setting is useful when there are a large number of items to display.

Click the arrow icons at the top right of the interface to cycle to next and previous pages if there are more items than can fit on one page. More information is available for each item by clicking the item in the Content pane.

Refreshing Pages

You can set the refresh interval using the Refresh Interval drop-down list.

1. Open an app.
2. Above the Content pane, click the Refresh Interval icon.
3. From the Refresh Interval drop-down list, select the interval you want.

Displaying Details in the Content Pane

When viewing collections of objects in the Details view, you can choose which details to display in the Content pane.

1. Open an app.
2. In the Content pane, select the object you want.
3. From the View menu, choose Details.
4. From the Toolbar, click the Details icon.
5. Select the details you want.
6. The details will differ depending on the collection selected.
7. Click OK.
Determining Your MAS Software Version

From any app, click Help > About.

![Figure 3–12: MAS Software Version]

Viewing the Documentation

MAS documentation is accessible from the main interface.
1. From any app, click the Help icon.
2. Select guide you want.

The guide opens in a new browser window.
Chapter 4
Using the Access Control App

This chapter provides instructions on how to use the Access Control app for managing user accounts, roles, and system access. Choose from the following topics:

- About Access Control
- Configuring Local Access Control
- Finding Users, Roles, Feature Groups, and Views
- Managing Local Users
- Managing Roles
- Managing LDAP Users

About Access Control
The Access Control app lets you manage users and roles to control access to features, functions, tasks, and objects in the Media Application Server. For example, you can:

- Add, modify, and delete users
- Add, modify, and delete roles
- Assign or unassign users to roles
- Assign or unassign feature groups to roles
- Add or remove tasks from feature groups
- Specify the object types that a role can set or delete
- Restrict view privileges for assets, clips, subclips, and sequences based on their presence in a virtual folder or a physical folder

Default User
A default user log in is provided so administrators can access the UI and configure user roles and perform other administrative tasks. The information is as follows:

- User Name: admin
- Password: admin

To ensure system security, it is recommended that these defaults be changed as necessary.

Users
To access MAS, an administrator adds users and assigns roles to the users. A user must have a name and an e-mail address. A password is not mandatory.

Roles
A role grants or prevents access to feature groups and views in the UI. MAS provides predefined roles to help with system administration, monitoring, and task management:

- Administrators
- Monitors
MAS can also make use of existing organizational LDAP roles by passing login requests to your directory-based authentication service in the UI.

**Feature Groups**

A feature group identifies the tasks that a specific role can perform in MAS. The feature groups are as follows:

- Access Control
- Archive
- Caption
- Object Deletion
- Organize
- Restore
- Storage File Deletion
- Transfer
- Verify Config
- Administrative
- Browse
- Manual Job
- Object Modification
- QC (Quality Control)
- Search
- Transcode
- Media Manipulation

To help with system administration, feature groups are preassigned to system-defined roles. An administrator can use the default tasks as provided by MAS, or select individual tasks from a feature group and assign them to a role. Conversely, an administrator can disable tasks associated with a feature group to control system access for individual roles.

**NOTE:** If you create your own roles, you can also assign a pre-existing feature groups to them. You cannot, however, create your own feature groups.

If you use LDAP, you can also map a feature group to an existing LDAP group. See *Managing LDAP Users* for more information.

**Tasks**

By default, tasks are associated with feature groups. Expanding a feature group shows the applicable tasks for that group. MAS lets you choose the individual tasks that make up a feature group and then assign roles to it. In addition to assigning an entire feature group to a role, MAS provides an option to select individual tasks and assign them to a particular role. Users will only be able to execute the tasks that they have been assigned to their role. You can also assign specific object types to a particular role. The role will only be able to execute tasks on the object types to which it has access.
Views

A view refers to a component of the UI. The ability to view a UI component is controlled by roles. The views are as follows:

- AccessControl
- Archive
- ClosedCaption
- FileBrowser
- Jobs
- MetaDataTemplates
- QC
- Sequences
- SoftwareBuilds
- SubClip
- Transcode
- Alarm
- Asset
- Dashboard
- FileManagement
- Logs
- Notification
- Scheduler
- Settings
- Statistics
- TrackTags
- Appliance
- Browse
- Database
- IgnorePatterns
- ManualJobs
- Transfer
- Search
- Setup
- StorageWatches
- Unresolved Issues

Administrators assign users to roles, which in turn, confer the views that a role can access in the UI.

LDAP

MAS supports the use of an external LDAP-enabled directory for authentication and authorization of users. Authentication is the mechanism whereby systems may securely identify their users. Authorization, by contrast, is the mechanism by which a system determines what level of access a particular authenticated user should have to secured resources controlled by the system. LDAP authentication for MAS can be configured to support any LDAP-compliant directory including Microsoft Active Directory.

MAS can make use of your existing organizational LDAP roles by passing login requests to your directory-based authentication service in the UI. You do not need to create an additional authentication database in MAS. By keeping authentication centralized on your directory, you can define policies to control user access, logging, reporting, and maintenance.

The LDAP authentication function uses searches to locate users to bind for authentication and their associated roles. The roles query recursively follows distinguished names (DN) to navigate the hierarchical role structure in the directory. When configuring LDAP in MAS, you can also specify a LDAP device for failover support.

To use the LDAP Service for authentication in MAS, ensure that the following requirements are met:

- Client system running LDAP
- LDAP server IP address and port
- Network connectivity between the LDAP server and MAS
- LDAP user groups to import into MAS
**Authentication Types**

Two authentication types are supported in MAS: Local or LDAP. You can configure access control in the UI using either authentication type.

**Local**

By default the MAS login repository is set to the local database. The local database is the one that resides on the Media Application Server. If you use the default Local option for authentication and authorization, MAS relies on the users that have been added to the system, the roles that have been assigned to the users, and the feature groups and views that have been granted to the roles.

**LDAP**

The LDAP option in MAS authenticates users against information stored in your LDAP server based on a set of properties defined in the Access Control dialog box. These properties correspond to the standard entries stored in an LDAP directory where all information for a given record is saved as a series of attribute pairs, each one consisting of an attribute type and an attribute value.

After supplying the IP address for your LDAP server and configuring access control, use the Synchronize from LDAP function to create MAS roles that correspond to LDAP user groups in your LDAP database. No other changes are required in LDAP. The MAS role name becomes the common link between the two systems and is used to authenticate users from a login repository.

Next, you assign MAS feature groups and views to the roles using the Roles function in the UI. These roles are visible in the list of MAS roles and can be assigned features or views. The assignment of feature groups and views enables you to control what tasks a role can perform and what UI components a role can view.

When an LDAP user tries to log in to MAS, his login credentials are sent to LDAP server for verification. When they are verified, his LDAP groups are fetched. These groups are then mapped to MAS roles. This action provides the list of features and views assigned to the roles and becomes the list of privileges for the LDAP user on MAS.

If any changes occur to user groups on your LDAP server in the future, you need only synchronize the two databases again and make any corresponding changes to the MAS roles, as necessary, to ensure that the authentication scheme is correctly configured.

**NOTE:** The LDAP database is not a replacement for the MAS database. The MAS database is used for all other services.

**Configuring Local Access Control**

To configure local access control:

1. From the Home page, click **Access Control**.
2. From the Toolbar, click the **Edit** icon.
3. For Authentication Type, click **Local**.
4. Click **OK**.
Finding Users, Roles, Feature Groups, and Views

MAS provides a list of default roles. The administrator assigns roles to users. The administrator also has the option to create or delete. MAS pre-assigns feature groups to system-defined roles. Feature groups contain a list of tasks that a role can perform. An administrator can include or exclude feature group tasks for a given role. A role is also associated with one or more views. An administrator assigns views to roles.

Finding Users

Use this procedure to find users who have been added to MAS.

To find users:
1. From the Home page, click **Access Control**.
2. Click **Users**.
3. A list of users is shown under the **Name** column.

Finding Roles

Use this procedure to find the pre-defined system roles or any new roles created by an administrator.

To find roles:
1. From the Home page, click **Access Control**.
2. Click **Roles**.
3. A list of roles is shown under the **Name** column.

Finding Feature Groups

Use this procedure to find the feature groups (and their tasks) assigned to a role.

To find feature groups:
1. From the Home page, click **Access Control**.
2. Click **Roles**.
3. Under the **Name** column, click a role you want.
4. Click the **Feature Group** tab.

Finding Views

Use this procedure to find the views an administrator assigned to a role.

To find views:
1. From the Home page, click **Access Control**.
2. Click **Roles**.
3. Under the **Name** column, click a role you want.
4. Click the **Views** tab.

Managing Local Users

This section provides instructions for creating new Media Application System system users.
Adding New Users

Follow these steps to add a new user to MAS and assign one or more roles to that user.

To add a new user:
1. From the Home page, click **Access Control**.
2. Click **Users**.
3. From the Toolbar, click the **Create** icon.
4. Complete the **Properties** tab as follows:
   - **Name**: Enter a name for the user.
   - **Password**: Enter the password that the user will use to log on to the Media Application System system.
   - **E-mail Address**: Enter the user's e-mail address.
5. Click the **Roles** tab.
6. To add a role, do the following:
   1. Select the type of role you want from the **Available Roles List**.
   2. Click the **Add** icon to add the role to the **Current Roles List**.
   3. Repeat to add more roles.
7. Click **OK**.

Editing User Properties

Edit user properties to change a user's password, e-mail address and the roles assigned to the user.

To edit user properties:
1. From the Home page, click **Access Control**.
2. Click **Users**.
3. From the Content pane, click the user you want.
4. From the Toolbar, click the **Edit** icon.
5. Edit the parameters as needed.
6. Click **OK**.

Filtering User Properties

Filter users to search for Media Application System system users by name and e-mail address.

To filter user properties:
1. From the Home page, click **Access Control**.
2. Click **Users**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the **Search Now** icon.

The results are shown in the Content pane.
Deleting Users

Follow these steps to delete a user from the system. Deleting a user does not delete the role.

To delete users:
1. From the Home page, click **Access Control**.
2. Click **Users**.
3. From the Content pane, click the user you want.
4. From the Toolbar, click the **Delete** icon.
5. To delete the user without checking for any conflicting conditions, click **Force Delete**.
6. Click **OK**.
7. Click **Yes**.

Managing Roles

Follow these steps to set up new roles in MAS.

**IMPORTANT:** After changing role privileges for a user, instruct the user to close all browser windows and log in to the UI again to enable the changes to take effect.

Adding New Roles

Use this procedure to add new roles, assign existing users to the roles, assign feature groups to the roles, and assign views to the roles.

To add new roles:
1. From the Home page, click **Access Control**.
2. Click **Roles**.
3. From the Toolbar, click the **Create** icon.
4. Complete the **Properties** tab as follows:
   - **Name**: Enter a name for the new role.
   - **Description**: Enter a description for the role.
   - **E-mail Address**: Enter the e-mail address for the role.
5. Click the **Users** tab.
6. To add a user, do the following:
   a. Select the type of user you want from the **Available Users List**.
   b. Click the **Add** icon to add the user to the **Current Users List**.
   c. Repeat to add more users.
7. Click the **Feature Groups** tab.
8. To assign a feature group, do the following:
   a. Select the check box next to the type of feature group you want.
      - If the feature group is associated with multiple tasks, the task opens below the feature group. You can also click the arrow next to the feature group to open or close the list.
   b. Repeat to assign more feature groups.
9. Click the **Views** tab.
10. To add a view, do the following:
    a. Select the type of view from the **Available List**.
b. Click the Add icon to add the view to the Current List.
c. Repeat to add more views.

11. Click OK.

**Editing Roles**

Use this procedure to edit existing roles, assign existing users to the roles, assign feature groups to the roles, and assign views to the roles.

**To edit roles:**
1. From the Home page, click Access Control.
2. Click Roles.
3. From the Content pane, click the role you want.
4. From the Toolbar, click the Edit icon.
5. Edit the parameters as needed.
6. Click OK.

**Filtering Roles**

Filter roles to search for Media Application System roles by name, group e-mail address and description.

**To filter roles:**
1. From the Home page, click Access Control.
2. Click Roles.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now icon.

The results are shown in the Content pane.

**Deleting Roles**

Follow these steps to delete a role.

**To delete a role:**
1. From the Home page, click Access Control.
2. Click Roles.
3. From the Content pane, click the role you want.
4. From the Toolbar, click the Delete icon.
5. To delete the role without checking for any conflicting conditions, click Force Delete.
6. Click OK.
7. Click Yes.

**Managing LDAP Users**

This section explains how to configure MAS to authenticate and authorize users via Lightweight Directory Access Protocol (LDAP) or the Active Directory (AD).
Configuring LDAP Access Control

To configure LDAP access control:
1. From the Home page, click Access Control.
2. From the Toolbar, click the Edit icon.
3. For Authentication Type, click LDAP.
4. Complete the dialog box as follows:
   - **LDAP Server URL**: Enter the URL for accessing the directory service. This parameter must be set to enable LDAP access to a directory service. If this parameter is not set, LDAP queries are not attempted during user sign in. The value is in the form: ldap://ldap.myco.com or ldap://ldap.myco.com:636.
   - **Failover connection Timeout**: Specify the amount of time, in seconds, before the backup LDAP server takes over when the primary LDAP server fails.
   - **Secondary LDAP Server URL**: (Optional): Enter the URL for the secondary LDAP server intended for failover support.
   - **Bind DN**: The DN used to bind against the LDAP server for the user and roles queries. This is a DN with read/search permissions on the baseCtxDN and rolesCtxDN values.
   - **Bind Credentials**: The password for the bindDN. This can be encrypted if the jaasSecurityDomain is specified.
   - **Base Context DN**: The user name search context, which is the fixed portion of the distinguished name for the user search. For example:
     \[
     CN=John\ Doe,OU=People, DC=mycompany, DC=com \\
     baseCtxDN = OU=People, DC=mycompany, DC=com
     \]
     **NOTE:** The distinguished name that is passed to the directory service for authenticating a user is the concatenation of the baseFilter value and the baseCtxDN value. For example, if baseFilter is set to uid={0}, baseCtxDN is set to ou=People,o=myco.com, and a user signs in as john.doe, then the string passed to the directory service is: uid=john.doe,ou=People,o=myco.com.
   - **Base Filter**: A search filter used to locate the context of the user to authenticate. A common example search filter is “(uid={0})”. The index used should always be zero.
   - **Role Context DN**: The fixed DN of the context to search for user roles. This parameter is not the Distinguished Name of where the actual roles are; rather, it is the DN of where the objects containing the user roles are (e.g. for Active Directory, this is the DN where the user account is located).
   - **Role Filter**: A search filter used to locate the roles associated with the authenticated user. An example search filter that matches on the input username is: “(member={1})”. The index used should always be one.
   - **Role Attribute Id**: The name of the role attribute of the context which corresponds to the name of the role.
   - **Role Email Attribute**: The name of the role attribute of the context which corresponds to the email address of the role.
   - **Role Recursion**: How deep the role search will go below a given matching context. Disable this parameter with a 0, which is the default.
   - **Search Time Limit (seconds)**: The time out in milliseconds for the user/role searches.
5. Click OK.
Mapping LDAP Feature Groups

The synchronizer automatically creates MAS roles with same names as the LDAP feature groups.

To map LDAP feature groups:
1. From the Home page, click Access Control.
2. Click Roles.
3. From the Content pane, click the role you want.
4. From the Toolbar, click the Edit icon.
5. Click the Feature Groups tab.
6. Click the feature group you want.
   The functions associated with the feature group display.
7. Click OK.
8. Click Next.
9. To add a feature group, do the following:
   a. Select the type of group from the Available List.
   b. Click the Add icon to add the group to the Current List.
   c. Repeat to add more groups.
10. Click the Views tab.
11. To add a view, do the following:
    a. Select the type of view from the Available List.
    b. Click the Add icon to add the view to the Current List.
    c. Repeat to add more views.
12. Click OK.

Synchronizing LDAP

Use this procedure to synchronize LDAP user groups with MAS roles or to update changes in your LDAP database and synchronize them with MAS. For example, if you add a new group in LDAP and assign a user to only that group, you should synchronize from the LDAP server so that the newly-added LDAP group can be created as an MAS role. Then you can assign the features and views to this MAS role. Afterwards when the user logs in, he sees the views and features assigned to his LDAP group/MAS role.

To synchronize LDAP:
1. From the Home page, click Access Control.
2. From the Content pane, click the LDAP server.
3. From the Toolbar, click the Synchronize icon.
4. Click OK.

Filtering Access Control Lists

Filter ACLs to perform more detailed searches using specific properties.

To filter access control lists:
1. From the Home page, click Access Control.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.

4. Click the **Search Now** icon.

The results are shown in the Content pane.

**Deleting User Groups from LDAP**

If you delete a user group from your LDAP server, you must make the corresponding changes in MAS. Synchronization does not delete MAS roles; it only creates new or updates existing MAS roles as per changes on the LDAP side. See *Deleting Roles* for information.
Chapter 5
Using the Alarm App

This chapter explains how to use the Alarm app to get a quick overview of configuration problems in MAS. Choose from the following topics:

- About Alarms
- Viewing Outstanding Alarms
- Viewing Historical Alarms
- Purging Historical Alarms

About Alarms

The Alarm app performs fault management for MAS. The Alarm tab provides a quick view of configuration issues within the Media Application Server. An alarm is raised when a problem is detected with MAS configuration properties. The alarm is cleared when the configuration issue is resolved.

Information about outstanding (raised) and historical (cleared) alarms is also available. When an alarm is cleared, MAS moves it from the Outstanding Alarms category to the Historical Alarms category.

**IMPORTANT:** MAS will raise an alarm for any improper configuration. A job will be still be executed, but it may end in an error if any configuration error is not corrected.

Alarm information is shown in tabular format in the UI. Clicking a column sorts the contents in A-Z or Z-A alphabetical order.

Managing Alarms

You can view outstanding and historical alarms, filter alarms, and purge historical alarms.

Viewing Outstanding Alarms

To view outstanding alarms:

1. Do one of the following:
   - From the Home page, click **Alarm**.
   - From any app, click an **Alarm Indicator** in the lower-left corner of the window. Critical (red), Major (blue), and Minor (green) alarm counts are shown at the bottom of every app.
2. From the Navigation pane, click **Outstanding Alarms**.
3. Expand the **Category** you want.
4. From the Content pane, click an alarm to view its properties:
   - **Name**: The name of the alarm.
   - **Description**: The probable cause of the alarm. Refer to the description to troubleshoot and resolve the alarm.
   - **Status**: The status of the alarm:
     - **Raised**: MAS detects an error and raises an alarm.
- **Cleared**: MAS detects that the error is resolved and clears the alarm.

- **Severity**: The severity of the alarm:
  - **Critical** (Red)
  - **Major** (Blue)
  - **Minor** (Green)

- **Time Raised**: The date and time the alarm was raised by MAS.

- **Time Cleared**: The date and time the alarm was cleared by MAS after the issue was resolved.

**Viewing Historical Alarms**

**To view historical alarms:**

1. Do one of the following:
   - From the Home page, click **Alarm**.
   - From any app, click an alarm indicator in the lower-left corner of the window. The alarm colors corresponding with the severity level and the count represents the number of raised alarms.

2. From the Navigation panel, click **Historical Alarms**.

3. Expand the **Category** you want.

4. From the Content pane, click an alarm to view its properties.
   - **Description**: The probable cause of the alarm.
   - **Status**: The status of the alarm:
     - **Raised**: MAS detects an error and raises an alarm.
     - **Cleared**: MAS detects that the error is resolved and clears the alarm.
   - **Severity**: The severity of the alarm:
     - **Critical** (Red)
     - **Major** (Blue)
     - **Minor** (Green)
   - **Time Raised**: The date and time the alarm was raised by MAS.
   - **Time Cleared**: The date and time the alarm was cleared by MAS after the issue was resolved.

**Filtering Alarms**

**To filter alarms:**

1. From the Home page, click **Alarms**.

2. From the Toolbar, click the **Filter** icon.

3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to **Creating Search Queries** for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.

4. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.
Purging Historical Alarms

After an alarm has been cleared, the DatabasePurge task purges the historical alarms from the MAS database with 'cleared' status.

You can also manually purge Historical alarms from within the Alarms app.

To purge Historical alarms from the Alarms app:
1. Do one of the following:
   - From the Home page, click Alarm.
   - From any app, click an Alarm Indicator in the lower-left corner of the window. The alarm colors corresponding with the severity level and the count represents the number of raised alarms.
2. From the Navigation panel, click Historical Alarms.
3. Expand By Category or By Severity.
4. Select the alarms you want to purge from the database.
5. From the Toolbar, click Purge Database.
This chapter explains how to use the Appliance app to manage the different MAS configurations. Choose from the following topics:

- **About MAS Configurations**
- **Managing a Standalone Configuration**
- **Managing a High Availability Configuration**
- **Managing a Cluster Configuration**

## About MAS Configurations

The Appliance app lets you manage standalone, high availability, and cluster configurations for the Media Application Server.

### Standalone

The standalone configuration provides a simple deployment where redundancy is not required. The following diagram shows a standalone Media Application Server connected to both the Spectrum and MediaGrid systems. In this configuration, proxy files generated by the ProxyGenerator (not shown) are stored on the MediaGrid system.

![Figure 6-1: Media Application Server in a Standalone Configuration](image)
High Availability

High Availability, or HA, refers to the availability of resources in a computer system in the wake of planned or unplanned system outages. In release 2.0, application-level clustering was introduced through the use of two nodes, active and standby, both of which shared the application load on the Media Application Server. In case of an outage, the standby node becomes the active one temporarily, until the original node is restored or brought back online. To make the node active again, you must manually intervene. After the original node is restored, you “failback” the services to restore availability.

The following sample diagram shows a high availability configuration in which two Media Application Server are used, providing increased data security and minimal downtime in case of any system failures. The Media Application Server are connected to both the Spectrum and MediaGrid systems. In this configuration, proxy files generated by a ProxyGenerator (not shown) are stored on the MediaGrid system.

![High Availability Diagram](image)

Figure 6–2: Media Application Servers in a High Availability Configuration

Cluster

In a cluster configuration, two database nodes (active and standby) and two application nodes (active and standby) are deployed to ensure that application and database services are always available. In the following diagram, the Media Application Servers are connected to both the Spectrum and MediaGrid systems. In this configuration, proxy files generated by the ProxyGenerator (not shown) are stored on the MediaGrid system.

The heartbeat consists of a sequence of simple messages that use checksums to ensure normal activity. If the heartbeat is lost between the two nodes, the secondary node acquires the resources from the primary node. The heartbeat monitors two nodes on a secondary Ethernet port using a crossover or a straight-through cable and private IP address network between both hosts.
Server Node

A server node is a MAS appliance. There can be one, two, or four servers in an MAS cluster. Each server node has a specified IP on the system.

Managing a Standalone Configuration

This section provides upgrade, reboot, shutdown, and repair database procedures for a standalone configuration.

Upgrading a Standalone Configuration

This section explains how to upgrade the operating system (OS) and system software on an Media Application Server standalone system.

To upgrade a standalone system:
1. Obtain the latest software build. Go to Managing Software Builds for information.
2. From the Home page, click Appliance.
3. From the Toolbar, click the Upgrade Software icon.
4. Complete the dialog box as follows:
   - **Build**: Select the build you want.
   - **Reboot**: Select this option to reboot MAS. Reboot is recommended when upgrading, but not always necessary. Rebooting updates the File System Driver (FSD) and cleans up old CIFS mounts.
   - **Skip ProXchange**: Select this option to skip the upgrade of the ProXchange plugin in MAS.
NOTE: MAS uses a component in ProXchange to enable transcoding to work correctly. If the MAS and ProXchange versions are mismatched, a JobScaler Operational Status error, “Grid Service Version Mismatch” appears. If MAS and ProXchange versions are matched, the Operational Status is “OK.”

- **Graceful**: Select this option to ensure that all services running on MAS are stopped. If there are any FTP transfers, MAS waits until those transfers are complete. MAS will not pick up new jobs.

  For example, select this option if MAS has a node with jobs that are “in progress.” This action prevents jobs from failing and ensures that they get transferred to the other node for processing. Will ensure all services within mas-app-server are stopped

  If Graceful is not selected, MAS abruptly stops all services and begins to upgrade the software. Jobs in progress may fail.

  If the duration of growing files is not known, do not select this option.

5. Click **OK** to begin the software upgrade.

After the software upgrade is complete and the system has restarted, log on to the UI.

6. From the Home page, click **Appliance**.

7. Verify that the software version is correct. If the status and version information is correct, the upgrade is done.

### Canceling an Upgrade on a Standalone Configuration

To cancel an upgrade on a standalone configuration:

1. From the Home page, click **Appliance**.
2. From the Toolbar, click the **Cancel Upgrade** icon.
3. Click **OK**.

### Offlining a Standalone Configuration

To offline a standalone configuration:

1. From the Home page, click **Appliance**.
2. From the Toolbar, click the **Offline** icon.
3. Click **OK**.

### Upgrading Licenses on a Standalone Configuration

To upgrade a license on a standalone configuration:

1. From the Home page, click **Appliance**.
2. From the Toolbar, click the **Upgrade License** icon.
3. Enter the License key.
4. Click **OK**.

### Rebooting a Standalone Configuration

Restart the Media Application Server after upgrading the system software and when instructed to do so by Harmonic Technical Support (see Appendix A, Contacting the Technical Assistance Center). Rebooting restarts MAS and all services.

To reboot a standalone configuration:

1. From the Home page, click **Appliance**.
2. From the Toolbar, click the Reboot Server icon.
3. Click OK.

You can log on to the server once it has completed start up.

**Winking (Identifying) the Server**

Follow these instructions to flash the front light bar on MAS for easy identification.

**To wink the server:**
1. From the Home page, click Appliance.
2. From the Toolbar, click the Wink Task icon.
3. Choose the Time for the task.
4. Click OK.

**Shutting Down a Standalone Configuration**

If you need to power down a Media Application Server, you can do so using the Shutdown Server function.

**NOTE:** All connections are lost when the system is powered down.

To shut down a standalone configuration:
1. From the Home page, click Appliance.
2. From the Toolbar, click the Shut Down icon.
3. Click OK.

**Reinitializing a Service on a Standalone Configuration**

To reinitialize a service on a standalone configuration:
1. From the Home page, click Appliance.
2. From the Toolbar, click the Force Execution icon.
3. Click OK.

**Restarting the RPC Service on a Standalone Configuration**

If any RPC server property value is changed, enable this property to restart the RPC service.

To restart the RPC service on a standalone configuration:
1. From the Home page, click Appliance.
2. From the Toolbar, click the Restart RPC Service icon.
3. Click OK.

**Managing a High Availability Configuration**

This section provides upgrade, reboot, shutdown and repair database procedures for a High Availability (HA) configuration.
Upgrading a High Availability Configuration

When upgrading a Media Application Server high availability system, you must first upgrade the Standby server and then use the HA Takeover feature to switch the standby server to active so the second node can be upgraded. An HA server in active mode cannot be upgraded.

About Updates to Server Nodes

In a Media Application Server, there can be two system pollers which provide updates for the content of a Server Node instance: the Server Node Status Poller and a HA Poller, if the system is configured for HA or clustered. The HA Poller runs only on the node in an HA configuration or on an App node in a clustered configuration.

The Server Node Status Poller runs every 5 minutes on each node to provide updates on properties such as Node Status, Node Uptime, MAS Server Uptime, and Software Version installed.

The HA Poller runs every 10 seconds on each node to:

- Check for changes to the HA Status. If changes are detected, it will update its database instance.
- Check the status of the peer node. If it is unable to communicate with the peer node, it will update its status to Unknown.
- Detect role changes across node pairs. If a node has changed from Standby to Active, it will start all required services on that node.
- HA is a clustered deployment, so services will be running on both nodes.

To upgrade an HA configuration:
1. Obtain the latest software build. Go Managing Software Builds for information.
2. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
3. From the Home page, click Appliance.
4. From the Content pane, click the Standby Node.
5. Click the Upgrade Software button on the Toolbar.
6. Complete the dialog box as follows:
   - **Build**: Select the build you want.
   - **Reboot**: Select this option to reboot MAS. Reboot is recommended when upgrading, but not always necessary. Rebooting updates the File System Driver (FSD) and cleans up old CIFS mounts.
   - **Skip ProXchange**: Select this option to skip the upgrade of the ProXchange plugin in MAS.

**NOTE:** MAS uses a component in ProXchange to enable transcoding to work correctly. If the MAS and ProXchange versions are mismatched, a JobScaler Operational Status error, “Grid Service Version Mismatch” appears. If MAS and ProXchange versions are matched, the Operational Status is “OK.”

   - **Graceful**: Select this option to ensure that all services running on MAS are stopped. If there are any FTP transfers, MAS waits until those transfers are complete. MAS will not pick up new jobs.

   For example, select this option if MAS has a node with jobs that are “in progress.” This action prevents jobs from failing and ensures that they get transferred to the other node for processing. Will ensure all services within mas-app-server are stopped
If Graceful is not selected, MAS abruptly stops all services and begins to upgrade the software. Jobs in progress may fail.

If the duration of growing files is not known, do not select this option.

7. Click OK to begin the software upgrade.
8. After the software upgrade is complete and the system has restarted, log on to the UI.
9. From the Home page, click Appliance. Verify that the software version is correct. If the status and version information is correct, the upgrade is done.
10. Click the Standby Node and then click the HA Take Over icon on the Toolbar.
   This changes the HA status so that the node which was active now becomes the standby node.
11. Repeat steps Step 4 through Step 9.

Canceling an Upgrade on a High Availability Configuration

To cancel an upgrade on a HA configuration:
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the Server Node you want.
4. From the Toolbar, click the Cancel Upgrade icon.
5. Click OK.

Offlining a High Availability Configuration

To offline an HA configuration:
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the Server Node to remove it from the network.
4. From the Toolbar, click the Offline icon.
5. Click OK.

Updating Licenses on a High Availability Configuration

To update the license on an HA configuration:
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the Server Node you want.
4. From the Toolbar, click the Update License icon.
5. Enter the License key.
6. Click OK.

Rebooting a High Availability Configuration

Restart the HA servers after upgrading the system software and when instructed to do so by Harmonic Technical Support (see Appendix A, Contacting the Technical Assistance Center).
NOTE: Rebooting the server stops selected services.

To reboot an HA configuration:
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the server node to reboot.
4. From the Toolbar, click the Reboot Server icon.
5. Click OK.

You can log on to the server once it has completed start up.

Winking (Identifying) the Server

Follow these instructions to flash the front light bar on MAS for easy identification.

To wink the server:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the server node to wink.
4. From the Toolbar, click the Wink Task icon.
5. Choose the Time for the task.
6. Click OK.

Performing a Takeover on a High Availability Configuration

IMPORTANT: Harmonic strongly recommends that you perform a database backup before attempting the following procedure. Refer to Backing up the Database for step by step instructions.

CAUTION: Perform a HA system takeover with caution, and only when you do not want to interrupt a system that is already running.

To perform a takeover of an HA configuration:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the server node to take over.
4. From the Toolbar, click the HA Take Over icon.
5. Click OK.

Shutting Down a High Availability Configuration

If you need to power down a Media Application Server, you can do so using the Shutdown Server function.

To shutdown an HA configuration:

NOTE: All connections are lost when the system is powered down.
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.

2. From the Home page, click **Appliance**.

3. From the Content pane, click the server node to shut down.

4. From the Toolbar, click the **Shut Down** icon.

5. Click **OK**.

### Reinitializing a Service on a High Availability Configuration

**To reinitialize a service on an HA configuration:**

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.

2. From the Home page, click **Appliance**.

3. From the Content pane, click the server node you want.

4. From the Toolbar, click the **Force Execution** icon.

5. From the Service drop-down menu, click the service you want.

6. From the Action drop-down menu, click **Reinitialize**.

7. Click **OK**.

### Repairing the Database on a High Availability Configuration

If you need to re-synchronize the databases between the active and standby server, use the Repair DB function.

**To repair a database on an HA configuration:**

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.

2. From the Home page, click **Appliance**.

3. From the Content pane, click the server node to repair.

4. From the Toolbar, click the **Repair DB** icon.

5. Click **OK**.

### Restarting the RPC Service on a High Availability Configuration

If any RPC server property value is changed, enable this property to restart the RPC service.

**To restart the RPC service on an HA configuration:**

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.

2. From the Home page, click **Appliance**.

3. From the Content pane, click the server node you want.

4. From the Toolbar, click the **Restart RPC Service** icon.

5. Click **OK**.

### Managing a Cluster Configuration

This section provides upgrade, reboot, shutdown, and repair database procedures for a cluster configuration.
Upgrading a Cluster Configuration

When upgrading a Media Application Server cluster system, you upgrade the following nodes:

- DB Node 2 (Standby)
- DB Node 1 (Active)
- App Node 2 (Standby)
- App Node 1 (Active)

You must first upgrade the standby DB node (DB Node 2), and then use the HA Takeover feature to switch the standby database node to the active database. Next, upgrade the new standby DB node (DB Node 1).

When the upgrade is complete, use the HA Takeover feature to switch the standby DB node (DB Node 1) back to the active database again.

Next, upgrade the standby app node (App Node 2), and then use the HA Takeover feature to switch the standby app node to the active server. Finally, upgrade the new standby app node (App Node 1).

**NOTE:** A cluster server in Active mode can be upgraded if the other Node is stopped or powered down.

Upgrading Software on the DB Nodes

To upgrade software on the DB nodes:

1. Obtain the latest software build. Go to [Managing Software Builds](#) for information.
2. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
3. From the Home page, click **Appliance**.
4. From the Content pane, click the **Standby DB Node**.
5. From the Toolbar, click the **Upgrade Software** icon.
6. Complete the dialog box as follows:
   - **Build**: Select the build you want.
   - **Reboot**: Select this option to reboot MAS. Reboot is recommended when upgrading, but not always necessary. Rebooting updates the File System Driver (FSD) and cleans up old CIFS mounts.
   - **Skip ProXchange**: Select this option to skip the upgrade of the ProXchange plugin in MAS.
   - **Graceful**: Select this option to ensure that all services running on MAS are stopped. If there are any FTP transfers, MAS waits until those transfers are complete. MAS will not pick up new jobs.

**NOTE:** MAS uses a component in ProXchange to enable transcoding to work correctly. If the MAS and ProXchange versions are mismatched, a JobScaler Operational Status error, “Grid Service Version Mismatch” appears. If MAS and ProXchange versions are matched, the Operational Status is “OK.”

For example, select this option if MAS has a node with jobs that are “in progress.” This action prevents jobs from failing and ensures that they get transferred to the other node for processing. Will ensure all services within mas-app-server are stopped.
If Graceful is not selected, MAS abruptly stops all services and begins to upgrade the software. Jobs in progress may fail.

If the duration of growing files is not known, do not select this option.

7. Click OK to begin the software upgrade.
8. After the software is upgrade is complete and the system has restarted, log on to the UI.
9. From the Home page, click Appliance. Verify that the software version is correct.
10. From the Content pane, click the Standby Node.
11. From the Toolbar, click HA Take Over icon.

This action changes the status so that the DB node which was active now becomes the standby DB node.
12. Log in to the UI again.
13. Repeat Step 4 through Step 9.

Upgrading Software on the App Nodes

To upgrade software on the App nodes:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the Standby App Node.
4. From the Toolbar, click the Upgrade Software icon.
5. Complete the dialog box as follows:
   - Build: Select the build you want.
   - Reboot: Select this option to reboot MAS. Reboot is recommended when upgrading, but not always necessary. Rebooting updates the File System Driver (FSD) and cleans up old CIFS mounts.
   - Skip ProXchange: Select this option to skip the upgrade of the ProXchange plugin in MAS.

   **NOTE:** MAS uses a component in ProXchange to enable transcoding to work correctly. If the MAS and ProXchange versions are mismatched, a JobScaler Operational Status error, “Grid Service Version Mismatch” appears. If MAS and ProXchange versions are matched, the Operational Status is “OK.”

   - Graceful: Select this option to ensure that all services running on MAS are stopped. If there are any FTP transfers, MAS waits until those transfers are complete. MAS will not pick up new jobs.
     
     For example, select this option if MAS has a node with jobs that are “in progress.” This action prevents jobs from failing and ensures that they get transferred to the other node for processing. Will ensure all services within mas-app-server are stopped.
     
     If Graceful is not selected, MAS abruptly stops all services and begins to upgrade the software. Jobs in progress may fail.
     
     If the duration of growing files is not known, do not select this option.

6. Click OK to begin the software upgrade.
7. After the software upgrade is complete and the system has restarted, log on to the UI.
8. From the Home page, click Appliance. Verify that the software version is correct. If the status and version information is correct, the upgrade is done.
9. From the Content pane, click the Standby Node.
10. From the Toolbar, click the **HA Take Over** icon. This changes the HA status so that the app node which was active now becomes the standby app node.
11. Log in to the UI again.
12. Repeat *Step 3 through Step 9*.

**Canceling an Upgrade on a Cluster Configuration**

To cancel an upgrade on a cluster configuration:

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the server node you want.
4. From the Toolbar, click the **Cancel Upgrade** icon.
5. Click **OK**.

**Offlineing a Cluster Configuration**

To offline a cluster configuration:

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the server node to remove it from the network.
4. From the Toolbar, click the **Offline** icon.
5. Click **OK**.

**Updating Licenses on a Cluster Configuration**

To update a license on a cluster configuration:

1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the server node you want.
4. From the Toolbar, click the **Update License** icon.
5. Enter the License key.
6. Click **OK**.

**Rebooting a Cluster Configuration**

Restart the Media Application Servers after upgrading the system software and when instructed to do so by Harmonic Technical Support.

To reboot App Nodes:

1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the Server Node to reboot.
4. From the Toolbar, click the **Reboot Server** icon.
5. Click **OK**.
You can log on to the server once it has completed start up.

To reboot DB Nodes:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the DB node to reboot.
4. From the Toolbar, click the **Reboot Server** icon.
5. Click **OK**.

**NOTE:** If the Active Node is rebooted, the node status will switch. For example, the active node will become standby and standby node will become active.

Winking (Identifying) the Server

Follow these instructions to flash the front light bar on MAS for easy identification.

To wink the server:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the server node to wink.
4. From the Toolbar, click the **Wink Task** icon.
5. Choose the **Time** for the task.
6. Click **OK**.

Shutting Down a Cluster Configuration

Should you need to do so, you can use the Shutdown function to power down a Media Application Server.

**NOTE:** All connections are lost when the system is powered down.

To shut down App Nodes:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the Server Node to shut down.
4. From the Toolbar, click the **Shut Down** icon.
5. Click **OK**.

To shut down DB Nodes:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click **Appliance**.
3. From the Content pane, click the DB node to shutdown down.
4. From the Toolbar, click the **Shut Down** icon.
5. Click **OK**.
Reinitializing a Service on a Cluster Configuration

To reinitialize a service on a cluster configuration:
1. Open a web browser and type the virtual IP address for the server node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the server node you want.
4. From the Toolbar, click the Force Execution icon.
5. From the Service drop-down menu, click the service you want.
6. From the Action drop-down menu, click Reinitialize.
7. Click OK.

Repairing a Database on a Cluster Configuration

If you need to re-synchronize the databases between the active and standby server, use the Repair DB function.

To repair a database on a cluster configuration:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the DB node to repair.
4. From the Toolbar, click the Repair DB icon.
5. Click OK.

Restarting the RPC Service on a Cluster Configuration

If any RPC server property value is changed, enable this property to restart the RPC service.

To restart the RPC service:
1. Open a web browser and type the virtual IP address for the app node in the browser’s address bar.
2. From the Home page, click Appliance.
3. From the Content pane, click the server node you want.
4. From the Toolbar, click the Restart RPC Service icon.
5. Click OK.
Chapter 7
Using the Archive App

This chapter explains how to use the Archive app to archive and restore media using MAS and a third-party archival system. Choose from the following topics:

- About the Archive Service
- Viewing the Archive Summary
- Managing the Archive Server
- Managing Notification Presets
- Managing Archive Rules
- Searching Assets
- Searching File Systems
- Managing Scheduled Tasks
- Managing Archive Jobs

About the Archive Service

The Archive app in the MAS GUI provides the capability to integrate with third-party archival systems. It facilitates the archival, restoration, and prestaging of media to and from third-party archival systems. MAS can control one Archive server in its environment. The Archive Service can be used with any third-party software that supports the defined APIs in the Media Application Server API Programmer’s Guide 3.6.

Features

The Archive Service lets you archive files, clips, assets, and groups of clips with a single click. The archive queue is managed by MAS, but executed by the archive Service, which updates the metadata of each clip or asset to specify its current archive location. It also extends the system’s storage-management capability to tiered storage and offline storage.

The Archive Service extends the capabilities of MAS to include the management of archiving to, and restoring from, robotic Linear Tape Open (LTO) libraries that scale to multiple petabytes. Video assets are archived and written to LTO cartridges by an Archive server before archive location information is passed back to MAS, which updates the metadata for that asset. The Media Application Server provides a common interface for most Archive server vendors. For a detailed set of vendors that support archiving using MAS, please contact the Harmonic Sales Team.

File Transfers

To initiate a file archive to LTO, MAS instructs the Archive server to pull files from other storage devices, such as a Spectrum, MediaDeck or MediaGrid. Similarly, restores from LTO are initiated by MAS which instructs the Archive server to push files to a storage device.

The Archive server then archives and writes video assets to LTO cartridges and passes back archive location information to MAS, which updates the metadata for the asset. MAS defines the overall priorities for the file transfers and the archive initiates the file transfers in an optimized order which is consistent with the priorities.
An Archive Agent running on MAS communicates with the storage system via an Archive Request API to send request/response messages to the servers.

**Managing Offline LTO**

MAS and the Archive server communicate to manage offline files. Before initiating a restore from LTO, MAS communicates with the Archive server to determine whether or not the required files are available from near-line LTO. If the files are offline, the Archive server sends barcode information to MAS that identifies which offline tapes must be brought back to near-line.

**Round Robin Jobs**

With a “round robin” job, inbound requests to a single host name can be directed to come from any number of IP addresses. If enabled, then every host added to an Archive server should have only one IP address. After the hosts are added, MAS will post the Archive request to these hosts in a round-robin fashion. Later on, whenever a check status request or abort request is invoked, MAS will post the request to the host that has archived the file.

**Searching**

The Archive server includes a database that allows the contents of the LTO archive to be included in global searches initiated by MAS.

**Archive States**

Once the file(s) have been successfully archived or restored, MAS updates the archived state:

- OK
- Offline
- Archived

Archive and restore status can viewed in the Archive Storage or Status tab of the UI.

In addition to controlling the movement of content to and from archives directly from ProXplore, the Archive Service extends the system’s storage management capability to include tiered storage and offline storage.

**API**

For information on the Application Programming Interface for the Archive Service, see the *Media Application Server API Programmer Guide 3.6* for information.

**Viewing the Archive Summary**

The Archive Summary is a series of panels that provide details about the Archive service. The following panels are provided:

- **Summary Panel**: Shows if the Archive service is enabled and if rules are defined and/or enabled.
- **Settings**: Displays settings for the server that has configured for the Archive service. Click the Edit icon to edit server settings. Refer to **Configuring Services** for more information about server settings.
- **Troubled Hosts**: Displays the IP address and connection status of all hosts in the system.
- **Job Count Panel**: Displays the status and count of archive jobs.
**Manage the Archive Alarms**

- **Archive Alarms**: Displays the ID, alarm raised, and severity of any archive alarms.

- **Job Information**: Displays the Source data, progress, and status of archive jobs. The jobs listed can be sorted by clicking on the available tabs.

**To view the Archive summary:**

1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Summary**.

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**Managing the Archive Server**

This section explains how to create and manage an Archive server in MAS. You can perform the following tasks:

- Define the Archive server and specify the type and list of hosts for access
- Include the Archive server business rule definitions
- Manage the maximum number of archive, prestage, and restore jobs per storage server
- Manage the Archive Service in the MAS platform
- Control the archival, prestaging, and restoration of files on an Archive server

**NOTE:** MAS supports the use of only one Archive server.

---

**Adding the Archive Server**

**To add the archive server:**

1. From the Home page, click **Archive**.
2. From the Toolbar, click the **New > Archive Storage Server** icon.
3. Complete the Properties tab as follows:
   - **Domain Name**: Enter the domain name of the storage server to add to the Media Application Server.
   - **Storage Type**: By default, Archive is selected.
   - **Online**: Enable or disable usage of this storage server for various workflows.
   - **Archive Vendor**: Enter the name of the archive vendor.
   - **Max. Job Count for Archive**: Select the maximum limit of jobs permitted for archiving concurrently.
   - **Max. Job Count for Restore**: Select the maximum limit of jobs permitted for restoring concurrently.
   - **Max. Job Count for prestage**: Select the maximum limit of jobs permitted for prestaging concurrently.
   - **Current Archive Job Count**: Shows the count of archive jobs that are in progress.
   - **Current Restore Job Count**: Shows the count of restore jobs that are in progress.
   - **Current prestage Job Count**: Shows the count of prestage jobs that are in progress.
   - **Is Media Aware**: Denotes whether the Archive server added to MAS is “aware” of media. If not, wrapper and essence files from referenced or a collection of files, are sent in one request (Job).
   - **On Demand Archive (Pass Through)**: Indicates whether the job should be posted to the MAS JMS queue or directly passed to the Archive Agent.
If the Archive server goes down, or communication between MAS and the Archive server is disabled, MAS posts the jobs to its own queue. When communication is re-established, MAS dispatches the jobs to the Archive server. During this time, the jobs limit parameters (above) are used.

- **Round Robin Job Assignment**: If enabled, then every host added to an Archive server should have only one IP address. After the hosts are added, then MAS will post the Archive request to these hosts in round-robin fashion. Later on, whenever a checkStatus request or abort request is invoked, MAS will post the request to the host that has archived the file.

- **Supports AS02 2011 Bundles**: AS-02 serves as a collection point for all of the media and metadata necessary to assemble multiple versions into a “bundle.” See [AS-02 MXF Versioning](#) for more information.

4. Click the **File Systems** tab.
5. Click the **Add** icon.
6. Complete the tab as follows:
   - **Name**: (Read-only) The name of the pseudo file system created to choose as a destination.
   - **Storage Server**: (Read-only) The name of the storage server.
   - **Protocol**: Choose the communication protocol, Socket or HTTP, to use between MAS and the Archive Agent. If you select HTTP, the following fields appear:
     - **Username**: Enter the user name to log in to this storage server.
     - **Password**: Enter the password to log in to this storage server
     - **HTTP URI**: Enter the HTTP URI without the IP address and port.

7. Click **OK**.
8. Click the **Hosts** tab.
9. Click **Add** to add hosts that have access to content on this storage system.
10. Complete the tab as follows:
    - **Storage Server**: Shows the name of the storage server.
    - **IP Address**: Enter the primary IP address (eth0) of the Archive server.
    - **IP Address 2**: Enter the secondary IP address (eth1) of the Archive server.
    - **Port Number**: Enter the port number depending on the protocol selected.

11. Click **OK**.

### Editing the Archive Server

**To edit the archive server:**
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Storage**.
3. From the Content pane, click the **Archive Server**.
4. From the Toolbar, click the **Edit** icon.
5. Edit the settings as needed.
6. Click **OK**.
Filtering the Archive Server

To filter the archive server:
1. From the Home page, click Archive.
2. From the Navigation panel, click Archive Storage.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now icon.
The results are shown in the Content pane.

Deleting the Archive Server

Deleting a storage server will delete the host and files system from MAS for that storage server.

To delete the archive server:
1. From the Home page, click Archive.
2. From the Navigation pane, click Archive Storage.
3. From the Content pane, click the Archive Server.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, click Force Delete.
6. Click OK.
7. Click Yes.

Managing Notification Presets

Presets are information files that you set up and store for regular inclusion in file management rules. Notification presets are used to notify a user when certain events occur, such as when a file is archived or an error occurs. Once created, presets can be added to the various file and clip management rules. You can also select one or more types of notification presets for the same event.

Notification presets can be managed from the Archive app.

For an overview and instructions on managing notification presets, refer to Managing Notification Presets.

Viewing Notification Presets

To view notification presets:
1. From the Home page, click Archive
2. From the Navigation panel, click Notification Presets.

Notification presets are listed in the Content pane.

Managing Archive Rules

This section explains how to create, edit, and delete archive rules. Archive rules enable you to access content in your Archive server and leverage rules-based workflows to archive objects. You can define a rule to archive files based on the following:
- System events (FILE_CLOSED_FOR_WRITE READY FOR_TRANSFER or FILE_DISCOVERED)
- Periodic schedule
- Metadata based triggering
- On-demand

Creating Archive Rules

To create archive rules:
1. From the Home page, click Archive.
2. From the Navigation panel, click Archive Rules.
3. From the Toolbar, click the New icon.
4. Complete the Properties tab as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box to enable the Archive rule.
   - **Include Subfolders**: Select this check box to also move files from the subfolders within the source and destination folders you choose.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
   - **Destination Folder**: Navigate to and then select the folder that you would like to use for the destination.
5. Click the Job Setting tab and complete as follows:
   - **General**
     - **Delete on Archive**: If selected, the file will be archived, and on successful archive, it will be deleted from source location. The File State will be set to “Offline.” If cleared, the file will be archived on the Archive server. It will be left on the storage server as is. The File State will be set to “Archived.”
     - **Filter**: Select this check box to enable the settings applied on this tab.
     - **File Name Pattern**: Define a pattern using a regular expression. The Filter check box must be selected to enter an expression.
       - The default is: ".+\.(xml | avi | mov | mxf | XML | AVI | MOV | MXF) to include .xml, .avi, .mov, and .mxf files an input files.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.</td>
<td>mov</td>
</tr>
<tr>
<td>.+xyz.</td>
<td>mov</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>.*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>.*abc</td>
</tr>
</tbody>
</table>
NOTE: The File Name Pattern applies to file names only and not to folders.

- **File Ignore Pattern**: Define a pattern using a regular expression. Objects matching this pattern are not archived.
- **Max Retries**: Select or type the number of times to retry the archive job in case of failure.
- **Wait Time**: Select the amount of time in seconds to wait between retries.
- **Priority**: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
- **Volume Group**: Specify the name of the volume group where the file resides on archival system. A volume is a single tape. A volume group is a set of tapes that is treated in the same way by the system.
- **Additional Data**: Enter vendor-specific data in key-value pairs. Refer to your vendor documentation for more information.
- **Over Write**: Select this option to overwrite a previous version of the same asset in the destination directory, if one exists.
- **Set MetaData**: Lists the metadata to be set on the source object as per the job state change.
- **Notification**
  - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the Job States below.
  - **Job States**: Select the job states about which you want to receive notifications.
- **Events and Schedule**
  Events are the actions taken on clip that will generate notifications. Based on those notifications/events, the rule engine triggers the rule.
  - **Handle Events**: Select Yes to trigger the rule on the FILE_CLOSED_FOR_WRITE_READY_FOR_TRANSFER or FILE_DISCOVERED notification types, depending on the rule. When this option is disabled (not selected), no event will trigger the rule. See Managing File Notification Rules for more information.
  - **Enable Polling Schedule**: Select this check box to enable the Polling Schedule below. A polling task is created and its status is viewable by selecting Scheduled Tasks in the Scheduler app. Refer to Managing Scheduled Tasks for more information.
  - **Polling Schedule**: Set the time options to set up a recurring archive schedule.
- To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the MetaData Field setting.

6. Click the Metadata Filter tab.
Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See *Managing Metadata Filters and Expressions* for more information.

7. To evaluate the metadata expression when the rule is run, do the following:
   a. In the **Evaluate Metadata Filter** option, select **Yes** to trigger the rule on any metadata value change based on the fields added to the **Metadata Filter**.
   b. In the **Logical Operator for Filter** menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click **Add** and complete the tab as follows:
      - **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - **Operator**: Select the logical operator to apply to the metadata expression defined in the **Value(s)**.
      - **Type**: A read-only parameter that presents different **Value** options depending on the **Name** parameter you selected.
      - **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the **Name** parameter you selected.
   d. When you are done building the metadata filter, click **OK**.

8. To add more metadata expressions, repeat **Step 7**.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click **Delete**.
   c. Click **Yes**.

10. Click **OK**.

    MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to *Running Archive Rules*.

**Editing Archive Rules**

To edit archive rules:
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

**Duplicating Archive Rules**

To duplicate archive rules:
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

**Enabling or Disabling Archive Rules**

*To enable or disable archive rules:*
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.

**Running Archive Rules**

You can immediately run a rule, even if a schedule has already been specified.

*To run archive rules:*
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Run** icon.
5. Click **OK**.

**Filtering Archive Rules**

Filter Archive Rules to narrow the file move information in the Content pane.

*To filter archive rules:*
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Filter** icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
6. Click the **Search Now** icon.

The results are shown in the Content pane.

**Deleting Archive Rules**

*To delete archive rules:*
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Archive Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Delete** icon.
5. Select the check box to force deletion of the rule and then click **OK**.
When this check box is selected, the system deletes the rule without checking for any conflicting conditions.
6. Click **OK**.

**Searching Assets**

**To search assets:**
1. From the Home page, click **Archive**.
2. From the Navigation panel, expand **Search Assets**.
3. From the Content pane, locate the asset you want.

**Searching File Systems**

**To search file systems:**
1. From the Home page, click **Archive**.
2. From the Navigation panel, expand **Search File System**.
3. From the Content pane, locate the file system you want.

**Managing Scheduled Tasks**

Scheduled tasks can be managed from the Archive page.

For an overview and instructions on managing scheduled tasks, refer to *Managing Scheduled Tasks*.

**Viewing Scheduled Tasks**

**To view scheduled tasks:**
1. From the Home page, click **Archive**.
2. From the Navigation panel, click **Scheduled Tasks**.

Scheduled tasks are listed in the Content pane.

**Managing Archive Jobs**

Use the Jobs tab in the Navigation panel to manage archive, restore, and prestage jobs at any point in time.

**Viewing Jobs**

**To view jobs:**
1. From the Home page, click **Archive**.
2. From the Navigation panel, do one of the following:
   - Expand **Archive Jobs**.
   - Expand **Restore Jobs**.
   - Expand **Prestage Jobs**.
3. Click the **Jobs by Status** icon you want.

### Table 7–2: Job by Status

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aborted Jobs</td>
<td>Indicates that the job execution is in the aborted state.</td>
</tr>
<tr>
<td>Completed Jobs</td>
<td>Indicates that the job completed successfully.</td>
</tr>
<tr>
<td>Failed Jobs</td>
<td>Indicates that the job has failed and is in the error state.</td>
</tr>
<tr>
<td>Jobs in Progress</td>
<td>Indicates that the job is being processed.</td>
</tr>
<tr>
<td>Queued Jobs</td>
<td>Indicates that the job is waiting to be consumed and processed.</td>
</tr>
<tr>
<td>Started Jobs</td>
<td>Indicates that the job has been started.</td>
</tr>
</tbody>
</table>

The Content pane contains a Status column that shows the “real time” status of the job(s). Statuses are color-coded to provide quick access to information about a job. For example, a successfully executed job has a status of “Completed” in green. Alternatively, a failed job has a status of “Error” in red. Information statuses appear in blue.

4. From the Content pane, click any job to view its properties and other detailed information.

### Changing the Date/Time Jobs are Needed

If a job is in queue, you can change the date and time at which the job must be consumed (if not sooner).

**To change the date/time jobs are needed:**

1. From the Home page, click **Archive**.
2. From the Navigation panel, do one of the following:
   - Expand **Archive Jobs**.
   - Expand **Restore Jobs**.
   - Expand **Prestage Jobs**.
3. Click the **Jobs by Status** icon you want.
4. From the Content pane, click the job you want.
5. From the Toolbar, click the **Edit** icon.
6. Complete the dialog box as follows:
   - **Source**: Shows the path name of the source file.
   - **Destination**: Shows the path name for the destination file on the Archive server.
   - **Priority**: Select the job priority for consuming the job from “1” (lowest) to “9” (highest). The default priority is “4.” Set the most time-critical jobs to a higher priority, as these are consumed by the system first.
   - **Wait Time (seconds)**: Select the amount of time to wait between retrying the job.
   - **Time Needed By**: Select the date and time in which the job must be consumed (if not sooner). Once jobs are created and in a queue, you can still revise the time you need them by editing the job entry. MAS consumes jobs in the same queue based on their priority, and then by their neededBy value. For jobs that do not have a **Time Needed By** value specified, MAS uses the dispatch time when the job was first created.
7. Click **OK**.
NOTE: Depending on job type, the duration of a clip and subsystems involved, some jobs may take longer.

Discarding Unprocessed Jobs

To discard unprocessed jobs:
1. From the Home page, click Archive.
2. From the Navigation panel, do one of the following:
   - Expand Archive Jobs.
   - Expand Restore Jobs.
   - Expand Prestage Jobs.
3. Click the Jobs by Status icon.
4. Click Queued Jobs.
5. From the Content pane, click the job to discard.
6. From the Toolbar, click the Discard unprocessed job(s) or Abort job(s) in progress icon.
7. Click OK.

Aborting Jobs in Progress

NOTE: When a source file is deleted, the Media Application Server aborts the jobs in progress.

To abort jobs in progress:
1. From the Home page, click Archive.
2. From the Navigation panel, do one of the following:
   - Expand Archive Jobs.
   - Expand Restore Jobs.
   - Expand Prestage Jobs.
3. Click the Jobs by Status icon.
4. Click Jobs in Progress.
5. From the Content pane, click the job to abort.
6. From the Toolbar, click the Discard unprocessed job(s) or Abort job(s) in progress icon.
7. Click OK.

Redispatching Completed Jobs

To redispatch completed jobs:
1. From the Home page, click Archive.
2. From the Navigation panel, do one of the following:
   - Expand Archive Jobs.
   - Expand Restore Jobs.
   - Expand Prestage Jobs.
3. Click the Jobs by Status icon.
4. Click Completed Jobs.
5. From the Content pane, click the job to redispatch.
6. From the Toolbar, click the Redispatch job icon.
7. Click OK on the dialog box to redispacht the job.

**Redispatching Failed Jobs**

To redispacht failed jobs:
1. From the Home page, click Archive.
2. From the Navigation panel, do one of the following:
   - Expand Archive Jobs.
   - Expand Restore Jobs.
   - Expand Prestage Jobs.
3. Click the Jobs by Status icon.
4. Click Failed Jobs.
5. From the Content pane, click the job to redispacht.
6. From the Toolbar, click the Redispatch job icon.
7. Click OK on the dialog box to redispacht the job.

**Filtering Jobs**

Filter jobs to narrow the job information in the Content pane. Depending on the job category selected, the filter options will differ.

To filter jobs:
1. From the Home page, click Archive.
2. From the Navigation panel, expand Archive Jobs.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now button.
The results are shown in the Content pane.

**Purging Jobs from the Database**

To purge jobs from the database:
1. From the Home page, click Archive.
2. From the Navigation panel, do one of the following:
   - Expand Archive Jobs.
   - Expand Restore Jobs.
   - Expand Prestage Jobs.
3. Click the Jobs by Status icon.
4. Click Queued Jobs.
5. From the Content pane, click the job to delete.
6. From the Toolbar, click the Purge Database icon.
7. Click OK.
Chapter 8
Using the Asset App

This chapter provides instructions on how to use the Asset app to manage different media in MAS. Choose from the following topics:

- About Media Files
- Adding User Data to Media Files
- Managing Assets
- Managing Clips
- Managing Master Clips
- Using the MAS Player
- Managing Tracks
- Viewing Asset Search Queries

About Media Files

This section provides an overview of media file concepts.

Asset

An asset is a collection of clips of different types and related metadata. An asset can be made of many physical files and located in various physical directories. All related media files are collated as an asset and treated as one digital asset for operations, such as a file transfer or a copy. Assets are uniquely identified by a Global Unique Identifier (GUID).

Details View

Clicking an asset opens the Details view with more information about the asset.

Tasks

With assets, you can perform the following tasks:

- Create, edit, merge, and rename assets
- Add metadata to assets
- Add assets to virtual folders
- Delete and “defer delete” assets
- Archive, prestage, and restore assets
- Transfer assets
- Lock and unlock assets
- Play an asset on the player
- Add AFD to assets

Right-clicking on an asset in the Content pane or using the Toolbar buttons provides access to these functions.
Clip

A clip is a media object. These media objects can include “tracks” and have an associated “proxy,” “picon,” and “storyboard.” A discovered clip is automatically assigned an asset during discovery or ingest. Clip properties, called “structural metadata,” reside along with the clip. It is uniquely identified with a Unique Material Identifier (UMID) and a GUID.

MAS lets you manage instances of a particular clip. Typically, a clip that is structurally identical may reside in more than one location. MAS provides the ability to delete specific instances of the clip while highlighting the clip in the Assets app.

Details View

Selecting and clicking an asset in the Content pane displays the Details pane for clips associated with that asset.

Tasks

With clips, you can perform the following tasks:

- Rename, edit, and delete clips
- Download clips from a server
- Generate closed captions for clips
- Archive and restore clips
- Transcode clips
- Lock or unlock clips
- Play clips
- Prestage archived clips
- Verify clip integrity
- Edit, add, remove, and reorder tracks
- Delete and “defer delete” clips
- Generate proxies for clips
- Quality Check clips
- Transfer clips
- Dispatch Manual Jobs for clips

Right-clicking on an clip in the Content pane or using the Toolbar buttons provides access to these functions.

Subclips

A subclip is an exact copy or a section of a clip.

Details View

Click the SubClip tab in the Clip Details view for more information about the subclip. You can also click the SubClip tab above the Navigation Panel to see all subclips.

Tasks

With subclips, you can perform the following tasks:

- Create or delete subclips
- Play subclips in the player
- Generate a clip from a subclip

Right-clicking on a subclip in the Content pane or using the Toolbar buttons provides access to these functions.

For an overview and instructions on managing subclips, refer to Managing Subclips.
Sequence

A sequence is a series of clips that can be played in the Player pane of the UI. To see all available sequences, click the Sequence tab located above the Navigation panel.

Details View

Selecting and clicking a sequence opens tabs in the Details view with more information about the sequence.

With sequences, you can perform the following tasks:
- Create, edit, or delete sequences
- Play sequences on the player
- Generate edit decision lists (EDL)
- Generate a clip from a sequence

Right-clicking on a sequence in the Content pane or using the Toolbar buttons provides access to these functions.

For an overview and instructions on managing sequences refer to Managing Sequences.

Media

Media is a logical representation of essence files within a movie. A media can have multiple instances in different physical folders. For example, a single media can reside in multiple folders. Media belongs to only one clip (however the same file can belong to another clip). Wrapper files and audio/video files are considered to be media objects.

Codec

A codec is used to encode audio and video information in an essence file. The essence files for all audio/video tracks that make up a program are held together in a wrapper file. This wrapper file contains all the information needed to play back the selected program, along with all audio/video tracks and metadata about the essence files.

Essence

Essence files are the basis for all audio/video files. Essence files contain data that is essential to what the viewer perceives. When a video signal is encoded to a file, it might use an MPEG-2 codec or DV codec, which are all essence files. Different types of essence files include:

Video Essence
- DV
- DVCPro, DVCPro 50, DVCPro HD
- MPEG-2 I-Frame, MPEG-2 IMX, MPEG-2 Long GOP, MPEG-2
- VC-3
- AVC-Intra Class 50, AVC-Intra Class 100
- ProRes
- Proxy resolution: H.264/AVC
- Uncompressed (SD only; available for Spectrum MediaPort 1002 modules only)
- Data (available for Spectrum MediaPorts 1005 and 4010 only)
Audio Essence

- AIFF
- PCM
- WAV

The type of essence file used determines the quality of the audio/video signals contained within. Many video servers store their files in the MPEG format, which uses compression that results in smaller file sizes; others use DV as their native format.

Wrappers

Wrappers contain the essence files that make up a complete file or program. For example, the wrapper contains the audio/video essence files and the metadata about what is contained inside the wrapper. Metadata can consist of timing information, time code, title and segment names, air dates, and other types of data. Different types of wrappers carry different amounts and types of metadata.

Different type of wrappers include:

- MXF Op1a
- MXF Op1b
- MXF AS-02 (2009, 2011)
- GXF (SMPTE 360M)
- QuickTime (self-contained, Reference)

AS–02 MXF Versioning

MAS 3.6.2 supports the Advanced Media Workflow Association (AMWA) AS-02 2009 and 2011 MXF Versioning. AS-02 is a container that wraps all the components that can be used to assemble a version of the program, as well as any other files the broadcaster may need to wrap with the audio-visual essence.

AS-02 addresses the problem of having a common file format in a facility that has to handle many input formats and make many output formats. An AS-02 asset can be used as a master file, and different versions derived as needed. Versions may carry different languages and subtitles, or could carry different language title and credit sequences.

The AS-02 2011 specification adds a file manifest, shims, and extras folder. The extra folder can include metadata and content that is not MXF-wrapped, such as caption files, QC reports, and scripts. This specification constrains the MXF file format to better meet the needs of content creators and distributors who are looking to enable versions and inventories for use in a multi-version, multilingual, multi-delivery media environment.
With AS02 2011, all components of the asset must lie inside a “root folder.” One-to-many versions of the asset may be created from the elements of the asset data contained in this root folder and its subfolders as described. The primary version, should it exist, has the name of the root folder. The essence components that consist of audio, video and data, are held in a media subfolder.

![Basic Layout of Files in an AS-02 2011 Structure](image)

**Figure 8–1: Basic Layout of Files in an AS-02 2011 Structure**

In MAS, an AS-02 2011 bundle is an asset, an AS-02 version is a clip, and all the other entities can be tied to a bundle based on the parent folder of the entities. In addition, MXF files under the “media” and “media.dir” folders are assumed to be essences in AS-02 bundle. Files under the “extra” folder are assumed to be part of AS-02 bundle and only MediaInstance entries will be created.

**Operational Rules**

The operational rules of AS-02 are as follows:

- All components of the asset lie inside a root folder.
- Multiple versions of the asset may exist.
- The primary version (if it exists) has the name of the root folder.
- Essence components holding video, audio, data and are in a subfolder called media.
- Version files are MXF files with no essence and are very small (10kB - 500kB).
- Component files are mono-essence (video in a video file, audio in an audio file).
- Non-essence files are stored in a subfolder called extra.

To transfer AS-02 2009 or AS-02 2011 assets, see *Transferring AS-02 Assets* for more information.
Media Instance

The Summary tab in the Details pane shows a list of media contained or referred by the clip. A media instance shows the physical location of the file in the file system.

Track

The Summary tab in the Details pane shows a list of tracks contained in the selected clip. A track is an audio or video component of a movie. Clicking the track in the Tracks tab displays the track’s properties.

Storyboard and Picons

You can view a picture icon (picon) associated with a storyboard by clicking an asset, a clip, and a picon in the Storyboard pane.

Adding User Data to Media Files

To add user data to media files, you must first add a metadata field to the ObjectType: Clip metadata template. Refer to Adding Metadata Fields for instructions. When adding a metadata field to contain user data about a media file, be sure to select Linked to Media.

After you have created the metadata field, you can add user data to a media file from the Asset app.

If a metadata field for user data is deleted via the MAS UI, instances of that user data will not be deleted from from the media files.

To add user data to a clip:

1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select a clip, and from the Toolbar, click the Edit con.
6. Click the Metadata tab.
7. From the Key column, locate the metadata key you want to add user data to, and enter the user data in the Value column.

**IMPORTANT:** Make sure the check box for Linked to Media is selected for the key you’re adding user data to. If it is not selected, the user data will not be associated with the media file.

8. Click OK.

Managing Assets

Assets are displayed in the Content pane depending on the Navigation panel node selected. From the Content pane you can create new, edit existing, rename, delete, transfer and filter assets. You can also click an asset to see its contained media files.

Browsing Assets

The Assets app is where you view, create, and edit assets, as well as view and edit clips on the managed devices. In addition to presenting lists of files, the app provides filtering options that you can use to narrow your search and allows you to assign assets to virtual folders.
In addition to viewing all assets in a list, you can:

- **View by Virtual Folder**: These are a user-created collection of assets with similar characteristics. Refer to *Managing Virtual Subfolders* for more information about creating these customized collections of assets.

- **View by Saved Asset Queries**: These are search queries, created based on certain criteria, that can be saved for later use. Refer to *Creating Search Queries* for more information about creating these queries, which can also be run immediately.

- **View by Assets with Picons**: These are picture icons (picons) associated with a storyboard.

- **View by Assets with Proxies**: These are assets with associated proxy clips.

- **View by Clip Container Type**: These are clips sorted by wrapper type.

- **View by Clip Containment Type**: These are reference, self-contained, or mixed clips.

- **View by Clip Frame Rate**: These are clips that have been sorted according to frame rate.

  Go directly to a folder using shortcuts. You can create shortcuts to frequently-accessed folders and store them on the Navigation panel for quick access. Refer to *Creating Folder Shortcuts* for more information.

### Viewing Assets

Assets are displayed in the Content pane, and depending on the view selected, several properties may be shown. From this pane you can edit, rename, delete, and filter assets. You can also click an asset to see its contained media files. These features are described below.

**To view assets:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder to display assets managed by **MAS**.

### Playing Assets

Refer to *Playing Assets and Clips*.

### Viewing Asset Properties

**To view asset properties:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, do the following:
   - Click an asset to view its properties, metadata, clips, virtual folders, subclips, and file hierarchy.
   - Click an asset to view its assigned metadata, clips, and virtual folders.

These details appear in the Detail pane.
Creating Assets

Create an asset to combine other assets and clips. An asset can be made of many physical files located in various physical directories. When combined into a single asset, all related media files are treated as one digital file, available for operations such as transferring or copying to other networked folders. Assets are identified by their own unique GUID. This uniquely identifies the asset in the Media Application Server domain.

To create an asset:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Toolbar, click the Create icon.
4. From the New Asset dialog box, enter a name for the asset.
5. Click the Metadata tab.
6. Complete the Metadata dialog box as needed.
7. Click the Virtual Folders tab.
   This tab shows the list of virtual folders assigned to this asset. You can change this list if needed.
8. Select the virtual folder from the Available List and then click the Add icon to add the folder to the Current List.
9. Click OK.

The new asset is created and added, in alphabetical order, to the list of assets in the Content pane. If it is not visible, it may be on a subsequent page or the page has not yet refreshed. If additional items exist, use the arrow icons above the Content pane to navigate to the next set of viewable items.

Additionally, click the Asset column in the Content pane to switch between ascending and descending order.

Renaming Assets

To rename an asset:
1. From the Home page, click Assets.
2. From the Navigation panel, expand All Assets folder.
3. From the Content pane, click the asset you want.
4. From the Toolbar, click the Rename icon.
5. Enter a new name.
6. Click Rename Contained Object to also rename any underlying essence files.
   You cannot rename files within a clip if other files reference the contained file.
7. Click OK.

Editing Asset Properties

Edit an asset to change its name, add metadata, or add it to a virtual folder.

To edit asset properties:
1. From the Home page, click Assets.
2. From the Navigation panel, expand All Assets folder.
3. From the Content pane, click the asset you want.
4. From the Toolbar, click the **Edit** icon.
5. Edit the settings as needed.
6. Click **OK**.
7. Click **OK**.

**Merging Assets**

Merge assets to combine clips into one asset.

**To merge assets:**
1. From the Home page, click **Assets**.
2. Click the **Assets** bar.
3. From the Navigation panel, expand **All Assets** folder.
4. From the Content pane, combine assets by moving one asset to another asset using a drag-and-drop operation.
5. Click **OK**.

**Archiving Assets**

**To archive assets:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand **All Assets** folder.
3. From the Content pane, click the asset you want.
4. From the Toolbar, click the **Archive Selected Object(s)** icon.
5. Complete the dialog box as follows:
   - **Job Settings**
     - **Use Notification Preset:** Select a notification preset to notify a user through e-mail/socket/http based on the **Job States** below.
     - **Job States:** Select the job states about which you want to receive notifications.
     - **Delete on Archive:** If selected, the file will be archived, and on successful archive, it will be deleted from source location. The File State will be set to “Offline.” If cleared, the file will be archived on the Archive server. It will be left on the file storage server as is. The File State will be set to “Archived.”
     - **Overwrite:** If selected, MAS will delete the previous archived file of the same name and GUID from the Archive server.
     - **Max Retries:** Select or type the number of times to retry the archive job in case of failure.
     - **Wait Time:** Select the amount of time in seconds to wait between retries.
     - **Priority:** Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
     - **Volume Group:** Specify the name of the volume group where the file resides on archival system. A volume is a single tape. A volume group is a set of tapes that is treated in the same way by the system. The name must be unique across the system.

**NOTE:** Nomenclature differs across different vendors. In MAS, the term, “volume group,” is used to identify a group of tape or volumes.
Additional Data: Enter vendor-specific data in key-value pairs. Refer to your vendor documentation for more information.

Enable Filter: Select this check box to enable the File Ignore Pattern filter.

File Ignore Pattern: Define a pattern using a regular expression. Objects matching this pattern are not archived.

Set Metadata: Lists the metadata to be set on the source object as per the set notification or job state change.

6. For Schedule, choose one of the following:

- Now: Create the proxy now.
- Later: Create the proxy according to the specified schedule. Select the date and time at which you want to create the proxy.

7. To add or modify a Metadata Event, click Add or Modify, and configure the following settings:

- Trigger On: JobStateChange is the default.
- Job States: Select which job states will trigger a Metadata event its state is changed.
- MetaData Field: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
- Skip On Non Default Value: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
- Value: The choices for this value are dependent on the MetaData Field setting.

8. Click OK.

9. Click OK.

Restoring Archived Assets

Restoring an archived asset moves it from its tape location on the Archive server to the specified directory.

To restore an archived asset:

1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select a clip, and from the Toolbar, click the Restore Selected Object(s) icon.
6. Complete the dialog box as follows:

- Name: (Read Only) Shows the name and full path from which the clip will be restored.
- Archive Details: (Read Only) Shows the name of the Archive server from which the clip will be restored.

General

- Over Write: Select this option to overwrite a previous version of the same asset in the destination directory, if one exists.
- Priority: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
- Maximum Retries: Select or type the number of times to retry the archive job in case of failure.
- Wait Time: Select the amount of time in seconds to wait between retries.
- **Restore to Original Location**: (Default) Select this option to restore the object in MAS from where it has been archived. The default location is shown in the Full Path column.
- If you deselect this option, a new menu, **Location to Restore**, opens. Select the new location from the storage servers listed in the drop-down menu.
- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the **Job States** below.
- **Job States**: Select the job states about which you want to receive notifications.
- **Filter Required**: Select this check box to enable the **File Ignore Pattern** filter.
- **File Ignore Pattern**: Define a pattern using a regular expression. Objects that match this pattern are not restored.
- **Set Metatdata**: Lists the metadata to be set on the source object as per the set notification or job state change.

**Schedule**
- Set the schedule when the restore operation should run.
- To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to **Metadata Fields** for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the **MetaData Field** setting.

7. Click **OK**.
8. Click **Yes**.

**Locking or Unlocking Assets**

Lock assets to restrict deletion of assets from a file system by system users. This feature only controls the assets at the Media Application Server level; it does not lock or unlock assets in the file system.

**To lock/unlock an asset:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand **All Assets** folder.
3. From the Content pane, click the asset you want.
4. To lock the asset, do the following:
   a. From the Toolbar, click the Lock icon.
   b. Click **OK**.
   c. Click **OK** again.
5. To unlock the folder, do the following:
   a. From the Toolbar, click the Unlock icon.
   b. Click **OK**.
   c. Click **OK** again.
Transferring Assets
Refer to *Transferring Assets* for an overview and instructions on transferring assets.

Filtering Assets
Filter assets to narrow the file notification information in the Content pane.

To filter assets:
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Toolbar, click the **Filter** icon.
4. Click the **Asset** tab.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the app’s Navigation panel in a folder titled “Saved <app name> Queries.” Refer to *Creating Search Queries* for instructions on completing the pages.
   - **Clear**: Click the icon to clear filter attributes.
6. To perform a search, click the **Search Now** icon.
The results are shown in the Content pane.

Deleting Assets
To delete assets:
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click the asset(s) you want to delete.
4. Click the **Delete** icon.

When you select a single asset and click Delete on the Toolbar, MAS retrieves the asset and all media instances associated with that asset. This task returns the media instances, essence, and wrapper files. In the case of an AS02 clip, MAS also returns the manifest and shim files. The UI, however, “ignores” the essence, manifest, and shim files and only displays the wrapper files with their full path.

Refer to *Asset Delete Options* for an explanation of the options.

Asset Delete Options

Option 1 – Delete

When the **Force delete** and **Defer delete** options are not selected, MAS operates as follows:

- If the selected asset is not in use or locked, the clip is permanently deleted.
- If the selected asset is in use or locked, an error message displays and you cannot perform a delete. Select **Cancel** to cancel the action. The object is left “as-is” in the file system.

Option 2 – Force Delete

When the **Force delete** option is selected, MAS operates as follows:
If the selected asset is not in use or locked, MAS performs a force delete. The clip is permanently deleted.

If the selected asset is in use or locked, MAS performs a force delete. The clip is permanently deleted.

**Option 3 – Defer Delete**

When the **Defer delete** option is selected, MAS operates as follows:

- If the selected asset is not in use or locked, MAS performs a defer delete. Files under the asset are moved to the recycle bin. The object displays in the Content pane with a strike out.

**NOTE:** The message, “Not in Use,” indicates that clip is an orphan.

- If the selected asset is in use or locked, an error message displays and you cannot perform a defer delete:
  
  Error Code: 1010: (This file is a media for some Clip) or (File is locked)

- Do one of the following:
  
  - Select **Cancel** to cancel the action. The object is left “as-is” in the file system.
  - Select the **Force delete** and **Defer delete** options. Go to the next section for more information.

**Option 4 – Force Delete and Defer Delete**

When the **Force delete** and **Defer delete** options are selected, MAS operates as follows:

- The asset is moved to the recycle bin. The object displays in the Content pane with a strike out.

**Option 5 – Delete from Storage**

This option is enabled only when the asser is in the “archive” or “prestage” state. Selecting this option deletes the object from the storage server and sets the object’s status to “offline.”

- For multiple assets, the selected objects are offlined in MAS, but remain in the Archive storage.

**Option 6 – Delete from Archive Storage**

This option deletes the object from the Archive server. MAS updates the object’s status to “OK.” If the object is already in a “prestage” or “offline” state, the object is removed from the MAS database.

Objects are removed only if the object is not present on the storage server. If the object is present on the storage server, MAS updates the status to “OK”

**Undoing Asset Defer Delete**

If you chose to delete assets using the defer delete function, you can undo the action and recover the objects.

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, select the asset(s) you want to recover.
4. Do one of the following:
   - Click the **Undo Defer Delete** icon on the Toolbar.
Right-click the asset(s) and select **Undo Defer Delete** from the pop-up menu.

5. Click **OK**.
6. Click **Yes**.

The object displays in the Content pane and the strikeout is removed.

**Changing the NeededBy Metadata Field for Assets**

The following example illustrates a method you can use to change the neededBy metadata field for assets. See the **neededBy Field** for more information.

**To change the NeededBy metadata field:**

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click the asset you want.
4. From the Detail pane, click the **Asset Metadata** tab.
5. Right-click the **neededBy** value and click **Edit**.
6. Click the **Metadata** tab.
7. Edit the **neededBy** key as required.
8. Click **OK**.

**Managing Clips**

A clip is a complex media object that contains “tracks” and has an associated “proxy,” “picon” and “storyboard.” A discovered clip is automatically assigned an asset. Clip properties, called “structural metadata,” reside along with the clip.

**Browsing Clips**

Follow the steps in **Browsing Assets** for instructions on browsing clips.

**Viewing Clips**

Follow the steps in **Viewing Assets** for instructions on viewing clips.

**Viewing Clip Properties**

**To view clip properties:**

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Click on a clip to view its properties.
Playing Clips

Refer to *Playing Assets and Clips* for instructions.

Renaming Clips

To rename clips:
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Select a clip, and from the Toolbar, click the **Rename** icon.
6. Enter a new name.
7. Click **Rename Contained Object** to also rename the clip’s essence files.
   
   You cannot rename files within a clip if other files reference the contained file.
8. Click **OK**.

   **NOTE:** You can also right-click a clip and then click **Rename**.

Editing Clips

To edit clips:
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select a clip, and from the Toolbar, click the Edit Clip icon.

**CAUTION:** Ensure that you do not click the Edit Properties of Selected Object icon by mistake.

6. Complete the dialog box as follows:
   - **Actions**
     - Set AFD: Select the Active Format Description (the aspect ratio and active picture characteristics) for the MPEG video stream.
   
   The following table shows the Active Format Description.

   **Table 8–1: Active Format Description**

<table>
<thead>
<tr>
<th>Set AFD</th>
<th>Aspect Ratio</th>
<th>SMPTE–2016 AFD Information Byte (Bits b0–b7)</th>
<th>SMPTE–2016 AFD Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Frame Image</strong>: Same as the frame (4:3 or 16:9).</td>
<td>4:3</td>
<td>0 1000 000</td>
<td>1000</td>
</tr>
<tr>
<td><strong>4:3 Image</strong>: Letterbox in 4:3 frame, Full Frame in 16:9 frame.</td>
<td>4:3</td>
<td>0 1001 000</td>
<td>1001</td>
</tr>
<tr>
<td><strong>16:9 Image</strong>: Letterbox in 4:3 frame, Full Frame in 16:9 frame.</td>
<td>4:3</td>
<td>0 1010 000</td>
<td>1010</td>
</tr>
<tr>
<td><strong>14:9 Image</strong>: Pillarbox/Letterbox image.</td>
<td>4:3</td>
<td>0 1011 000</td>
<td>1011</td>
</tr>
<tr>
<td><strong>14:3 Image and Protect 14:9 Center</strong>: The areas above and below the central 14:9 region of the 4:3 active picture can be trimmed without losing important detail.</td>
<td>4:3</td>
<td>0 1101 000</td>
<td>1101</td>
</tr>
<tr>
<td><strong>16:9 Image and Protect 14:9 Center</strong>: The right and left of the central 14:9 region of the 16:9 active picture can be trimmed without losing important detail.</td>
<td>4:3</td>
<td>0 1110 000</td>
<td>1110</td>
</tr>
<tr>
<td><strong>16:9 Image and Protect 4:3 Center</strong>: The areas to the right and left of the central 4:3 region of the 16:9 active picture can be trimmed without losing important detail.</td>
<td>4:3</td>
<td>0 1111 000</td>
<td>1111</td>
</tr>
</tbody>
</table>
   - **Track Stack**: Select to rearrange the order of tracks in a clip.
   - **Tag Track**: Select to assign a track tag to a clip.

7. Click OK.

**Editing Clip Properties**

**To edit clip properties:**

1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select a clip, and from the Toolbar, click the Edit con.
6. Edit the properties as needed.
7. Click OK.

**Generating Clips**

To generate clips:
1. From the Home page, click Assets.
2. From the tab group above the Navigation panel, click the SubClips or the Sequences tab.
3. From the Content pane, click the media object you want.
4. From the Toolbar, click the Generate Clip icon.
5. Select a destination path for the new clip.
   The output path displays.
6. Enter a Clip Name.
7. From the Wrapper Type list, select one of the following:
   - **Discrete**: Use to write separate essence files per track. Essence media is copied (flattened) to new, discrete files in a directory named media.dir beneath the location of the destination movie. The essence file names are identical to the movie, except for the suffix.
   - **Embedded**: Use to write a self-contained clip. Essence media is copied (flattened) to the destination movie and is embedded inside it. The new movie is self-contained.
   - **Reference**: Use to write a wrapper that references the essence from the source clips. No essence media is copied; it is left in place. The new destination movie is constructed with references to these essence files. In this case, make sure that the essence files are located in the same directory as, or below, the destination movie file.
   - **RDD9**: Compatible with Sony’s XDCAM-HD line of cameras and VTRs. The video track is MPEG long-GOP at 18, 25, 35 or 50 Mbps. This allows two to eight audio tracks, each with a single channel and PCM audio.
   - **AS02 2009**: A hybrid between self-contained and referenced clips. The main MXF file is OP1b and contains only clip metadata. The essence files are MXF OP1a, one per track. The index tables for each track are stored in their respective OP1a files.
   - **AS02 2011**: Same as AS-02 2009, except the whole clip structure is stored inside a folder and the folder then becomes the clip. This is referred to as a “bundle.” In addition to the clip-related files, the bundle contains .xml files and an optional (extra) folder with custom files. See *AS-02 MXF Versioning* for more information.
8. Click OK.

**Downloading Clips**

You can download a clip from a directory and save it to your local client. If you are downloading a high-resolution clip, you have the option to download its essences files as well.

To download clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Select a clip, and from the Toolbar, click the **Download Clip** icon.
6. Click **OK**.

   If the selected clip is large, the message, “Zipping related files” appears. Zip creation occurs on the server side. Zipping large files can take some time. You cannot perform any other action until zipping is completed. After a zip file is created, the message, “Zip file created. Ready for Download” opens.
7. Click **OK**.
8. Select an appropriate destination to download the zip file and click **Save**.
   - If the clip has “media containment” as the Reference and is an AS-02 clip, the downloaded zip file contains the wrapper, essence, manifest, and shim files associated with the clip.
   - If the clip has “media containment” as the Reference and is not an AS-02 clip, the downloaded zip file contains the wrapper and essence files associated with the clip.
9. After the download completes, click **OK**.
10. (Optional) Delete the zip file from the server side. It is located in the Recycle Bin path of the storage server where the selected clip is located.

### Archiving Clips

**To archive clips:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Select a clip, and from the Toolbar, click the **Archive Selected Object(s)** icon.
6. Complete the dialog box as follows:
   - **Job Settings**
     - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket /http based on the **Job States** below.
     - **Job States**: Select the job states about which you want to receive notifications.
     - **Delete on Archive**: If selected, the file will be archived, and on successful archive, it will be deleted from source location. The File State will be set to “Offline.” If cleared, the file will be archived on the Archive server. It will be left on the file storage server as is. The File State will be set to “Archived.”
     - **Overwrite**: If selected, MAS will delete the previous archived file of the same name and GUID from the Archive server.
     - **Max Retries**: Select or type the number of times to retry the archive job in case of failure.
     - **Wait Time**: Select the amount of time in seconds to wait between retries.
     - **Priority**: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
     - **Volume Group**: Specify the name of the volume group where the file resides on archival system. A volume is a single tape. A volume group is a set of tapes that is treated in the same way by the system. The name must be unique across the system.
**NOTE:** Nomenclature differs across different vendors. In MAS, the term, “volume group,” is used to identify a group of tape or volumes.

- **Additional Data:** Enter vendor-specific data in key-value pairs. Refer to your vendor documentation for more information.
- **Enable Filter:** Select this check box to enable the File Ignore Pattern filter.
- **File Ignore Pattern:** Define a pattern using a regular expression. Objects matching this pattern are not archived.
- **Set Metadata:** Lists the metadata to be set on the source object as per the set notification or job state change.

7. For **Schedule**, choose one of the following:
   - **Now:** Create the proxy now.
   - **Later:** Create the proxy according to the specified schedule. Select the date and time at which you want to create the proxy.

8. To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
   - **Trigger On:** JobStateChange is the default.
   - **Job States:** Select which job states will trigger a Metadata event its state is changed.
   - **MetaData Field:** A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to **Metadata Fields** for more information.
   - **Skip On Non Default Value:** If enabled, metadata will not be set if the current value is not the default value set when the object was created.
   - **Value:** The choices for this value are dependent on the **MetaData Field** setting.

9. Click **OK**.
10. Click **OK**.

### Restoring Archived Clips

Restoring an archived clip moves it from its tape location on the Archive server to the specified directory.

**To restore archived clips:**
1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Select a clip, and from the Toolbar, click the **Restore Selected Object(s)** icon.
6. Complete the dialog box as follows:
   - **Name:** (Read Only) Shows the name and full path from which the clip will be restored.
   - **Archive Details:** (Read Only) Shows the name of the Archive server from which the clip will be restored.
   - **General**
     - **Over Write:** Select this option to overwrite a previous version of the same asset in the destination directory, if one exists.
     - **Priority:** Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
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- **Maximum Retries**: Select or type the number of times to retry the archive job in case of failure.
- **Wait Time**: Select the amount of time in seconds to wait between retries.
- **Restore to Original Location**: (Default) Select this option to restore the object in MAS from where it has been archived. The default location is shown in the Full Path column.
- If you deselect this option, a new menu, Location to Restore, opens. Select the new location from the storage servers listed in the drop-down menu.
- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the Job States below.
- **Job States**: Select the job states about which you want to receive notifications.
- **Filter Required**: Select this check box to enable the File Ignore Pattern filter.
- **File Ignore Pattern**: Define a pattern using a regular expression. Objects that match this pattern are not restored.
- **Set Metadata**: Lists the metadata to be set on the source object as per the set notification or job state change.

**Schedule**
- Set the schedule when the restore operation should run.
- To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **Metadata Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the Metadata Field setting.

7. Click OK.
8. Click Yes.

**Locking or Unlocking Clips**

Lock clips to restrict deletion of clips from a file system by system users. This feature only controls the clips at the Media Application Server level; it does not lock or unlock clips in the file system.

**To lock/unlock a clip:**
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. To lock the asset, do the following:
   a. From the Toolbar, click the Lock icon.
   b. Click OK.
   c. Click OK again.
6. To unlock the folder, do the following:
   a. From the Toolbar, click the Unlock icon.
   b. Click OK.
   c. Click OK again.

Transferring Clips

Refer to Transferring Clips for an overview and instructions on transferring clips.

Filtering Clips

To filter clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the toolbar, click the Filter icon.
4. Click the Clip tab.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the pages.
   - Clear: Click the icon to clear filter attributes.
6. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

Verifying Clips

The Media Application Server verifies each clip to ensure:

- The clip is able to be read using the Media API.
- The clip has more than one frame.
- All referenced essence files exist in the file system.
- The clip is not corrupt.

This action ensures that the file’s properties are readable and that all of its essence files exist.

To verify a clip:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select a clip, and from the Toolbar, click the Verify the file or clip icon.
6. Click OK.

Deleting Clips

To delete clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Select the clip(s) you want to delete, and from the Toolbar, click the Delete icon.

When you select a single clip and click Delete on the Toolbar, MAS retrieves the clip object and all media instances associated with that clip. This task returns the media instances, essence, and wrapper files. In the case of an AS-02 clip, MAS also returns the manifest and shim files. The UI, however, “ignores” the essence, manifest, and shim files and only displays the wrapper files with their full path.

If you select all the media instances for deletion, then the clip is deleted. If you select some of the media instances, the selected media instances in the Object section of the dialog box are deleted.

6. Select the object(s) you want to delete.

Refer to the section, Clip Delete Options, for an explanation of the options.

Clip Delete Options

Option 1 – Delete

When the Force delete and Defer delete options are not selected, MAS operates as follows:

- If the selected clip is not in use or locked, the clip is permanently deleted.
- If the selected clip is in use or locked, an error message displays and you cannot perform a delete. Select Cancel to cancel the action. The object is left “as-is” in the file system.

Option 2 – Force Delete

When the Force delete option is selected, MAS operates as follows:

- If the selected clip is not in use or locked, MAS performs a force delete. The clip is permanently deleted.
- If the selected clip is in use or locked, MAS performs a force delete. The clip is permanently deleted.

Option 3 – Defer Delete

When the Defer delete option is selected, MAS operates as follows:

- If the selected clip is not in use or locked, MAS performs a defer delete. Files under the clip are moved to the recycle bin. The object displays in the Content pane with a strike out.

NOTE: The message, “Not in Use,” indicates that clip is an orphan.

- If the selected clip is in use or locked, an error message displays and you cannot perform a defer delete:

  Error Code: 1010: (This file is a media for some Clip) or (File is locked)

- Do one of the following:
  - Select Cancel to cancel the action. The object is left “as-is” in the file system.
  - Select the Force delete and Defer delete options. Go to the next section for more information.
Option 4 – Force Delete and Defer Delete

When the **Force delete** and **Defer delete** options are selected, MAS operates as follows:

- The clip is moved to the recycle bin. The object displays in the Content pane with a strike out.

Option 5 – Delete from Storage

This option is enabled only when the file is in the “archive” or “prestage” state. Selecting this option deletes the object from the storage server and sets the object’s status to “offline.”

- For multiple clips, the selected objects are offline in MAS, but remain in the Archive storage.

Option 6 – Delete from Archive Storage

This option deletes the object from the Archive server. MAS updates the object’s status to “OK.” If the object is already in a “prestage” or “offline” state, the object is removed from the MAS database.

Objects are removed only if the object is not present on the storage server. If the object is present on the storage server, MAS updates the status to “OK.”

Undoing Clip Defer Delete

If you chose to delete clips using the defer delete function, you can undo the action and recover the objects.

**To undo clip defer delete:**

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand the **All Assets** folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the **Summary** tab.
5. Do one of the following:
   - Select the clip(s), and click the **Undo Defer Delete** icon on the Toolbar.
   - Right-click the clip(s) and select **Undo Defer Delete** from the pop-up menu.
6. Click **OK**.
7. Click **Yes**.

The object displays in the Content pane and the strikeout is removed.

Setting Clip Inpoints and Outpoints

To set clip inpoints and outpoints, the clip must be loaded in the MAS Player. Refer to [Using the MAS Player](#) for a complete overview.

**NOTE:** To play a clip in the MAS player, you must first create a proxy for it.

**To set clip inpoints and outpoints:**

1. Play the clip to the MAS Player.
2. Use the **Set Inpoint** and **Set Outpoint** controls to set the inpoints and outpoints for the clip.
3. Click the **Save** icon on the MAS Player.
Generating On-Demand Proxies for Clips

To generate on-demand proxies for clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. From the Toolbar, click the Generate the Proxy for the Selected Clip(s) icon.
6. In the Destination Folder section, navigate to and then select the folder that you would like to use to store proxies.
7. In the Job Settings section, select the Transcoder Type for the job, either ProxyGenerator or WFS.

The options in the dialog box change, depending on your selection.

a. For ProxyGenerator Options, configure the following settings:
   - **Transcoder Type**: Choose ProxyGenerator for file-based file-based proxy generation.
   - **Job Type**: Select the type of browse job: All, Proxy Only, Picon Only, Scene Changes Only, and Picon and Scene Changes Only.
   - **Thumbnail Quality**: Indicates the quality of the thumbnail image (in dots per inch).
   - **Thumbnail Width**: Type or select the preferred width (in pixels) of the resulting thumbnail image for the job type. Thumbnail images are created for easy identification of files.
   - **Thumbnail Height**: Type or select the height (in pixels) of the thumbnail image.
   - **Timeout**: Amount of time the job waits until it gets a response from the ProxyGenerator, MediaPort, or WFS.
   - **Thumbnail Frame Number**: Type or enter the number of the frame to use as the thumbnail image. If no value is entered, the default value will be used.
   - **Scene Change Setting**: This value represents the “cut level,” or the amount of change between a series of images that must be present before a scene change occurs. Enter a number between 0 and 100.
   - **Scene Change Hysteresis**: This value represents the “fade time,” or the amount of time required for an image to stabilize before allowing another scene change. Enter a number between 0 and 100.
   - **Underburn**: Choose the style of underburn to display beneath a proxy while it is played in the Player pane. If you specify an Underburn URL, the logo file must be a JPEG (.jpg) compressed picture. The logo must be on a Samba share server that is accessible by a Browse Generator for ProBrowse that accepts a guest login.

   The ProBrowse system supports the capability to replace the default logo in the underburn timecode with another image. See the Omneon ProBrowse Installation and User Guide for more information.
   - **Enable Filter**: Select this check box to enable the File Name Pattern and File Ignore Pattern filter.
   - **Underburn Logo URL**: Enter the location of the underburn image. Ensure that the ProxyGenerator can reach it.
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- **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are transcoded. The Filter check box must be selected to enter an expression. See *Table 8–2* for information.

- **File Ignore Pattern**: Define a regular expression for ignoring a file type. See *Ignoring Patterns in Filenames and Notification Types* for more information.

- **Timecode Mode**: Select *Use Source Time Code* or *Use Replacement Timecode*.

- **Max Retries**: Select or type the number of times to retry the archive job in case of failure.

- **Wait Time**: Select the amount of time in seconds to wait between retries.

- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http.

- **Job States**: Select job states that will trigger notifications.

- **Set Metadata**: Lists the metadata to be set on the source object as per the set notification or job state change.

b. For **WFS Options**, configure the following settings:

- **Transcoder Type**: Choose WFS for file-based proxy generation.

- **Job Type**: Select the type of browse job: All, Proxy Only, Picon Only, Scene Changes Only, and Picon and Scene Changes Only.

- **Timecode Mode**: Select *Use Source Time Code* or Start with 00:00:00:00.

- **Video Frame Size HD**: Select the frame size for HD video.

- **Video Frame Size SD**: Select the frame size for SD video.

- **Proxy Video Bit Rate**: Select the bit rate for proxies.

- **Audio Bit Rate**: Select the audio bit rate.

- **Key Frame Interval**: QuickTime uses “frame differences” to compress moving images. It is the process of determining what information has changed from a starting frame (called a “key frame”) to subsequent frames. The key frame contains all of the information for an image. Subsequent frames contain only the information that has changed.

  You can specify the key frame interval. If you specify a large key frame interval, the quality of your movie will be very low because most frames are generated from others. A smaller key frame interval results in a larger movie with a higher data rate.

- **Wrapper Type**: Select QT or MXF OP1a LL.

- **Burned–in Time Code Area**: Select the area where the burned-in time code should appear: None, Upper Center, Lower Center, Under Center, Upper Left, Lower Left, Under Left, Upper Right, Lower Right, or Under Right.

- **Max Retries**: Select or type the number of times to retry the archive job in case of failure.

- **Wait Time (seconds)**: Select the amount of time in seconds to wait between retries.

- **Generate IPV Proxy**: Select Yes to create IPV proxies for play out on an IPV proxy player.

**NOTE**: For information on the IPV storage server, refer to *Managing the IPV Storage Server*.

- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http.
Job States: Select job states that will trigger notifications

Set MetaData: Lists the metadata to be set on the source object as per the set notification or job state change.

8. For Schedule, choose one of the following:
   - Now: Create the proxy now.
   - Later: Create the proxy according to the specified schedule. Select the date and time at which you want to create the proxy.

9. To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
   - Trigger On: JobStateChange is the default.
   - Job States: Select which job states will trigger a Metadata event its state is changed.
   - MetaData Field: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
   - Skip On Non Default Value: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
   - Value: The choices for this value are dependent on the MetaData Field setting.

10. Click OK.
11. Click OK.

Generating On-Demand Closed Captioning for Clips

You can generate an on-demand closed caption job for one or more selected clips. For more information on closed captioning, see About Closed Captions.

To generate on-demand closed captioning for clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. Click the clip you want, and from the Toolbar, click the CC icon.
6. Complete the dialog box as follows:
   - Destination Folder
     Select the destination folder in which to generate the closed captioning (CC) for the clip.
   - Job Settings
     - Filter Required: Select this check box to enable the File Name Pattern filter. Use this filter to choose specific files in folders targeted for CC.
Chapter 8 Using the Asset App

Managing Clips

- **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are closed captioned.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.mov[mxf]</td>
<td>Only the clips with a suffix of .mov and .mxf are filtered.</td>
</tr>
<tr>
<td>abc.*.mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>.*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>abc</td>
</tr>
</tbody>
</table>

**NOTE:** The File Name Pattern applies to file names only and not to folders.

- **File Ignore Pattern**: Define a regular expression for ignoring a file type. See [Ignoring Patterns in Filenames and Notification Types](#) for more information.
- **Max. Retries**: Type or select the number of times the CC process should be retried in the event of a failure. The maximum retry count is 100.
- **Wait Time (seconds)**: Select the amount of time to wait between retries.
- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http.
- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.
- To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to **Metadata Fields** for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the **MetaData Field** setting.
- **Schedule**
  Set the schedule when the Closed Captioning should run.
- **Closed Caption Channel**
  Click the **Add** button to add at least one closed caption channel.
  - **Caption Type**: Select CC or Teletext.
  - **CC Type**: Select the channel.
  - **Language**: Select the language for the closed caption.

7. Click **OK**.
8. Click OK.

The closed captioning process is initiated.

9. To view the status of the clip, do the following:
   a. From the Home page, click Closed Caption.
   b. From the Navigation panel, click Closed Caption Jobs.
   c. Locate the Closed Caption job in the Status column.

Generating On-Demand Quality Checks for Clips

To generate on-demand Quality Checks for clips:
1. From the Home page, click Assets.
2. From the Navigation panel, expand the All Assets folder.
3. From the Content pane, click an asset to view its clips.
4. From the Detail pane, click the Summary tab.
5. From the Toolbar, click the Generate Quality Check for the Selected Clip(s) icon.
6. Complete the dialog box as follows:
   - **Destination Folder**
     - Select the folder that you would like to use for the destination. A report of the QC verification is placed in this folder.
   - **Job Settings**
     - **Vendor/Requestor**: Enter the vendor/requestor name for the QC job. The name should match the vendor ID used to consume jobs. For example, Rhozet WFS. For example, Baton. The field is case-sensitive.
     - After you enter the Rhozet WFS in the Vendor field, two new combo boxes appear: Categories and Template, through which you can select any presets created on WFS.
     - **Template Name**: Enter the name of the template you created using third-party software, such as Rhozet or Interra. The template is intended to be used to process your clips on MAS for a QC task.
     - **Max. Retries**: Type or select the number of times the Quality Check rule should be retried in the event of a failure. The maximum retry count is 100.
     - **Enable Filter**: Select this check box to enable the File Name Pattern filter. Use this filter to choose specific files in folders targeted for the QC.
     - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are QC. See Table 8–2 for information.
     - **File Ignore Pattern**: Define a regular expression for ignoring a file type. See **Ignoring Patterns in Filenames and Notification Types** for more information.
     - **Wait Time (seconds)**: Select the amount of time to wait between retries.
     - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket /http based on the **Use Preset** below.
     - **Use Preset**: Select the preset to be used for QC. This is set in the QC Job Setting or Asset/Clip metadata field.
       - The **USERDEFINED** option uses the preset defined in a rule.
       - The **ASSETPROPERTY** uses the preset defined in the metadata field.
- Set MetaData: Lists the metadata to be set on the source object as per the set notification or job state change.
- To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
  - Trigger On: JobStateChange is the default.
  - Job States: Select which job states will trigger a Metadata event its state is changed.
  - MetaData Field: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - Skip On Non Default Value: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - Value: The choices for this value are dependent on the MetaData Field setting.
- Schedule
  - Now: QC the clip now.
  - Later: QC the clip according to the specified schedule. Select the date and time you want.

7. Click OK.
8. Click OK.

Performing On-Demand Transcode Jobs for Clips
You can set on-demand transcode jobs from the File Browser app.
For instructions on on-demand transcoding, refer to Performing On-Demand Manual Transcode Jobs.

Performing On-Demand Manual Jobs for Clips
You can perform on-demand Manual Jobs for Clips from the File Browser app.
For instructions on generating on-demand Manual Jobs for clips, refer to Performing On-Demand Manual Jobs.

Managing Master Clips
This sections explains how to work with master clips.

Generating New Master Clips
A master clip can be generated from a subclip or a sequence. A new master clip can also be generated by using the Save dialog box (in the MAS Player). The original high-res file is not changed unless you also select Save in/out to master clip.

Figure 8–3 provides an overview of the process for generating a new master clip.
To generate a new master clip:

1. Follow the steps in Setting Clip Inpoints and Outpoints to play and set the inpoints/outpoints for the clip in the MAS Player.
2. Click the Save icon.
3. Click Generate a New Master Clip.
4. Click OK.
5. Select the destination directory for the new clip.
6. Enter a name for the new clip.
7. Select the wrapper type.
   - **Discrete**: Essence media is copied (flattened) to new, discrete files in a directory named media.dir beneath the location of the destination movie. The essence file names are identical to the movie, except for the suffix.
   - **Embedded**: All essence media is copied (flattened) to the destination movie and is embedded inside it. The new movie is self-contained.
   - **Reference**: No essence media is copied; it is left in place. The new destination movie, however, is constructed with references to these essence files. In this case, make sure that the essence files are **RDD9**: Compatible with Sony’s XDCAM-HD line of cameras and VTRs. The video track is MPEG long-GOP at 18, 25, 35 or 50 Mbps. This allows two to eight audio tracks, each with a single channel and PCM audio.
- **AS02 2009**: A hybrid between self-contained and referenced clips. The main MXF file is OP1b and contains only clip metadata. The essence files are MXF OP1a, one per track. The index tables for each track are stored in their respective OP1a files.

- **AS02 2011**: Same as AS02 2009, except the whole clip structure is stored inside a folder and the folder then becomes the clip. This is referred to as a “bundle.” In addition to the clip-related files, the bundle contains .xml files and an optional (extra) folder with custom files. See [AS-02 MXF Versioning](#) for more information.

8. Click **OK** to save the changes to the full resolution clip.

This master clip is now accessible from the clips section of the Navigation pane and can be used to create a sequence or a new clip.

### Saving Inpoints and Outpoints to Master Clips

When changing the proxy’s in/out points, the database is updated with the new in and out points for both the “proxy file” and the “high res clip.” If you play out the high-res clip, it will play the new in/out points, all though the total number of frames would remain the same.

**Figure 8–4: Saving Proxy Inpoints and Outpoints**

To save inpoints/outpoints to master clips:

1. Follow the steps in [Setting Clip Inpoints and Outpoints](#) to play and set the inpoints/outpoints fo the clip in the MAS Player.

2. Click the **Save** icon.

3. Click **Save in/out to master clip**.

4. Click **OK** to save the changes to the full resolution clip.

This master clip is now accessible from the clips section of the Navigation pane and can be used to create a sequence or a new clip.
Using the MAS Player

The MAS player consists of a Player window, Toolbar, controls, and a details area.

**NOTE:** If you use ProBrowse, the clips are launched in the QuickTime Player if it is installed on the client system.

If you use the IPV server, you cannot play proxies on the MAS player. Refer to *Managing the IPV Storage Server* for more information.

**Toolbar**

The **Toolbar** contains some of the following icons, depending upon your activity:

- **Add Current Clip to Sequence:** Adds a subclip to begin building a sequence, or append a new subclip for the current clip at the end of the current sequence. To create a subclip, first mark the inpoint and outpoint and then click the **Save** icon on the Player Control panel. This icon is only available before a sequence is created.

- **Save Current Sequence:** Save the current sequence to the Media Application Server database.

- **Generate EDL for Current Sequence:** Exports the media's XML file for use by another application (Apple® Final Cut Pro®, for example)

- **Delete Current Sequence:** Removes the current sequence of clips. This does not delete the actual clips.

- **Play Current Sequence:** Plays the sequence of clips in the Player window.

- **Reload Clip:** Reloads the current clip in the Player window.

- **Resize icons:** Resizes the player window to standard and large size (fill the content pane with the player). The player window cannot be “dragged” to a different size.

**Player Window**

The Player window is the main viewing area and control panel for playback of assets and clips with proxies. You can also create subclips, or sections of clips, and sequences of clips using the Player controls.

The timecode, if available, is shown at the bottom of the video. Scale the window to two different viewing sizes by clicking the normal or large size icons at the top right of the player.

**Controls**

At the top of the player **Controls** are three time fields (inpoint, position, and outpoint), which display time as timecode.

- **Inpoint:** The point at which the clip is set to begin.

- **Position:** Shows the current play position of the clip. You can also click and drag the Play Status slider to browse the clip position.

- **Outpoint:** The point at which the clip is set to stop.

The VTR-style icon controls all have Tool Tips that display when you place your mouse over the control. The Tool Tips describe the control’s function and list any keyboard shortcuts that are not already indicated in the interface.
- **Play Status Slider**: Drag this slider to different positions to play from a certain position, and to mark new inpoints and outpoints.
- **Save**: Click to save an inpoint or outpoint to a master clip, create a subclip, or generate a new master clip.
- **New Picon**: Click to create a new picture icon or thumbnail.
- **Loop**: Click to specify that the clip should replay upon completion.

The controls are, from left to right:
- **Clear Inpoint**: Clear the clip’s current inpoint.
- **Set Inpoint**: Set the current position as the clip’s inpoint.
- **Go to Inpoint**: Go to the clip’s inpoint (starting point).
- **Fast Reverse**: Play the clip in reverse.
- **Step Reverse**: Pause any playback in progress and back up the clip by one frame.
- **Play/Pause**: Start/pause playback of the clip. You can also click within the Player Window to play or pause the current clip.
- **Step Forward**: Pause any playback in progress and advance the clip by one frame.
- **Fast Forward**: Fast forward the clip.
- **Go to Outpoint**: Go to the clip’s outpoint (ending point).
- **Set Outpoint**: Set the current position as the clip’s outpoint.
- **Clear Outpoint**: Clear the clip’s current outpoint.
- **Shuttle**: This play speed control allows playback from -4 to 32x.

### Controls Keyboard Shortcuts

You can use the following keyboard shortcuts with the MAS player.

**Table 8–3: Keyboard Shortcuts**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Inpoint</td>
<td>SHIFT+X+I</td>
</tr>
<tr>
<td>Set Inpoint</td>
<td>I</td>
</tr>
<tr>
<td>Go to Inpoint</td>
<td>SHIFT+I</td>
</tr>
<tr>
<td>Fast Reverse</td>
<td>No specific hot key for this (can use shuttle hot keys)</td>
</tr>
<tr>
<td>Step Reverse</td>
<td>Left Arrow</td>
</tr>
<tr>
<td>Play/Pause</td>
<td>P or Space. Alternatively, click within the Player Window to play or pause the current clip.</td>
</tr>
<tr>
<td>Step Forward</td>
<td>Right Arrow</td>
</tr>
</tbody>
</table>
Details

At the bottom of the Player pane is the Details section. What appears here depends on the current media loaded in the player: an asset, clip, sequence or subclip.

- **Asset Details**
  - Properties: Standard asset details, including GUID and name.
  - Clips: Clips contained in the asset, which can be selected and then played.

- **Clip Details**
  - Properties: Standard clip details, including GUID, name, and clip type.
  - Story Board: Scene changes in the clip.
  - Subclips: Sections of files in the clip. These can be sections of the clip itself or other clips.

- **Sequence Details**
  - Properties: Standard sequence details, including GUID and name of clip.
  - Subclips: The subclips contained in the sequence.

**Playing Assets and Clips**

Follow these steps to play assets, clips, and sequences using the Player.

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand **All Assets**, and choose an Asset group.
3. From the Content pane, select the asset or asset containing the clip(s) you want to play.
4. Select the clip you want to play.
5. From the Toolbar, click the **Play** icon

The file opens in the player ready to play from its starting position.

**NOTE:** Because clips are loaded over HTTP (as opposed to streaming), they must be downloaded from the server. Download progress is shown with a black line in position slider of the Player pane.

In addition to the preceding method for playing a file, you can drag a file directly onto the MAS Player control panel.

---

**Table 8–3: Keyboard Shortcuts**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast Forward</td>
<td>No specific hot key for this (can use shuttle hot keys)</td>
</tr>
<tr>
<td>Go to Outpoint</td>
<td>O</td>
</tr>
<tr>
<td>Set Outpoint</td>
<td>SHIFT+O</td>
</tr>
<tr>
<td>Clear Outpoint</td>
<td>SHIFT+X+O</td>
</tr>
<tr>
<td>Shuttle</td>
<td>J - Decrease rate</td>
</tr>
<tr>
<td></td>
<td>K - set to 1x</td>
</tr>
<tr>
<td></td>
<td>L - increase rate</td>
</tr>
</tbody>
</table>

---
Managing Tracks

The MAS provides several audio and video track features that can be applied to the clips managed in the system, including the following:

- Add, remove, or reorder audio and video tracks associated with a clip
- Label tracks with language tags
- Apply aspect ratio conversion tags to clips
- Create a complex wrapper

See also *Managing Track Tags*.

Viewing Tracks

You can view tracks associated with proxies or clips in the Details pane.

**To view tracks:**
1. From the Navigation panel, expand All Assets.
2. Click the asset group you want.
3. From the Content pane, click the clip you want.
4. Click the Summary tab.
5. Click a track.

The track name, number, type, and other properties appear in the Track tab.

Editing Tracks

You can add tracks to clips managed by MAS. Once tracks are added, you can reorder the tracks within the clip and also remove any unwanted tracks from the clip.

Note the following:

- Adding, removing, and reordering of self-contained clips is not supported.
- The inpoint or outpoint of a subclip cannot be changed if it is used in at least one sequence.
- The MAS API allows you to create a new QuickTime header referencing any ordering of tracks. See the *Media Application Server API Programmer Guide* for details.

**To edit a track:**
1. From the Navigation panel, expand All Assets.
2. Click the asset group you want.
3. From the Content pane, click the clip you want.
4. Click the Summary tab.
5. Click a track.
6. Click the Edit icon.
7. Assign a Track Tag, if needed.
8. Click the Metadata tab, and complete the dialog as needed.

   Metadata values that appear in this dialog box differ depending on the metadata fields configured for it. See *Metadata Fields* for more information.
9. Click OK.
Viewing Asset Search Queries

You can manage asset search queries from the Asset app. For an overview and instructions on creating search queries refer to *Managing Search Queries*.

**To view asset search queries:**

1. From the Home page, click **Assets**.
2. From the Navigation panel, expand **Saved Asset Search Queries**.
3. Click an asset category.

The results are shown in the Content pane.
Chapter 9
Using the Browse App

This chapter provides instructions on how to use the Browse app to manage low-resolution versions (proxies) of full-resolution material from Spectrum, MediaDeck, MediaGrid, MediaPort, or a file-based Workflow System (WFS). Choose from the following topics:

- About Browse
- Viewing the Browse Summary
- Managing the Rhozet WFS Server
- Managing Proxy Generators
- Managing Notification Presets
- Managing Browse Generation Rules
- Searching for Assets
- Searching File Systems
- Viewing Scheduled Tasks
- Viewing Browse Jobs

About Browse

The Browse app provides automatic proxy generation and links low-res proxies to the corresponding full-res content and maintains metadata integrity. It also enables viewing of content over standard corporate networks, VPN, or Internet connections.

The ProBrowse application enables access to low-resolution media for previews, clip selections, research, and approvals. ProBrowse works seamlessly with servers and storage—Spectrum and MediaGrid—to provide a view of content stored on those systems from any desktop computer using only a standard web browser. Because ProBrowse automatically generates proxies, facilities can deploy browse capabilities using their current ingest processes, including baseband, transport streams, and FTP.

With ProBrowse writers and editors can access proxies during ingest and frame-accurately mark in and out points to create virtual or physical sub-clips. All the decisions they make are synchronized back to the high-res content immediately. To further streamline applications, approvers can receive links to content via e-mail and view it without leaving their desk.

ProBrowse supports all major video formats and bit rates including HD and SD media stored in systems using either QuickTime® or MXF. You can play the associated proxies on the MAS player. Using MAS, you can generate H.264 proxies with MediaPorts running with Spectrum or the Rhozet WFS™ file-based workflow system (WFS) and store them on an IPV SpectreView storage server for play out on an IPV proxy player.

NOTE: For information on the IPV storage server, refer to Managing the IPV Storage Server.

Viewing the Browse Summary

The Browse Summary is a series of panels that provide details about the Browse service. The following panels are provided:
Summary Panel: Shows if the Browse service is licensed and a count of Browse rules defined, enabled, and loaded.

Settings: Displays settings for the server that has configured for the Browse service. Click the Edit icon to edit server settings. Refer to Configuring Services for more information about server settings.

Troubled Hosts: Displays the IP address and connection status of the hosts having problems with browse rules.

Job Count Panel: Displays the status and count of Browse jobs.

Browse Alarms: Displays the ConditionType, alarmRaisedOn, and severity of any Browse alarms.

Job Information: Displays the srcData, progress, and status of Browse jobs. The jobs listed can be sorted by clicking on the available tabs.

WFS: Displays the IP address of the WFS server, whether or not proxies are enabled, and proxy job limits.

Proxy Generator: Displays the IP address, status, and license status of the Proxy Generator.

To view the Browse summary:
1. From the Home page, click Browse.
2. From the Navigation pane, click Summary.

Managing the Rhozet WFS Server

The Rhozet WFS is a client/server system for the distributed processing of inter-dependent tasks collected together and processed as a workflow. The WFS processes and stores jobs, which are collections of tasks, through a central and redundant Rhozet Workflow Engine (RWE). The work is consumed through distributed nodes called workflow nodes. These nodes, also referred to as services, include the content verification and transcoding.

Each Engine acts as a core consumer of jobs and a core distributor of tasks in the process of workflow control, management, and execution. The nodes act in a corresponding manner as consumers of tasks and enable the distributed processing of this work across one or more nodes (as a farm).

Requirements

IMPORTANT: Knowledge of other Rhozet products is assumed for completion of tasks described in this chapter.

To use the WFS with MAS, ensure that the following requirements are met:

- Rhozet WFS running on Windows.
- Network connectivity between Windows (with Rhozet WFS) and MAS.

NOTE: Refer to your product documentation for complete installation and configuration information.

Using File-based Workflows for Proxy Generation

You can use the Rhozet WFS (1.4.2) to generate proxies, thumbnails, and storyboards. The basic workflow is as follows:
• MAS consumes a job from its job queue and hands it over to WFS.
  The consumption of the job depends on the health of the WFS IP address. If it is not
  reachable, the job is not consumed. In addition, if you have reached the maximum
  number of jobs that WFS can process, then the job stays in the queue.

• WFS processes the job.

• MAS periodically checks for the status of the job.

• MAS internally posts "<updateProxyStructure/>" to update the proxy package to the hi-
  resolution clip.

• MAS marks the job as "Complete" or "Error" based on the feedback from WFS.

The basic steps for using WFS are as follows:
1. Configure a Rhozet WFS in MAS.
2. Configure the number of proxy jobs that WFS can process based on the number of
   available transcode nodes.

**NOTE:** WFS is configured to process one job at a time. If you need to process more jobs in parallel,
you’ll need more transcode nodes.

3. Create, save, and run a Browse Generation rule.
4. After running the rule, check the status of the Browse job.

Registering the Rhozet WFS Server

The first step in setting up your Rhozet WFS server is to register it in MAS. You do so in the Setup app.

**To register WFS server:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Rhozet WFS Server**.
3. From the Toolbar, click the **Create** icon.
4. Complete the dialog box as follows:
   - **Name**: The name is Rhozet WFS server.
   - **IP Address**: The first IP address of the WFS server.
   - **IP Address 2**: The second IP address of the WFS server.
   - **Port**: The port for the WFS server.
   - **Max Job Limit for Transcode**: Select the maximum number of transcode jobs consumed in parallel.
   - **Max Job Limit for QC**: Select the maximum number of Quality Control (QC) jobs that can be consumed in parallel.
   - **Max Proxy Job Count**: Select the maximum number of proxy jobs that can be consumed in parallel.
   - **Current Count of Transcode Job**: The current count of transcode jobs in progress.
   - **Current QC Jobs Count**: The current count of QC jobs in progress.
   - **Current Proxy Jobs Count**: The current count of proxy jobs in progress.
   - **Enable Transcode**: Select Yes to enable the Transcode Service on MAS. See Managing Rhozet WFS Transcode Presets for more information.
   - **Enable QC**: Select Yes to enable QC Service on MAS. See Managing Quality Check Rules for more information.
Enable Proxy: Select Yes to enable Proxy Service on MAS.

5. Click OK.

Successful registration of a Rhozet WFS server adds three scheduled tasks to the Scheduled Tasks list under the Status tab: ConsumeRhozetQCJob, ConsumeRhozetTCJob, and ConsumeProxyJob (also depends on the services enabled in the Rhozet Server window). These scheduled tasks poll the Transcode, QC, and proxy job queue to see if there are any job to be processed by the Rhozet WFS.

6. After registering the Rhozet WFS server, you can create Quality Check rules. See Managing Quality Check Rules for information.

Editing the Rhozet WFS Server

To edit the WFS server:
1. From the Home page, click Browse.
2. From the Navigation panel, click Rhozet WFS Server.
3. From the Content pane, click the Rhozet WFS Server.
4. From the Toolbar, click the Edit icon.
5. Change any settings as needed.
6. Click OK.

Filtering the Rhozet WFS Server

To filter the WFS server:
1. From the Home page, click Browse.
2. From the Navigation panel, click Rhozet WFS Server.
3. From the Content pane, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now icon.
The results are shown in the Content pane.

Deleting the Rhozet WFS Server

Successful deletion of a Rhozet WFS server removes three scheduled tasks from the Scheduled Tasks list under the Status tab:

- ConsumeRhozetTCJob
- ConsumeRhozetQCJob
- ConsumeRhozetProxyJob

If a single Transcode preset is defined in MAS, the Rhozet WFS server will display an error message during delete operation. In this case, you need to perform “force delete” or delete the created Transcode presets in MAS before deleting the Rhozet server.

To delete the WFS Server:
1. From the Home page, click Browse.
2. From the Navigation panel, click Rhozet WFS Server.
3. From the Content pane, click the Rhozet WFS Server.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, select **Force Delete**.
6. Click **OK**.
7. Click **Yes**.

**Managing Proxy Generators**

In an MAS environment, the ProBrowse hardware consists of:
- ProxyGenerators
- Media Application Server

The ProBrowse system is responsible for managing and distributing proxy creation tasks to Proxy Generators. ProxyGenerators are used to generate the low resolution proxies of high-resolution content, as directed by the ProBrowse system.

![ProBrowse and ProxyGenerator diagram](image)

*Figure 9–1: ProBrowse and ProxyGenerator*

Each ProxyGenerator is capable of creating proxies from two simultaneous SD streams or one HD stream. Proxies are created from either incoming streams from Spectrum media servers or files placed on MediaGrid or Spectrum.

To create proxies, you must have either the ProxyGenerator or a ProBrowse system installed.

**Proxy Generation Process**

When a ProBrowse system is installed with MAS, the proxy generation process is as follows:
1. ProBrowse checks to see if any clips need to be proxied by sending an HTTP query to the HTTP server that resides on the Media Application Server.
2. If proxy jobs are found, the Media Application Server “tells” the ProxyGenerator:
   - Where to get the source clip (MediaGrid or Spectrum)
Where to write the proxies (BrowseStore or MediaGrid)

3. Rules created in the UI specify where the source and destination files reside.

Figure 9–2: Proxy Generation Process

Requirements

- ProBrowse hardware requires at least one ProxyGenerator
- ProxyGenerator minimum version is 2.5
- ProxyGenerator must be licensed
- MAS requires a license for the Browse Service

Naming the Proxy Directories

The location of the proxy directories are tied to the destination directory defined when you create a Browse Generation rule. You specify the name with which the proxy directory will be created under the selected destination folder. MAS provides three options: none, clipID, or zip.

To name proxy directories:

1. From the Home page, click Settings.
2. From the Toolbar, click the Edit icon.
3. From the Navigation panel, click the Browse Service.
4. From the Proxy Directory Model drop-down menu, select one of the following:
   - **None**: Uses the specified directory without creating any folder under it.
   - **zip**: Creates a directory using the last three letters of the clip/folder name and a subdirectory with the clip name and the clip under it. The default is `.zip`. 
Chapter 9 Using the Browse App

Managing Proxy Generators

- **clipID**: Creates a directory using the clipID.

5. Click **OK**.

**Using MediaPort for Proxy Generation**

If you have MediaPort model MediaPort 760(1) or MediaPort 730(1) with a proxy card, you can generate H.264 proxies in MAS with Spectrum 6.4.1. The H.264 proxy replaces the MPEG-1 proxy. Note that MediaPort proxies do not generate picons or storyboards. They use a file-based tool to generate thumbnails and storyboards.

MediaPort proxies are found in the same location as those used by the MediaPort 5300 series. For example:

- **test.mxf**: The MXF file.
- **Media.dir**: Directory for essences.
- **Proxy.dir**: Directory where proxy is recorded.
- **test.mov**: A QT wrapped H.264 proxy that is playable via HTTP. This is based on the wrapper selected created when you configured the player.

To **use a MediaPort for proxy generation (overview)**:

1. Plug in the MediaPort.
2. Create a Player through SystemManager.
3. Specify a QuickTime wrapper type.
   
   **NOTE**: If you use an MXF wrapper, you will not be able to play it in the QuickTime Player.

4. Manage the folder in MAS.
5. Record the proxy.

Using SystemManager, record the proxy for the selected MediaPort.

6. Select the **MPEG 4 Proxy Record** option.
7. In the **Track X: Proxy H.264** section, specify the various properties for the wrapper, such as bit rate, audio bit rate, proxy logo, Timecode burn-in, etc.

Refer to the “Player Configuration” chapter in the *Harmonic SystemManager User Guide* for more information.

**Using SystemManager for Proxy Generation**

The ProxyGenerator is the engine for creating low-resolution proxies of your video content. It is managed by the SystemManager and consumes jobs from the Media Application Server. It requires its own run-time license.

In order for MAS to discover the ProxyGenerator, the SystemManager that is managing the ProxyGenerator needs to be imported into the Pro Application Portal. Once imported and viewable in the Pro Application Portal, you configure the ProxyGenerator to consume jobs from MAS.

**Configuring ProxyGenerators**

To **configure a ProxyGenerator (overview)**:

1. Install the ProxyGenerator hardware.
2. Configure the network settings.
3. Install the ProxyGenerator license.
4. Verify that the SystemManager can see the ProxyGenerator in its network. If not, manually add the ProxyGenerator as a device.
5. Import the SystemManager into the UI.
6. Verify that you can see the ProxyGenerator in the UI.
7. Enable the ProxyGenerator to consume jobs from MAS.
8. Create and run a Browse Generation rule.

**Enabling ProxyGenerators to Consume Jobs**

To enable ProxyGenerators to consume jobs:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **ProxyGenerators**.
3. From the Content pane, click the ProxyGenerator you want.
4. From the Toolbar, click the **Configure JobScaler/ProxyGenerator** to consume jobs from this MAS icon.
5. Click **OK**.

**Editing ProxyGenerators**

To edit ProxyGenerators:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **ProxyGenerators**.
3. From the Content pane, click the ProxyGenerator you want.
4. From the Toolbar, click the **Edit** icon.
5. Edit the **Name** of the device, if needed.
6. Click **OK**.

**Filtering ProxyGenerators**

To filter ProxyGenerators:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **ProxyGenerators**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. To perform a search, click the **Search Now** icon.
The results are shown in the Content pane.

**Deleting ProxyGenerators**

To delete ProxyGenerators:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **ProxyGenerators**.
3. From the Content pane, click the ProxyGenerator you want.
4. From the Toolbar, click the **Delete** icon.
5. To delete even if jobs are in progress, select **Force Delete**.
6. Click **OK**.
7. Click Yes.

**Rebooting ProxyGenerators**

To reboot ProxyGenerators:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **ProxyGenerators**.
3. From the Content pane, click the ProxyGenerator you want.
4. From the Toolbar, click the **Reboot Server** icon.
5. Click **OK**.
6. Click **Yes**.

**Managing Notification Presets**

Presets are information files that you set up and store for regular inclusion in file management rules. Notification presets are used to notify a user when certain events occur, such as when a file is closed captioned or an error occurs. Once created, presets can be added to the various file and clip management rules. You can also select one or more types of notification presets for the same event.

Notification presets can be managed from the Browse app.

For an overview and instructions on managing notification presets, refer to *Managing Notification Presets*.

**Viewing notification presets:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Notification Presets**.

The results are shown in the Content pane.

**Managing Browse Generation Rules**

You configure Browse Generation rules to create proxies and picons at set times or when specified events occur. The files are created and stored in the destination folder based on the Browse Generation Rule that was created.

Once proxies are created, you use the UI to view and manipulate files with associated proxies, create a sequence of clips, or export the sequence as an Edit Decision List (EDL) that can be edited in Apple Final Cut Pro. You can also add or change metadata and mark inpoints and outpoints on clips for playback with the MAS Player.

**Browse Generation Rule Workflow**

The following example shows a workflow for using a Browse Generation rule to create low-resolution files of video content known as proxies. Specifically, use the Proxy Generation Service and the ProxyGenerator to create proxies and then use the proxy file to generate an EDL file.

1. From the MediaGrid /source directory to the /proxies directory.
2. From the MediaGrid /source directory to BrowseStore.
3. From the MediaGrid /proxies directory to the /xml directory.
Creating Browse Generation Rules

Set up Browse Generation rules to create proxies and picons at set times or when specified events occur. Browse Generation rules can be run immediately after they have been created, or run from a saved rule, or they can be run at a scheduled time. Refer to Running Browse Generation Rules after creating the rule.

To create Browse Generation rules:
1. From the Home page, click Browse.
2. From the Navigation panel, click Browse Generation Rules.
3. From the Toolbar, click the Create a New Proxy Rule icon.
4. In the New Proxy Rule dialog box, Complete the Properties dialog box as follows:
   - Name: Enter a name for the new rule.
   - Enable Rule: Select this check box to enable the Browse Generation rule.
   - Include Subfolders: Select this check box to also generate jobs from the subfolders within the source folders you choose.
   - Source Folder(s): Navigate to and then select the folder from which you would like to generate proxies. To open a nested folder, click the folder icon to expand it.
   - Destination Folder: Navigate to and then select the folder that you would like to use to store proxies.
5. Click the Job Settings tab, and complete the Job Settings dialog box as follows. The options differ depending on the Transcoder Type: ProxyGenerator or WFS.
   - ProxyGenerator
     - Transcoder Type: The default is ProxyGenerator.
     - Job Type: Select the type of browse job: All, Proxy Only, Picon Only, Scene Changes Only, and Picon and Scene Changes Only.
     - Thumbnail Quality: Indicates the quality of the thumbnail image (in dots per inch).
     - Thumbnail Width: Type or select the preferred width (in pixels) of the resulting thumbnail image for the job type. Thumbnail images are created for easy identification of files.
     - Thumbnail Height: Type or select the height (in pixels) of the thumbnail image.
     - Timeout: Amount of time the job waits until it gets a response from the ProxyGenerator, MediaPort, or WFS.
     - Thumbnail Frame Number: Type or enter the number of the frame to use as the thumbnail image. If no value is entered, the default value will be used.
     - Scene Change Setting: This value represents the “cut level,” or the amount of change between a series of images that must be present before a scene change occurs. Enter a number between 0 and 100.
     - Scene Change Hysteresis: This value represents the “fade time,” or the amount of time required for an image to stabilize before allowing another scene change. Enter a number between 0 and 100.
     - Underburn: Choose the style of underburn to display beneath a proxy while it is played in the Player pane. If you specify an Underburn URL, the logo file must be a JPEG (.jpg) compressed picture. The logo must be on a Samba share server.

**NOTE:** The default setting should be acceptable for most cases. Lowering this value below 65 will result in a poor quality image, and increasing this above 85 may only slightly improve the image quality while greatly increasing the file size.
that is accessible by a Browse Generator for ProBrowse that accepts a guest login.

The ProBrowse system supports the capability to replace the logo in the underburn timecode with another image. See the ProBrowse Installation and User Guide for more information.

- **Enable Filter**: Select this check box to enable the File Name Pattern and File Ignore Pattern filter.

- **Underburn URL**: Enter the location of the underburn image. Ensure that the proxy generator can reach it.

- **File Name Pattern**: Define a pattern using a proxied expression. Enter special characters so that only files with certain name formats are transcoded. The Filter check box must be selected to enter an expression.

**Table 9–1: File Name Patterns**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>*abc</td>
</tr>
</tbody>
</table>

**NOTE:** The File Name Pattern applies to file names only and not to folders.

- **File Ignore Pattern**: Define a regular expression for ignoring a file type. See Ignoring Patterns in Filenames and Notification Types for more information.

- **Timecode Mode**: Select the Underburn mode to show for the proxy: Source or Use Replacement mode.

- **Max Retries**: Select or type the number of times to retry the proxy job in case of failure.

- **Wait Time**: Select the amount of time in seconds to wait between retries.

- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

- **WFS Options**
  - **Transcoder Type**: Choose WFS for file-based proxy generation, such as using an IPV storage server as the destination.

  See Managing the IPV Storage Server for more information on IPV storage servers.

  - **Job Type**: Select the type of browse job: All, Proxy Only, Picon Only, Scene Changes Only, and Picon and Scene Changes Only.

  - **Timecode Mode**: Select Use Source Time Code or Use Replacement Timecode.

  - **Video Frame Size HD**: Select the frame size for HD video.

  - **Video Frame Size SD**: Select the frame size for SD video.
• **Proxy Video Bit Rate**: Select the bit rate for proxies.

• **Audio Bit Rate**: Select the audio bit rate.

• **Key Frame Interval**: QuickTime uses “frame differences” to compress moving images. It is the process of determining what information has changed from a starting frame (called a “key frame”) to subsequent frames. The key frame contains all of the information for an image. Subsequent frames contain only the information that has changed.

You can specify the key frame interval. If you specify a large key frame interval, the quality of your movie will be very low because most frames are generated from others. A smaller key frame interval results in a larger movie with a higher data rate.

• **Generate IPV Proxy**: Select Yes to generate an H.264 low-resolution proxy that will be stored on an IPV server. See *Managing the IPV Storage Server* for more information.

• **Wrapper Type**: Select QT or MXF OP1a LL.

**NOTE**: MXF OP1a LL cannot be played on QuickTime in MAS.

• **Burned-in Time Code Area**: Select the area where the burned-in time code should appear: None, Upper Center, Lower Center, Under Center, Upper Left, Lower Left, Upper Right, Lower Right, or Under Right.

• **Max Retries**: Select or type the number of times to retry the archive job in case of failure.

• **Wait Time (seconds)**: Select the amount of time in seconds to wait between retries.

• **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

**Events and Schedule**

• **Proxy When Events Occur**: Select this check box to monitor the specified folders and then proxy when events occur.

• **Enable Schedule**: Select this check box schedule a periodic task to ensure that proxies are generated.

• **Polling Schedule**: Set the polling schedule for proxy generation rules.

**Notification**

• **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket /http based on the **Job States** below.

• **Job States**: Select the job states about which you want to receive notifications.

6. Click the **Metadata Filter** tab.

Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See *Adding Metadata Fields* for more information.

7. To evaluate the metadata expression when the rule is run, do the following:
   a. In the **Evaluate Metadata Filter** option, select Yes to trigger the rule on any metadata value change based on the fields added to the **Metadata Filter**.

   b. In the **Logical Operator for Filter** menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
Or: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.

c. Click Add.
d. Complete the Properties dialog box as follows:
   1. **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
   2. **Operator**: Select the logical operator to apply to the metadata expression defined in the Value(s).
   3. **Type**: A read-only parameter that presents different Value options depending on the Name parameter you selected.
   4. **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the Name parameter you selected.

e. When you are done building the metadata filter, click OK.

8. To add more metadata expressions, repeat Step 7.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click Delete.
   c. Click Yes.

10. Click OK.

   MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to Running Browse Generation Rules.

### Editing Browse Generation Rules

**To edit Browse Generation rules:**

1. From the Home page, click Browse.
2. From the Navigation panel, click Browse Generation Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Edit icon.
5. Change the settings as needed.
6. Click OK.

**NOTE:** Changes made to rules take effect in approximately 20 seconds. To check if the rule is loaded in the rules engine, from the Home page, click Appliance, select the server node, and click the Server Status tab. Rules applied to the node and the status of these rules are listed in the Rules Service section.

### Duplicating Browse Generation Rules

**To duplicate Browse Generation rules:**

1. From the Home page, click Browse.
2. From the Navigation panel, click Browse Generation Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

### Enabling or Disabling Browse Generation Rules

**To enable/disable Browse Generation rules:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Browse Generation Rules**.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.
6. Click **OK**.

### Running Browse Generation Rules

Running a Browse Generation rule executes browse generation from the designated folder. It is a good practice to run a rule immediately after you have created it.

**To run a Browse Generation rule:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Browse Generation Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Run** icon.
5. Click **OK**.

### Filtering Browse Generation Rules

Filter Browse Generation rules to narrow the file deletion information in the Content pane.

**To filter a Browse Generation rule:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Browse Generation Rules**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

### Deleting Browse Generation Rules

**To delete a Browse Generation rule:**
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Browse Generation Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Delete** icon.
5. To force deletion of the rule even if objects are in use, select **Force Delete**.
6. Click **OK**.
7. Click **Yes**.
Searching for Assets

To search for assets:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Search Assets**.

The results are shown in the Content pane.

Searching File Systems

To search file systems:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Search File Systems**.

The results are shown in the Content pane.

Viewing Scheduled Tasks

You can manage scheduled tasks from the Browse app.

For an overview and instructions on managing scheduled tasks, refer to *Managing Scheduled Tasks*.

To view scheduled tasks:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Scheduled Tasks**.

The results are shown in the Content pane.

Viewing Browse Jobs

You can manage Browse Jobs from the Browse app.

For an overview and instructions on managing jobs, refer to *Managing Jobs*.

To view Browse jobs:
1. From the Home page, click **Browse**.
2. From the Navigation panel, click **Browse Jobs**.
3. Expand **Jobs by Status** and make a selection.

The results are shown in the Content pane.
Chapter 10
Using the Closed Caption App

This chapter explains how to use the Closed Caption app to extract closed captions and subtitles from files located in MAS folders. Choose from the following topics:

- About Closed Captions
- Before You Begin
- Managing Notification Presets
- Managing Closed Caption Rules
- Searching Assets
- Searching File Systems
- Managing Scheduled Tasks
- Managing Closed Caption Jobs

About Closed Captions

The Closed Caption app leverages the CCS from third-party vendors. Software applications from these vendors process encoded media files, extract closed captions, and recover industry-standard .stl, .scc, or .cap captioning files. They also produce the text information from the closed captions which can then be imported into a media management system to aid in media indexing and searching on MAS.

Closed Caption

A closed caption is used for subtitles that are decoded and displayed as text by the TV receiver, such as North American Line 21 and World System Teletext. Closed captions typically display a transcription of the audio portion of a program as it occurs (either verbatim or in edited form), sometimes including non-speech elements.

For all types of NTSC programming, closed captions are encoded into Line 21 of the vertical blanking interval – a part of the TV picture that sits just above the visible portion and is usually unseen. For ATSC programming, three streams are encoded in the video: two are backward-compatible Line 21 captions, and the third is encoded in EIA-708 format. Captioning is transmitted and stored differently in PAL and SECAM countries, where teletext is used rather than Line 21, but the methods of preparation are similar.

Closed Caption Channel

The Line 21 data stream can consist of data from several data channels multiplexed together. Field 1 has four data channels: two Captions (CC1, CC2) and two Text (T1, T2). Field 2 has five additional data channels: two Captions (CC3, CC4), two Text (T3, T4), and Extended Data Services (XDS). Due to bandwidth problems, the U.S. Federal Communications Commission (FCC) has recommended that bilingual programming provide the second caption language in CC3. Telemundo, for example, provides English subtitles for many of its Spanish programs in CC3.
Closed Caption Rules

The CCS runs as a Windows Service on a server. CCS consumes files stored on a MAS managed server according to user-created Closed Caption rules created in the UI.

CCS then extracts the closed-captioning from a broadcast-encoded media file, creates a closed-captioning file that can be re-edited and reused, and then stores the file and its metadata to a destination folder on MAS. If required, the file can be played out using the MAS player and the closed captioning verified.

In addition, the text-based caption information is indexed so that users can search for the file using closed-caption phrases.

Workflow

An example workflow for using the CCS in MAS is as follows:

1. Store, ingest, or copy a set of files to a source folder on a managed server on MAS. The source folder contains the files from which closed captioning information will be extracted by the CCS.
2. Define a Closed Caption rule in MAS to extract the closed caption information from files in the source folder.
3. MAS discovers the file in the source folder and places them in a “job queue.”
4. CCS polls MAS for jobs in the queue. When a job is available, CCS consumes the job from the source folder for processing on the Windows server.

   The closed caption (CC) file consists of a collection of CC instances from the MAS files. Each of these CC instances contains a text string for the closed captioning, the language of the CC, the beginning and ending frame number, and the associated clip instance. These frame numbers are all in range between the first and the last frames of the clip, and they do not overlap.

5. As CCS processes the job, the progress is displayed in the Jobs app as a percentage of job completion. If the job is successful, CCS posts a “Completed” message in the MAS Status window. If the job fails or is terminated, an “Error” message is posted to the MAS Jobs app.

6. When the job is successful, CCS generates the following information from the files: the closed caption channel, the caption type (CC or teletext), the language, and the broadcast subtitle formats (STL, CIN, SCC, or CAP). This information is moved to the specified destination folder in MAS.

   For example, CCS will create one XML file and one STL file per language in the destination folder as follows:
   - ClosedCaption_En.xml
   - ClosedCaption_En.stl
   - ClosedCaption_ESP.xml
   - ClosedCaption_ESP.stl

7. You can now perform the following tasks with the files:
   - Play the closed caption clip
   - Generate or save new inpoints or outpoints to master clips
   - Create subclips, picons, and sequences
   - Generate EDL
Before You Begin

This section describes an example setup for using the CCS on MAS.

Requirements
To use the Closed Caption Service with MAS, ensure that the following requirements are met:

- Windows server running the third-party CCS application
- Windows server properly configured to communicate with MAS
- Network connectivity between the client system and MAS.

Communicating with MAS

The Media Application Server accepts XML/HTTP via HTTP post method. Any language can be used to post the XML with a given user and password.

User: browse
Password: browse
URL: http://ip/api/
The ContentType="type/xml"

Accessing Media Content

Users can access media content that resides on the:

- Local drive of the server where the CCS is installed
- Shared network folder
- FTP server

You need to register the local drive, network folders, and FTP servers with the server.

API

For information on the Application Programming Interface for the CCS, refer to the Media Application Server API Programmer’s Guide 3.6 for information.

Managing Notification Presets

Presets are information files that you set up and store for regular inclusion in file management rules. Notification presets are used to notify a user when certain events occur, such as when a file is closed captioned or an error occurs. Once created, presets can be added to the various file and clip management rules. You can also select one or more types of notification presets for the same event.

You can manage notification presets from the Closed Caption app.

For an overview and instructions on managing notification presets, refer to Managing Notification Presets.

Viewing Notification Presets

To view notification presets:
1. From the Home page, click ClosedCaption.
2. From the Navigation panel, click Notification Presets.
   The results are shown in the Content pane.

Managing Closed Caption Rules

This section explains how to create, edit, and delete closed caption rules. Closed Caption rules enable you to access content in a storage server and leverage rules-based workflows to apply closed captions to folders and files. You can define a rule to closed caption files based on the following:

- System events (FILE_CLOSED_FOR_WRITE_READY_FOR_TRANSFER, FILE_RENAMED, or FILE_DISCOVERED)
- Periodic schedule
- Metadata based triggering
- On-demand
- Set Metadata

Creating Closed Caption Rules

Create Closed Caption rules to extract closed captions or subtitles from clips, subclips, or keyframes.

To create closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. From the Toolbar, click the Create icon.
4. Complete the Properties tab as follows:
   - Name: Enter a name for the new rule.
   - Enable Rule: Select this check box to enable the Closed Caption rule.
   - Include Subfolders: Select this check box to also generate jobs from the subfolders within the source folders you choose.
   - Source Folder(s): Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
   - Destination Folder: Navigate to and then select the folder that you would like to use for the destination.
5. Click the Job Setting tab and complete as follows:
   - General
     - Enable Filter: Select this check box to enable the File Name Pattern filter. Use this filter to choose specific files in folders targeted for CC.
     - File Ignore Pattern: Define a regular expression for ignoring a file type. See Ignoring Patterns in Filenames and Notification Types for more information.
     - Wait Time (seconds): Select the amount of time to wait between retries.
- **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are closed captioned.

**Table 10–1: File Name Pattern**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.(mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.(mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>.*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>abc</td>
</tr>
</tbody>
</table>

**NOTE:** The File Name Pattern applies to file names only and not to folders.

- **Max. Retries**: Type or select the number of times the Closed Caption rule should be retried in the event of a failure. The maximum retry count is 100.
- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.
- To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to **Metadata Fields** for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the **MetaData Field** setting.
- **Events and Schedule**
  Events are the actions taken on clip that will generate notifications. Based on those notifications/ events, the rule engine triggers the rule.
  - **Handle Events**: Select **Yes** to trigger the rule on the `FILE_CLOSED_FOR_WRITE_READY_FOR_TRANSFER` or `FILE_DISCOVERED` notification types, depending on the rule. When this option is disabled (not selected), no event will trigger the rule. See **Managing File Notification Rules** for more information.
  - **Enable Schedule**: Select this check box to schedule a periodic task to ensure closed captions are created.
  - **Schedule**: Set the schedule for closed caption generation.
- **Notification**
  - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the **Job States** below.
Job States: Select the job states about which you want to receive notifications.

Closed Caption Channel

Add: Click to add the closed caption file to assign to this channel.

Caption Type: Select closed caption (CC) or Teletext.

CC Type: Choose the closed caption service type: Each language uses one caption service:

CC1: Captioning channel 1 (field 1, channel 1) = primary language.

CC2: Captioning channel 2 (field 1, channel 2) = non-synchronous additional language.

CC3: Captioning channel 3 (field 2, channel 1) = secondary language.

CC4: Captioning channel 4 (field 2, channel 2) = non-synchronous additional language.

Language: For bilingual programming, choose the second caption language.

TIP: By default, 485 languages are listed in the Language Tag menu. You can modify this list. Go to Modifying Languages for Transcoding Audio Tracks for information.

Modify: Click to modify the closed caption channel.

Delete: Click to delete the closed caption channel.

6. Click the Metadata Filter tab.

Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Chapter 19, Metadata Fields for more information.

7. To evaluate the metadata expression when the rule is run, do the following:

a. In the Evaluate Metadata Filter option, select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.

b. In the Logical Operator for Filter menu, select one of the following:

   And: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.

   Or: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.

c. Click Add and complete the tab as follows:

   Name: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.

   Operator: Select the logical operator to apply to the metadata expression defined in the Value(s).

   Type: A read-only parameter that presents different Value options depending on the Name parameter you selected.

   Value: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the Name parameter you selected.

d. When you are done building the metadata filter, click OK.

8. To add more metadata expressions, repeat Step 7.

9. To delete a metadata filter, do the following:

   a. Click the metadata filter you want to delete.

   b. Click Delete.
c. Click Yes.

10. Click OK.

MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to Running Closed Caption Rules.

Editing Closed Caption Rules
To edit closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. Click Closed Caption Rules.
4. From the Content pane, click the rule you want.
5. From the Toolbar, click the Edit icon.
6. Change the settings as needed.
7. Click OK.

Duplicating Closed Caption Rules
To duplicate closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Duplicate icon.
5. Change the settings as needed.
6. Click OK.

Enabling or Disabling Closed Caption Rules
To enable/disable closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.

Running Closed Caption Rules
You can immediately run a rule, even if a schedule has already been specified.
To run closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Run icon.
5. Click OK.

If successful, the files are stored in the destination folder you specified.
NOTE: Clips that have been previously closed captioned for the defined languages are not closed captioned again during the Run Now operation.

Filtering Closed Caption Rules
Filter Closed Caption rules to narrow the Closed Caption information in the Content pane.

To filter closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click Search Now.

The results are shown in the Content pane.

Deleting Closed Caption Rules
To delete closed caption rules:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, click Closed Caption Rules.
3. Click Closed Caption Rules.
4. From the Content pane, click the rule you want.
5. From the Toolbar, click the Delete icon.
6. Click the check box to force deletion of the rule and then click OK.

When this check box is selected, the system deletes the rule without checking for any conflicting conditions.
7. Click OK.

Searching Assets
To search assets:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, expand Search Assets.
3. From the Content pane, locate the asset you want.

Searching File Systems
To search file systems:
1. From the Home page, click Closed Caption.
2. From the Navigation panel, expand Search File System.
3. From the Content pane, locate the file system you want.
Managing Scheduled Tasks

A scheduled task is a system- or user-designated action to be performed by MAS. For example, backing up the database, checking the server node status, reconciling transfer schedules, and reporting on storage watchers.

You can manage scheduled tasks from the ClosedCaption app.

For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

Viewing Scheduled Tasks:

To view scheduled tasks:
1. From the Home page, click ClosedCaption.
2. From the Navigation panel, click Scheduled Tasks.

The results are shown in the Content pane.

Managing Closed Caption Jobs

You can manage Closed Caption jobs from the ClosedCaption app.

For an overview and instructions on managing jobs, refer to Managing Jobs.

Viewing Closed Caption Jobs

To view closed caption jobs:
1. From the Home page, click ClosedCaption.
2. From the Navigation panel, click ClosedCaption Jobs.
3. Expand Jobs by Status and make a selection.

The results are shown in the Content pane.
Chapter 11
Using the Database App

This chapter provides instructions on how to use the Database app to manage the MAS database status, backup, and restore functions. Choose from the following topics:

- About the MAS Database
- Managing Log Queries
- Backing up the Database
- Restoring the Database
- Purging the Database

About the MAS Database

The Database app lets you perform database maintenance tasks, such as backing up and restoring the database. The MAS database contains audit log tables, job tables, and event logs that contain time-sensitive information such as user actions or jobs executions.

Status

The Status tab shows a detailed view of log queries for the database. Each event log shows the name of the event, time of occurrence, a color-coded severity level, event type, and device. You can also purge the database to clean up specific tables.

DB Backup

The DB Backup tab provides functions for backing up a MAS database. You can back up a database to a local or a remote location. The server mounts the specified URL and backs up the database into a file with a time stamp.

DB Restore

The DB Restore tab provides functions for restoring a MAS database. If the database is corrupted, you can restore a previous version to get MAS up and running.

Managing Log Queries

You can determine if the MAS database has a critical event by using the Status tab.

Viewing Log Queries

To view log queries:
1. From the Home page, click Database.
2. Click the Status tab.
3. Review the list of events as follows:
   - Name: Displays a short message about the selected event.
   - Time: Displays the time at which the event was recorded by MAS.
   - Severity: Displays the severity level of the event.
Clearing Events

To clear events:
1. From the Home page, click **Database**.
2. Click the **Status** tab.
3. To clear one event, do the following:
   a. Select the event
   b. From the Toolbar, click **Clear Event**.
   c. Click **OK**.
4. To clear all events, do the following:
   a. Select the event
   b. From the Toolbar, click **Clear All Events**.
   c. Click **OK**.

Backing up the Database

Follow these instructions to back up the database to a remote or local location.

**NOTE:** It is recommended that you configure the Media Application Server to back up the database to a remote location.

To backup the database:
1. From the Home page, click **Database**.
2. Click the **DB Backup** tab.
3. Complete the dialog box as follows:
   - **Local**: Back up the database to the MAS server. The location is `/opt/msf/store/backup/`. There is automated nightly backup process, so to avoid confusion, you can identify the backups by their timestamp.
   - **Standalone**: `/mnt/<StandAlone Server IP>/backup`.
   - **HA**: `/mnt/<HA VIP>/backup` on the Media Application Server
   - **Cluster**: `/mnt/<DB VIP>/backup`
   - **Remote**: Back up the database to a remote location.
     - **URL**: Use the following format: `\<IP address>\<fs0>\<directory>`
     - **User**: Enter the CIFS user’s name.
     - **Password**: Enter the CIFS user’s password.
     - **Domain**: Enter the CIFS user’s domain.
     - **Mount Type**: Select CIFS.
   - **Schedule**: Select **Now** to back up the database now or **Later** and schedule the backup for a later time.
4. Click **OK**.
Restoring the Database

The DB Restore function restores the database to an older version of data file. You can restore the database from a remote or local location.

1. From the Home page, click **Database**.
2. Click the **DB Restore** tab.
3. Complete the dialog box as follows:
   - **Remote**: Restore the database from a remote location.
     - **URL**: Use the following format: `\<IP address>\<fs0>\<directory>\back.sql`.
     - **User**: Enter the CIFS user’s name.
     - **Password**: Enter the CIFS user’s password.
     - **Domain**: Enter the CIFS user’s domain.
     - **Mount Type**: Select CIFS.
   - **Local**: Restore the database from the MAS server.
     - **Backup Files**: Select the backup files to restore.
4. Click **OK**.

Purging the Database

By default, the Media Application Server retains data in time-sensitive data for seven days. You can purge the database to clean up audit log tables (stores a list of executed tasks that are marked for an audit), job tables (stores a list of processed jobs), and event logs that contain time-sensitive information (such as user actions or jobs executions).

For general installations, data is purged every seven days to keep the data set small. For existing installations, please set the **Database Purge Cut Off Days** parameter to meet your needs. See **Settings > General**.

Follow these steps to purge data in the database.

1. From the Home page, click **Database**.
2. Click the **Status** tab.
3. From the Toolbar, click the **Purge Database** icon.
4. Complete the filter as follows:
   - **Time**: Selects events between the specified date/time.
   - **Severity**: Selects a severity threshold.
   - **Event Type**: Selects an event type.
   - **Device**: Selects the database on this device.
   - **Short Message**: Selects messages (according to the Name column in the Log Queries tab) with this content.
5. Depending on the option selected, modify the filter using the following operators:
   - **Like**: Select to perform character matching and return substrings.
   - **Not Like**: Select to specify filter results that are not like the characters or substrings.
   - **=**: Select to return an exact match.
   - **!=**: Select to specify filter results that are not equal to.
   - **<=**: Select to specify filter results which are less than or equal to.
   - **>=**: Select to specify filter results which are greater than or equal to.
   - **>**: Select to specify filter results which are greater than.
6. Click OK.

The data will be purged when the Database Purge scheduled task runs, or you manually run the schedule task. The database will reclaim reusable space when the scheduled task runs.
Chapter 12
Using the Dashboard App

This chapter provides instructions for using the Dashboard app. Choose from the following topics:

- About the Dashboard
- Managing the Dashboards
- Creating Custom Dashboards

About the Dashboard

The Dashboard app presents a high-level view of MAS status. Three default Dashboards are provided: Default Grid, Jobs, and Events. You can create, modify, and delete Dashboards to suit your needs for system monitoring.

Dashboard information can be presented in tables, graphs, or charts, which are all selectable from the cell’s View menu.

Default Grid Dashboard

The Default Grid, accessible through the defaultGrid tab, presents a six-cell configurable snapshot view of the following:

- Space by Storage Servers
- Process Status
- Media Count
- TransferJobs by Status
- Job Counts per Queue
- Troubled Hosts

Jobs Dashboard

The Jobs Dashboard, accessible through the Jobs tab, presents a four-cell view of the following job events:

- Job Count per Queue
- Completed TransferJobs by Type
- Last n in progress transfers
- Error TransferJobs by Type

Events Dashboard

The Events Dashboard, accessible through the Events tab, presents a four-cell view of the following event and audit logs:

- Events by Severity
- Last n Error Events
- Last n Critical Events
- Last n Warning Events

Toolbar

The toolbar, located in the upper-right corner provides the following options:

- Create a New Dashboard Grid: Creates a new cell with the specified rows and columns.
Managing the Dashboards

The Dashboards present a user-configurable snapshot of MAS status. Information can be presented in tables, graphs, and charts, which are all configurable from the View menu of a cell.

The menu bar, located in the upper-right corner of each cell, provides the following options:

- Edit properties of the selected object
- Refresh the cell
- Change the cell’s view

Move any cell in a drag-and-drop operation to any of the other cell positions, customizing the layout to your preference. The rate at which the cell is updated can be changed using the cell’s Edit menu.

Viewing the Dashboards

To view dashboards:
1. From the Home page, click **Dashboard**.
   - The Default Grid Dashboard is shown.
2. To view job status, click the **Jobs** tab.
3. To view event status, click the **Events** tab.

Manually Refreshing the Dashboards

To manually refresh dashboards:
1. From the Home page, click **Dashboard**.
2. From the Toolbar, click the **Refresh** icon.

Editing Cell Properties

The properties of each cell, including its layout, type of information and refresh rate, can be changed by click the **Edit** icon.

To edit cell properties:
1. From the Home page, click **Dashboard**.
2. Click the Dashboard tab you want.
3. On the top-right part of a cell, click the **Edit** icon.
4. Set the following properties:
   - **Row Number and Column Number**: These are fixed numbers and cannot be changed.
   - **# of Rows per page**: The maximum number of rows that can be seen by the user.
   - **Query Type**: Specify the type of query, either standard or native. Custom native queries can be set up using SQL or EJB QL.
Query: Select from a list of predefined queries. This is the information that opens in the Dashboard cell.

View Type: Specify the layout of the cell as a table, bar graph, column graph, or pie chart. The selected view is shown in the Details pane.

Legend Required: Add a legend to the view.

Refresh Cycle: Set the refresh cycle time. The Dashboard provides a snapshot view of the system information when selected. Set the refresh time on a per-cell basis using one of these options. You may want to set a faster refresh rate for some queries while setting a longer rate for others. You can also disable the refresh from here.

5. From Preview pane, select the type of View you want.

Changes to the Dashboard cell are stored in the database and visible as saved to all users.

6. Click OK.

Manually Refreshing a Cell

To manually refresh a cell:
1. From the Home page, click Dashboard.
2. Click the Dashboard tab you want.
3. On the top-right part of the cell, click the Refresh icon.

Changing Cell Layout

Use the following procedure to change the cell’s layout to a table, bar graph, column graph or pie chart.

To change a cell’s layout:
1. From the Home page, click Dashboard.
2. Click the Dashboard tab you want.
3. On the top-right part of a cell, click the View icon.
4. Select the layout you want:
   - Tabular
   - Bar Graphic
   - Column Graph
   - Pie Chart

Reordering Cells

From the Dashboard, you can drag and drop cells to a new position.

To reorder cells:
1. From the Home page, click Dashboard.
2. Click the Dashboard tab you want.
3. Select a cell header.
4. Click and drag the cell to a new position.

Creating Custom Dashboards

To create a custom Dashboard, follow the procedures in this section.
To create a custom dashboard:
1. From the Home page, click Dashboard.
2. From the Toolbar, click the Create a New Dashboard Grid icon.
3. Enter a Name for the grid.
4. Select the number of Rows and Columns you want.
5. Click OK.
6. Click your new Dashboard tab.
7. Click the Edit icon on the top-right part of a cell.
8. Set the following properties:
   - Row Number and Column Number: These are fixed numbers and cannot be changed.
   - # of Rows per page: The maximum number of rows that can be seen by the user.
   - Query Type: Specify the type of query, either standard or native. Custom native queries can be set up using SQL or EJB QL.
   - Query: Select from a list of predefined queries. This is the information that opens in the Dashboard cell.
   - View Type: Specify the layout of the cell as a table, bar graph, column graph, or pie chart. The selected view is shown in the Preview pane.
   - Legend Required: Add a legend to the view.
   - Refresh Cycle: Set the refresh cycle time. The Dashboard provides a snapshot view of the system information when selected. Set the refresh time on a per-cell basis using one of these options. You may want to set a faster refresh rate for some queries while setting a longer rate for others. You can also disable the refresh from here.
   - Dashboard Cell.Parent Dashboard: (Read only) Display the parent Dashboard.
9. From the Preview pane, select the type of View you want. Changes to the Dashboard cell are stored in the database and visible to all users.
10. Click OK.
Chapter 13
Using the File Browser App

This chapter provides instructions for using the File Browser app to manage standard folders, folder short cuts, and virtual folders. Choose from the following topics:

- Overview
- Viewing File Systems
- Managing Standard Folders
- Managing Managed Folders
- Managing Other Task Folders
- Managing the Purge Policy
- Emptying the Recycle Bin

Overview

This section provides an overview of folder and file concepts.

File System

A file system represents a file system/volume on a storage server. It contains folders and files and represents a physical folder in the file system.

Folder

A folder represents a physical folder in the file system of a storage server. A folder can contain subfolders and files. Folder names are limited to 80 characters.

NOTE: The full path limitation in MAS is 255 characters.

Virtual Folder

A virtual folder is a logical collection of various assets that may be related to certain user-assumed characteristics. Virtual folders organize content hierarchically or in groupings based on genre, content type, project or workflow stage.

Drawing on content stored across the system, virtual folders can be dynamically populated with the result of a saved search to provide content required for a specific user or task. Metadata fields created in relation to virtual folders enable context-specific metadata based on category, ensuring that content organization is unrestricted by a single system-wide metadata model.

Virtual folders do not impact the physical storage location of content.

Managed Folder

A managed folder is a folder that has been selected by an administrator to be monitored by the Media Application Server. Managed folders are constantly monitored for notifications by MAS for new files, modified files, missing files, or deleted files. The folder turns green when it is being managed or monitored.
NOTE: Root folders cannot be managed.

Refer to Managing Managed Folders for complete instructions on managing files.

Drag-and-Drop Folders or Files

For some procedures with folders or files, you can use drag-and-drop.

From Windows

- Selecting a group of files:
  Hold down the **SHIFT** key and click the first file followed by the last file. (all files between and including the first and last file should now be highlighted.)

- Selecting random files for a group:
  Hold down the **CTRL** key and click the desired files. (all the files selected should be highlighted for a group of files.)

From Mac OS

- Selecting a group of files:
  Hold down the **SHIFT** key and click the first file followed by the last file. (all files between and including the first and last file should now be highlighted.)

- Selecting random files for a group:
  Hold down the **Z** key and click the desired files. (all the files selected should be highlighted for a group of files.)

Viewing File Systems

1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the folder you want, and select the **Folder** you want.

NOTE: A folder may contain multiple sub-folders with additional objects.

Objects contained in the folder appear in the Content panel.

To create, edit, or delete a storage server with file systems, refer to Using the Setup App for instructions.

Managing Standard Folders

A standard folder is a directory representation in the file system that contains instances of physical media in the Media Application Server.

Creating Folders

To create a folder:

1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. Click the folder you want. For example, the “File System Root Folder.”
6. From the Toolbar, click the **Create** icon.
7. Complete the dialog box as follows:
   - **Name**: Enter a name for the folder.
   - **Manage New Subfolders**: Automatically monitor newly created and discovered subfolders from MAS or directly on the file system under the Parent folder.

   **NOTE**: This option applies to Spectrum and MediaDeck folders only.

   - **Ignore ClosedForWrite Latency**: If selected, the Media Application Server ignores the default 30-second latency period normally invoked after files are closed for writing.

   **NOTE**: This parameter does not impact files for General Storage.

   - **Ignore Empty List Discovery**: If selected, the Media Application Server ignores synchronization of this folder if the mount point returns an empty list.
   - **Priority**: If selected, events and transfers from this folder are treated with a higher priority than other folders. The options are: Normal, High, Low, or On Demand. The default is Normal.

8. Click **OK** to create the folder.

The new folder is created and added, in alphabetical order, to the list of folders in the Content pane. If it is not visible, it may be on a subsequent page or the page has not yet refreshed. If more folders exist than can fit on the page, use the arrow icons above the Content pane to navigate to the next set of viewable folders.

Additionally, click the Folder Name column in the Content pane to switch between ascending and descending order.

### Viewing Folder Properties

**To view folder properties:**

1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the **Folder** you want to view.

The folder properties are shown in the Property tab of the Details pane, an example of which is shown above. The initial folder settings are shown along with the date the folder was last modified. If you don’t see the Details pane, select the separator bar and drag it until the contents show.

6. The following properties are shown:
   - **Name**: Shows the name of the folder.
   - **Parent Folder**: Shows the parent folder.
   - **File Status**: Shows the status of the file: Archived, Archiving, Deleted, OK, Offline (for a Media Instance), Restoring, or Unknown.
   - **Creation Time**: Shows the time when the folder was created.
   - **Modification Time**: Shows the time when the folder was last modified.
   - **File Size**: Shows the file size (in bytes).
Chapter 13 Using the File Browser App

Managing Standard Folders

- **Replication Factor**: Replication factor assigned to file/folder. Applies to files in Harmonic MediaGrid only. A value of -1 indicates that the replication factor of the parent applies.
- **Lock File**: Indicates that folder cannot be modified or deleted.
- **Mark Deleted**: Indicates if this folder has been marked for deletion.
- **Deletion Time**: Shows the time the file was deleted from MAS.
- **Full Path**: Shows the full path name to the folder.
- **Manage Subfolders**: Indicates if MAS automatically monitors newly created and discovered subfolders.
- **RootFolder**: Shows the root folder.
- **Ignore ClosedForWrite Latency**: If selected, the Media Application Server ignores the default 30-second latency period normally invoked after files are closed for writing. This parameter does not impact files for General Storage.
- **Ignore Empty List Discovery**: If selected, the Media Application Server ignores synchronization of this folder if the mount point returns an empty list.
- **Priority**: If enabled, events and transfers from this folder are treated with a higher priority than other folders. The options are Normal, High, Low, or On Demand.
- **Status**: Indicates if the file system is registered to manage the content within it.
  - **Failed**: MAS failed to register for notifications.
  - **In Progress**: MAS is in progress of registering with the storage system.
  - **Parent Registered**: MAS has registered the parent.
  - **Parent Registration Failed**: MAS failed registering the parent folder for Harmonic MediaGrid.
  - **Registered**: MAS has registered with the storage system for notification.
  - **Unknown**: Status is unknown.
  - **Unregistered**: MAS has unregistered for notifications, however, the entry still remains in the database.

7. Click the **Source Rules** and **Destination Rules** tabs to view any rules associated with the folder.

**Forcing Folder Synchronization**

**To force folder synchronization:**
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the folder you want.
5. Click the folder you want to synchronize.
6. From the Toolbar, click the **Force Synchronization of folder contents** icon.
7. From the dialog box, select the **Recurse on subfolders** check box if you’d like to apply this setting to all subfolders.
8. Click **OK**.

**Editing Folders**

**To edit folders:**
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the folder you want.
5. Click the folder you want to edit.
6. From the Toolbar, click the Edit icon.
7. Edit the settings as needed.
8. Click OK.

Renaming Folders

NOTE: You must have access to the Organize feature group to rename a folder.

To rename a folder:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. Click the folder you want to rename.
6. From the Toolbar, click the Rename icon.

NOTE: When the source folder of a Mirroring rule is renamed, its corresponding destination folder is also renamed if the Mirroring rule defines its destination folder as a file system root folder. Renaming a destination folder for a Mirroring rule does not however cause the source folder to be renamed.
7. Enter a new name for the folder.
8. Click OK.

Locking or Unlocking Folders

Lock folders to restrict deletion of folders from a file system by system users. This feature only controls the folders at the Media Application Server level; it does not lock or unlock the files in the file system.

To lock/unlock a folder:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. Click the folder you want to lock/unlock.
6. To lock the folder, do the following:
   a. From the Toolbar, click the Lock icon.
   b. Select Recurse Lock if you would also like to lock the subfolders.
   c. Click OK.
   d. Click OK again.
7. To unlock the folder, do the following:
   a. From the Toolbar, click the Unlock icon.
   b. Select Recurse Unlock if you would also like to unlock the subfolders.
   c. Click OK.
d. Click OK again.

**Transferring Folders**

Refer to *Transferring Files and Folders* for instructions on transferring folders.

**Verifying Folders**

Verify folders to check the physical integrity of the folder’s contents. This action ensures that files exist in the file system, and for clips, ensures that all related clip media also exists.

**To verify a folder:**
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want to verify.
6. From the Toolbar, click the Verify icon.

   The system checks the folder and reports any errors.
7. Click OK.

**Filtering Folders**

Filter folders to perform more detailed searches using specific folder properties.

**To filter a folder:**
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want to filter.
6. From the Toolbar, click the Filter icon.

   **TIP:** Change the value of any filter condition and the condition is automatically checked.

7. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query:** Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the app’s Navigation panel in a folder titled “Saved <app name> Queries.” Refer to *Creating Search Queries* for instructions on completing the screens.
   - **Clear:** Click the icon to clear filter attributes.
8. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

**Searching for Folders**

The Search field can be used to search for folders (directories) residing on a storage server.

**To search for folders:**
1. From the Home page, click File Browser.
2. From the Search field, enter a search string.
3. Click the Search icon.
Search results, if found, are shown in the drop-down list.

Deleting Files/Folders

This section explains how to delete files or folders from MAS.

About Deleting Folders Containing Clips with Associated Proxies

When you delete a folder containing clips with associated proxies, MAS retains the asset and clip objects, as well as the associated proxies, in the database.

To delete assets, clips, and associated proxies immediately, perform the following steps (otherwise the tasks will run on their default schedules):
1. Run the OrphanMediaAndAssetsDeletion scheduled task to clear the lingering assets and clips.
2. Run the OrphanMediaAndAssetsDeletion scheduled task a second time to clear the lingering proxies.

Deleting a Single File/Folder

NOTE: You must have Administrator privileges to delete folders.

To delete a single file/folder:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the file/folder you want to delete.
6. From the Toolbar, click the Delete icon.
Refer to File/Folder Delete Options for an explanation of the delete options.

Deleting Multiple Files/Folders

NOTE: You must have Administrator privileges to delete folders.

To delete multiple files/folders:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the files/folders you want to delete.
6. From the Toolbar, click the Delete icon.
Refer to File/Folder Delete Options for an explanation of the delete options.

Deleting Archived Files/Folders
You must have Administrator privileges to delete folders.
To delete multiple files/folders:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the archived files/folders you want to delete.
6. From the Toolbar, click the Delete icon.

Refer to File/Folder Delete Options for an explanation of the options.

File/Folder Delete Options

Option 1 – Delete
- When the Force delete and Defer delete options are not selected, MAS operates as follows:
  - If the selected file or folder is not in use or locked, the file or folder is permanently deleted.
  - If the selected file or folder is in use or locked, an error message displays and you cannot perform a delete. Select Cancel to cancel the action. The object is left “as-is” in the file system.

Option 2 – Force Delete
- When the Force delete option is selected, MAS operates as follows:
  - If the selected file or folder is not in use or locked, MAS performs a force delete. The file or folder is permanently deleted.
  - If the selected file or folder is in use or locked, MAS performs a force delete. The file or folder is permanently deleted.

Option 3 – Defer Delete
- When the Defer delete option is selected, MAS operates as follows:
  - When an object is defer deleted, its status appears in the Name column of a file system root folder with a strikeout.
  - If the selected file or folder is not in use or locked, MAS performs a defer delete. The file or folder is moved to the recycle bin. The object displays in the Content pane with a strikeout.

NOTE: The message, “In Use,” indicates that the file is a media instance in use for some clip.
- If the selected file or folder is in use or locked, an error message displays and you cannot perform a defer delete:
  - Error Code: 1010: (This file is a media for some Clip)
  - or (File is locked)
- Do one of the following:
  - Select Cancel to cancel the action. The object is left “as-is” in the file system.
  - Select the Force delete and Defer delete options. Go to the next section for more information.
Option 4 – Force Delete and Defer Delete

- When the **Force delete** and **Defer delete** options are selected, MAS operates as follows:
  - The file or folder is moved to the recycle bin. The object displays in the Content pane with a strike out.

Option 5 – Delete from Storage

- This option is enabled only when the file is in the “archive” or “prestage” state. Selecting this option deletes the object from the storage server and sets the object’s status to “offline.”

Option 6 – Delete from Archive Storage

- This option deletes the object from the Archive server. MAS updates the object’s status to “OK.” If the object is already in a “prestage” or “offline” state, the object is removed from the MAS database.
- Objects are removed only if the object is not present on the storage server. If the object is present on the storage server, MAS updates the status to “OK.”

Undoing Folder/File Defer Delete

If you chose to delete files or folders using the defer delete function, you can undo the action and recover the objects.

**To undo folder/file Defer Delete:**
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. Click the folder/file you want to recover.
6. From the Toolbar, click the **Undo Defer Delete** icon.
7. Click **OK**.
8. Click **Yes**.

The object displays in the Content pane and the strikeout is removed.

Creating Folder Shortcuts

Create a folder shortcut to display a folder without having to navigate to the folder.

**To create a folder shortcut:**
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want.
6. From the Toolbar, click the **Shortcut** icon.
7. Enter a name for the folder shortcut and click **OK**.

The shortcut is stored within **Folder Shortcuts** in the File Browser app.
Changing Replication Factor for Selected Files (MediaGrid Only)

To change the replication factor for selected files:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want.
6. From the Toolbar, click the Change Replication Factor for selected files icon.
7. From the Confirmation dialog box, set a New Replication Factor.
8. If necessary, select the Recurse check box.
9. Click OK.

Performing On-Demand Transcode Jobs for Clips

You can set on-demand transcode jobs from the File Browser app.

For instructions on on-demand transcoding, refer to Performing On-Demand Manual Transcode Jobs.

Generating On-Demand Proxies for Assets and Clips

You can generate on-demand proxies for clips from the File Browser app.

For instructions on generating on-demand proxies for clips, refer to Generating On-Demand Proxies for Clips.

Generating On-Demand Closed Captioning for Clips

You can generate on-demand closed captions for clips from the File Browser app.

For instructions on generating on-demand closed captions for clips, refer to Generating On-Demand Closed Captioning for Clips.

Generating On-Demand Quality Checks for Assets and Clips

You can generate on-demand Quality Checks for clips from the File Browser app.

For instructions on generating on-demand Quality Checks for clips, refer to Generating On-Demand Quality Checks for Clips.

Performing On-Demand Manual Jobs for Clips

You can perform on-demand Manual Jobs for Clips from the File Browser app.

For instructions on generating on-demand Manual Jobs for clips, refer to Performing On-Demand Manual Jobs.

Transferring Clips, Assets, or Files and Folders

You can transfer clips, assets, or files and folders from the File Browser app.

For instructions on transferring clips, refer to Transferring Clips.

For instructions on transferring assets, refer to Transferring Assets.

For instructions on transferring files or folders, refer to Transferring Files and Folders.
Archiving Files/Folders

To archive Files/Folders:

1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the file/folder you want to archive.
6. From the Toolbar, click the Archive Selected Object(s) icon.
7. Complete the dialog box as follows:
   - **Job Settings**
     - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the Job States below.
     - **Job States**: Select the job states about which you want to receive notifications.
     - **Delete on Archive**: If selected, the file will be archived, and on successful archive, it will be deleted from source location. The File State will be set to “Offline.” If cleared, the file will be archived on the Archive server. It will be left on the file storage server as is. The File State will be set to “Archived.”
     - **Overwrite**: If selected, MAS will delete the previous archived file of the same name and GUID from the Archive server.
     - **Max Retries**: Select or type the number of times to retry the archive job in case of failure.
     - **Wait Time**: Select the amount of time in seconds to wait between retries.
     - **Priority**: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
     - **Volume Group**: Specify the name of the volume group where the file resides on archival system. A volume is a single tape. A volume group is a set of tapes that is treated in the same way by the system. The name must be unique across the system.
   - **NOTE**: Nomenclature differs across different vendors. In MAS, the term, “volume group,” is used to identify a group of tape or volumes.
   - **Additional Data**: Enter vendor-specific data in key-value pairs. Refer to your vendor documentation for more information.
   - **Enable Filter**: Select this check box to enable the File Ignore Pattern filter.
   - **File Ignore Pattern**: Define a pattern using a regular expression. Objects matching this pattern are not archived.
   - **Set Metadata**: Lists the metadata to be set on the source object as per the set notification or job state change.
8. For **Schedule**, choose one of the following:
   - **Now**: Create the proxy now.
   - **Later**: Create the proxy according to the specified schedule. Select the date and time at which you want to create the proxy.
9. To add or modify a Metadata Event, click **Add** or **Modify**, and configure the following settings:
   - **Trigger On**: JobStateChange is the default.
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Managing Standard Folders

- **Job States**: Select which job states will trigger a Metadata event if its state is changed.
- **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
- **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
- **Value**: The choices for this value are dependent on the MetaData Field setting.

10. Click **OK**.
11. Click **OK**.

**Restoring Archived Files/Folders**

Restoring an archived asset moves it from its tape location on the Archive server to the specified directory.

To restore archived files/folders:
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand the **All Storage Servers** device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the file/folder you want to archive.
6. From the Toolbar, click the **Restore Selected Object(s)** icon.
7. Complete the dialog box as follows:
   - **Name**: (Read Only) Shows the name and full path from which the clip will be restored.
   - **Archive Details**: (Read Only) Shows the name of the Archive server from which the clip will be restored.
   - **General**
     - **Over Write**: Select this option to overwrite a previous version of the same asset in the destination directory, if one exists.
     - **Priority**: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
     - **Maximum Retries**: Select or type the number of times to retry the archive job in case of failure.
     - **Wait Time**: Select the amount of time in seconds to wait between retries.
     - **Restore to Original Location**: (Default) Select this option to restore the object in MAS from where it has been archived. The default location is shown in the **Full Path** column.
     - If you deselect this option, a new menu, **Location to Restore**, opens. Select the new location from the storage servers listed in the drop-down menu.
     - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the **Job States** below.
     - **Job States**: Select the job states about which you want to receive notifications.
     - **Filter Required**: Select this check box to enable the **File Ignore Pattern** filter.
     - **File Ignore Pattern**: Define a pattern using a regular expression. Objects that match this pattern are not restored.
     - **Set Metadata**: Lists the metadata to be set on the source object as per the set notification or job state change.
Schedule
- Set the schedule when the restore operation should run.
- To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
  - Trigger On: JobStateChange is the default.
  - Job States: Select which job states will trigger a Metadata event its state is changed.
  - MetaData Field: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - Skip On Non Default Value: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - Value: The choices for this value are dependent on the MetaData Field setting.

8. Click OK.
9. Click Yes.

Managing Managed Folders

A managed folder is a folder that is monitored by the Media Application Server system. Folders available for management reside on the storage systems in which Media Application Server is connected. These are the systems discovered during initial system configuration. Managed folders are constantly monitored by the Media Application for new, modified, missing, or deleted files.

Table 13–1: Maximum Managed Folders per Release

<table>
<thead>
<tr>
<th>Server</th>
<th>Software Release</th>
<th>Maximum Folders Managed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum/MediaDeck</td>
<td>&gt;5.0 100 folders and</td>
<td>100 folders per available host. Hosts marked as “Limited” or</td>
</tr>
<tr>
<td></td>
<td>&lt;5.0 10 folders</td>
<td>“Real-Time” are not used.</td>
</tr>
<tr>
<td>Harmonic MediaGrid</td>
<td>Any</td>
<td>32 folders per ContentDirector</td>
</tr>
</tbody>
</table>

IMPORTANT: Do not manage folders at the file system level or folders containing proxies. When a file is continually being updated, there are numerous hits to the MAS database which causes a lot of traffic. This could cause delays with the SQL application process database updates.

Monitoring/Managing Folders

This section provides instructions for managing folders. Users with access to the Organize feature group can select folders to be managed. These steps are to be performed by the administrator once the system is configured.

NOTE: To see the status of a managed folder, use the Storage Watches app.

To create a managed folder:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want to manage.
6. From the Toolbar, click the Manage Selected Folder(s) icon.
7. Complete the dialog box as follows:
   - Resynchronize This Folder: Select this box to discover new or update existing files and delete non-existent files from the database (once the folder is selected for management).
   - Recurse All Subfolders Recursively: Select this box to apply the Resynchronize This Folder setting to all of its subfolders.
8. Click OK to manage the folder.

The folders are managed following the completion of any previously scheduled tasks. The color of the folder icon turns green in the Navigation panel and in the Content pane after the folder is managed.

Unmanaging Folders

To unmanage a folder:
1. From the Home page, click File Browser.
2. From the Navigation panel, expand the All Storage Servers device.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the location you want.
5. From the Content pane, click the folder you want to unmanage.
6. From the Toolbar, click the Unmanage Selected Folder(s) icon.
7. Click OK to complete the process.

The folder and any subfolders are unmanaged. The color of the file system image changes from green to gray once the folder is unmanaged.

Managing Other Task Folders

You can perform additional tasks with folders in MAS using the Transfer, Move, Mirror, and Archive Services.

Transfer Folders

Use the Transfer Service to perform the following tasks:
- Copy or Move
- File(s) or Folder(s)
- Uni-directional
- Active Transfer, FTP, or Auto

Refer to "Transferring Files and Folders" for instructions on transferring folders.

Move Folders

Use the File Move rule to perform the following tasks:
- Move Only
- Files and subfolders within Source Folder(s)
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Managing the Purge Policy

MAS provides a user-configurable purge policy that determines how long defer-deleted files remain in the recycle bin before they are permanently deleted from MAS. Once files are permanently deleted, they cannot be recovered. Space occupied by the deleted files is reclaimed for use by MAS. If you do not want to configure your own purge policy, MAS provides a default policy that is always in effect.

How the Purge Policy Works

A system-scheduled timer periodically checks the total space usage on the file system. When it detects that the high watermark is reached (a space shortage exists), it starts its purge policy to delete files marked in a defer-delete state until it reaches the low water mark of space usage, or there are no more files to delete.

It is possible for files to remain longer in the recycle bin than the Min. Hours specified in the file system as long as the total space usage is below the high water mark. In this case, the specified high water mark must be greater than the low water mark. Space in file system is shared among all files or folders regardless of their status.

For example, given a file system with a capacity of 1 TB, when space usage reaches 800 GB (the high water mark), MAS starts to clean up the recycle bin by deleting the oldest files first. MAS then moves towards the goal of 600 GB if there exists at least 200 GB of files in the defer-delete state. If not, MAS cleans up as much as it can. A warning is given if MAS cannot move space usage under 800 GB. As long as the amount of used space stays below 800 GB in the recycle bin, there is no need for the storage space to be cleaned.

If the high water mark is set too high, and the purge process is triggered often, more space cannot be reclaimed since files in the recycle bin may be too young. You will eventually need to either delete (not defer delete) files or archive files to free up storage space. Otherwise, the file system will not be able to allocate space for new files.

NOTE: When working with a new MAS installation or server, the first execution of purge policy may take some time.
Setting the Purge Policy

To set the Purge Policy:
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand **All Storage Servers**.
3. Expand the storage server you want.
4. Navigate the folder hierarchy to find the folder you want.
5. Click the file system root folder you want to edit.
6. From the Toolbar, click the **Edit** icon.
7. Configure the purge policy as follows:
   - **Low Water Mark**: Manages the recycle bin on the file system root folder. The default is 60 (60 percent).
   - **High Water Mark**: Manages the recycle bin on the file system root folder. The default is 80 (80 percent).
   - **Min Hours**: Specifies the maximum number of hours a file can stay in the recycle bin when there is a shortage of space. The default is 120 (5 days).

Purging the File System

To regain space on MAS, you can quickly purge all defer-deleted objects using the purge policy. The **Purge File System** command temporarily supersedes the purge policy currently in effect on MAS.

To purge the file system:
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand **All Storage Servers**.
3. Expand the storage server you want.
4. Do one of the following:
   - Click the **Purge File System** icon on the Toolbar.
   - Right-click the folder and select **Purge File System** from the pop-up menu.
5. Do one of the following:
   - To run purge once using the low water mark specified in File System Root Folder, select **On Demand Purge**.
   - To purge the file system up to a specified low water mark, select **Purge File System with Low Water Mark**.

The water mark indicates a percentage of the total space in the file system. For example, a low water mark of 60 indicates 60 percent. MAS will purge the objects in the file system up to the specified water mark. Thus, files in recycle bin below the low water mark will not be deleted.
6. Click **OK**.
7. Click **Yes**.

Emptying the Recycle Bin

The recycle bin is the repository for files and folders that have been deleted using the defer delete function. Each root folder has its own recycle bin that contains the parent folder and any child folders and files that have been deleted from MAS.
The recycle bin resides on the MAS database and is not visible in the ProXplore UI. Nonetheless, you can empty the recycle bin for the selected file system root folder(s) using the **Empty Recycle Bin** command.

**To empty the Recycle Bin:**
1. From the Home page, click **File Browser**.
2. From the Navigation panel, expand **All Storage Servers**.
3. Expand the storage server you want.
4. Click the file system root folder you want.

**NOTE:** A folder may contain multiple sub-folders with additional objects.

5. Do one of the following:
   - Click the **Purge File System** icon on the Toolbar.
   - Right-click the folder and click **Purge File System** from the pop-up menu.

6. Do one of the following:
   - Click the **Empty Recycle Bin** icon on the Toolbar.
   - Right-click the folder and click **Empty Recycle Bin** from the menu.

7. Click **OK**.
8. Click **Yes**.
Chapter 14
Using the File Management App

This chapter provides instructions for using the File Management app to manage files in MAS. Choose from the following topics:

- About File Management
- Managing Folder Synchronization Rules
- Managing Notification Presets
- Managing File Notification Rules
- Managing File Deletion Rules
- Managing File Replication Factor Rules
- Checking the Status of File Jobs
- Searching the File System
- Managing Scheduled Tasks
- Managing Unresolved Issues
- Ignoring Patterns in Filenames and Notification Types

About File Management

File Management rules allow the creation of workflow and processing rules based on system state, time, or manual parameters.

The Media Application Server’s centralized rules and the notification engine powers the automated processing and routing of content across Spectrum, MediaGrid, and third-party systems. You can set rules that automatically trigger actions by services and use the Pro Application Suite to view the status of the processing tasks. As the third-party services complete their actions, they pass metadata and job reports to MAS, which then can automatically move media through the next step in the workflow.

You manage rules using rule-centric dialog boxes that contain tabs for configuring properties, job settings, filter settings, or metadata filters. Rules can be executed on-the-fly, or scheduled to run according to a specified date and time. MAS also provides the ability to define two rules with the same source and destination, but different job settings or filters.

File Management Rules

From the Home page, click File Management to create, modify, or delete file management rules.

MAS supports the following file management rules:

- Folder Synchronization: Synchronize managed folders that can run at off-peak hours to detect missed notifications from the file system and sync the database against it.
- File Notification: Receive e-mail messages when selected events occur in select folders, such as when a file is created or modified.
- File Deletion: Schedule periodic deletion of unneeded files.
Managing Folder Synchronization Rules

You run Folder Synchronization rules on the managed folders at off-peak hours to detect any missed notifications from the file system and synchronize the database.

Creating Folder Synchronization Rules

To create a folder synchronization rule:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the toolbar, click the Create icon.
4. Complete the Properties dialog as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box to enable the Folder Synchronization rule.
   - **Include Subfolders**: Select this check box to also synchronize subfolders in the selected source folder.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to monitor. To open a nested folder, click the folder icon to expand it.
5. Click the Job Setting tab.
6. Set the schedule when the Folder Synchronization should run.
7. Click OK to set up the rule.
   - MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.
8. To immediately run the rule, go to Running Folder Synchronization Rules.

Editing Folder Synchronization Rules

To edit folder synchronization rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want to edit.
4. From the Toolbar, click the Edit icon.
5. Change the settings as needed.
6. Click OK.

Duplicating Folder Synchronization Rules

To duplicate folder synchronization rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Duplicate icon.
5. Change the settings as needed.
6. Click OK.

Enabling or Disabling Folder Synchronization Rules

To enable/disable folder synchronization rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.

Running Folder Synchronization Rules

You can immediately run a rule, even if a schedule has already been specified.

To run a folder synchronization rule:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Run icon.
5. Click OK.

Filtering Folder Synchronization Rules

Filter Folder Synchronization rules to narrow the file notification information in the Content pane.

To filter folder synchronization rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Filter icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
6. To perform a search, click the Search Now icon. The results are shown in the Content pane.

Deleting Folder Synchronization Rules

To delete folder synchronization rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Synchronization Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Delete icon.
5. To force delete even if objects are in use, select Force Delete.
Managing Notification Presets

Notification presets are information files that you set up and store for regular inclusion in the various file management rules. They are useful for notifying users or groups by e-mail, for example, when the jobs or files change status.

Creating Notification Presets

This preset is used to notify a user when certain events occur, such as when a file is transcoded or an error occurs. Once created, presets can be added to the various file and clip management rules. You can also select one or more types of north-bound notification mechanisms for the same event.

To create notification presets:
1. From the Home page, click File Management.
2. From the Navigation panel, click Notification Presets.
3. From the Toolbar, click the Create icon.
4. Complete the dialog box as follows:
   - **General**
     - **Name**: Enter a name for the new preset.
     - Select the delivery method for the preset: E-mail, Post XML to HTTP, or Post XML to Socket. Each method is explained below.
     - **Notify by E-mail**: If you select User Specified as the E-mail Choice, enter the E-mail Address. If you select Use User's E-mail or Use Role's E-mail, select the User/Role from the drop-down list.
     - **Notify by Posting XML**: Select Yes, type the URL to post the XML, and then type the Username and Password required for the connection.
     - **Notify by Socket**: Select Yes, type the IP Address of the Socket Server accepting the connection, and then type the server’s Port Number established for the connection.
   - **Other**
     - **Notify by JMS**: Select Yes to notify the user by Java Message Service (JMS).
     - **Notify by SNMP**: Select Yes to notify the user by Simple Network Management Protocol (SNMP).
5. Click OK.

Editing Notification Presets

To edit notification presets:
1. From the Home page, click File Management.
2. From the Navigation panel, click Notification Presets.
3. From the Content pane, click the notification preset you want.
4. From the Toolbar, click the Edit icon.
   - The Edit Notification Preset properties dialog box opens showing the current settings.
5. Change any settings as needed.
6. Click OK.

**Duplicating Notification Presets**

To duplicate notification presets:
1. From the Home page, click File Management.
2. From the Navigation panel, click Notification Presets.
3. From the Content pane, click the notification preset you want.
4. From the Toolbar, click the Duplicate icon.
5. Change any settings as needed.
6. Click OK.

**Filtering Notification Presets**

Filter notification presets to narrow the information in the Content pane.

To filter notification presets:
1. From the Home page, click File Management.
2. From the Navigation panel, click Notification Presets.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

**Deleting Notification Presets**

To delete notification presets:
1. From the Home page, click File Management.
2. From the Navigation panel, click Notification Presets.
3. From the Content pane, click the notification preset you want.
4. From the Toolbar, click the Delete icon.
5. To delete even if notification presets are in use, select Force Delete.
6. Click OK.
7. Click Yes.

**Enabling or Disabling E-Mail**

To enable or disable e-mail:
1. From the Home page, click Settings.
2. From the Navigation panel, click E-Mail.
3. Do one of the following:
   - To enable email, click Yes for the Enable Email option.
   - To disable email, clear the check box.
4. Click OK.
Managing File Notification Rules

Set up File Notification Rules to receive e-mail messages when selected events occur in select folders, such as when a file is modified or a clip passes verification testing.

NOTE: If you use third-party storage systems for file transfers via CIFS and FTP, note that no notifications are sent when files have been modified.

Notification Stages

Three types of file notification stages exist:

- **Unprocessed Notification**: Sent by Spectrum or MediaDeck to the Media Application Server, but not processed by MAS. These notifications are added in queue.

- **Processed Notification**: The Media Application Server picks up unprocessed notifications from queue, processes them, and then sends out the processed notifications.

- **Both**: Both unprocessed and processed notifications are added to the queue, but only processed notifications are sent out.

In a few cases, such as “File renamed from” no unprocessed notification are generated by Spectrum or MediaDeck, but the Media Application Server generates a processed notification for it.

Notification Types

The following table indicates which notification is sent by the Spectrum, MediaDeck, or Media Application Server, and which server processes the notifications.

<table>
<thead>
<tr>
<th>Notification Type</th>
<th>Unprocessed</th>
<th>Processed</th>
<th>Generated By</th>
</tr>
</thead>
<tbody>
<tr>
<td>File has been discovered</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been created</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been modified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File has been opened for write</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been opened and is ready to be played out</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File has been closed for write</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been closed</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been renamed</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been closed and is ready for transfer</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
</tbody>
</table>
Table 14–1: Notification Types

<table>
<thead>
<tr>
<th>Notification Type</th>
<th>Unprocessed</th>
<th>Processed</th>
<th>Generated By</th>
</tr>
</thead>
<tbody>
<tr>
<td>File is ready to be read</td>
<td>Spectrum only</td>
<td>Yes</td>
<td>Spectrum/Media Application Server</td>
</tr>
<tr>
<td>Transfer of this file has completed</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid only</td>
</tr>
<tr>
<td>File has been renamed from</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
<tr>
<td>File first write has occurred</td>
<td>Yes</td>
<td>Yes</td>
<td>Harmonic MediaGrid only</td>
</tr>
<tr>
<td>File replication factor has changed</td>
<td>Yes</td>
<td></td>
<td>Harmonic MediaGrid only</td>
</tr>
<tr>
<td>Files has been locked</td>
<td></td>
<td></td>
<td>Media Application Server</td>
</tr>
<tr>
<td>File has been unlocked</td>
<td></td>
<td></td>
<td>Media Application Server</td>
</tr>
<tr>
<td>Metadata has changed</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
</tbody>
</table>

**File Notification Rule Workflow**

The following example shows a workflow for using a File Notification rule to delete content from the Harmonic MediaGrid.

1. Create a File Notification rule for the Editor group. When the content is created in the Harmonic MediaGrid /source directory, send a notification.
2. Create a File Notification rule for the Playout group. When the content is transferred to the MediaDeck /playout directory, send a notification.
Creating File Notification Rules

To create a file notification rule:
1. From the Home page, click File Management.
2. From the Navigation panel, click Folder Notification Rules.
3. From the Toolbar, click the Create icon.
4. Complete the Properties dialog box as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box to enable the File Synchronization rule.
   - **Include Subfolders**: Select this check box to also notify a user when changes are made to the files/jobs in a subfolder.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to monitor. To open a nested folder, click the folder icon to expand it.
5. Click the Job Setting tab, and complete the following Job settings:
   - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http. The notification is sent based on the Notification Types selected below. Before creating a notification rule, a notification preset should be created.
   - **Notification Types**: The notification will be sent based on the notification types selected for the intended destination as defined in the notification preset. See Creating Notification Presets for more information.
   - **Notify Stage**: User will get a notification based on the option selected here. Processed notifications are generated by the Media Application Server and unprocessed notifications are received by MAS from the Harmonic storage servers.
- **Unprocessed Notification**: Sent by Spectrum or MediaDeck to the Media Application Server, but not processed by MAS. These notifications are added in queue.

- **Processed Notification**: The Media Application Server picks up unprocessed notifications from queue, processes them, and then sends out the processed notifications.

- **Both**: Both unprocessed and processed notifications are added to the queue, but only processed notifications are sent out.

6. Click the Metadata Filter tab.

   Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Metadata Fields for more information.

7. To evaluate the metadata filter when the rule is run, do the following:
   a. In the Evaluate Metadata Filter option, select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.
   b. In the Logical Operator for Filter menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click Add.
   d. Complete the dialog box as follows:
      - **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - **Operator**: Select the logical operator to apply to the metadata filter defined in the Value(s).
      - **Type**: A read-only parameter that presents different Value options depending on the Name parameter you selected.
      - **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the Name parameter you selected.
   e. When you are done building the metadata filter, click OK.

8. To add more metadata expressions, repeat Step 7.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click Delete.
   c. Click Yes.

10. Click OK to set up the rule.

   MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to Running File Notification Rules.

**Duplicating File Notification Rules**

To duplicate file notification rules:

1. From the Home page, click File Management.
2. From the Navigation panel, click **Folder Notification Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

**Enabling or Disabling File Notification Rules**

To enable/disable file notification rules:
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **Folder Notification Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.

**Running File Notification Rules**

To run file notification rules:
You can immediately run a rule, even if a schedule has already been specified.
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **Folder Notification Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Run** icon.
5. Click **OK**.

**Filtering File Notification Rules**

To filter file notification rules:
Filter File Notification rules to narrow the file notification information in the Content pane.
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **Folder Notification Rules**.
3. From the Content pane, click the rule you want.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to **Creating Search Queries** for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

**Deleting File Notification Rules**

To delete file notification rules:
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **Folder Notification Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Delete** icon.
5. To delete the object even it is in use, select **Force Delete**.
6. Click **OK**.
7. Click **Yes**.

**Managing File Deletion Rules**

Set up File Deletion rules to schedule periodic deletion of unneeded files. File deletion rules can be run immediately after they have been created or run from a saved rule.

**File Deletion Rule Workflow**

The following example shows a workflow for using a File Deletion rule to delete content from a storage server:

1. Move from the MediaDeck or MediaDeck II/Ingest directory to the Harmonic MediaGrid /Source directory.
2. Move from the Harmonic MediaGrid /Source directory transcode to the Harmonic MediaGrid /Windows Media directory.
3. Move from the Harmonic MediaGrid /Windows Media directory to the Harmonic MediaGrid /Archive WM directory.
4. Move from the Harmonic MediaGrid /iPod directory to the Harmonic MediaGrid /Archive iPod directory.
5. Move from the Harmonic MediaGrid /Flash directory to the Harmonic MediaGrid /Archive Flash directory.
6. Delete from the Harmonic MediaGrid.

![File Deletion Rule Workflow Diagram](image)

**Figure 14–2: File Deletion Rule Workflow**
File Deletion Rules and Locked/Unlocked Files

All files discovered by MAS are usually “locked” in the MAS database. The lock property is a database property. It prevents the accidental deletion of video content unless it is “forced” by a user action. The lock property for a file depends on the value set for the parent folder. If the parent folder is locked in the database, the new file under the parent folder is locked as well.

From MAS, you can mark a folder as “unlocked.” Any new file discovered under that folder will also be unlocked. You can then delete the “unlocked” content. From the perspective of a non-MAS system, you may need to unlock the file or folder before it can be deleted with a File Deletion rule.

Creating File Deletion Rules

To create file deletion rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Deletion Rules.
3. From the Toolbar, click the Create icon.
4. Complete the Properties dialog box as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box to enable the File Deletion rule.
   - **Include Subfolders**: Select this check box to also delete files within the subfolders.
   - **Source Folder(s)**: Navigate to and then select the folder or folders from which you want to delete files. To open a nested folder, click the folder icon to expand it.
5. Click the Job Settings tab, and complete the dialog box as follows:
   - **General**
     - **File Purge Cut off (units)**: Select the Day(s), Hour(s), Day(s) & Hours(s) an unmodified file should remain in the system before it is deleted.
     - **File Purge Cut off (days)**: Type or select the number of units an unmodified file should remain in the system before it is deleted.
     - **Lock File Conflict**: Choose to either Skip (don’t delete) or Delete a file that is locked.
     - **By default, MAS sets all asset and clips with an asset lock. The Skip option skips deleting assets that currently have an asset lock. The Delete option forces a deletion of the asset even when the asset lock is in effect.**
     - **Defer Delete Files**: When enabled, this option defer-deletes files that match this rule and moves them to the recycle bin. When disabled, this option permanently deletes files that match this rule.
       - **Refer to Deleting Files/Folders for complete information.**
     - **Delete Offline Files from Archive Storage**: Select to delete offline files from the archive. (This check box is cleared by default.)
     - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are deleted. The Filter
check box must be selected to enter an expression. See Table 14–2 for more information.

Table 14–2: File Name Patterns

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*\mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz\mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc*</td>
<td>*abc</td>
</tr>
</tbody>
</table>

NOTE: The File Name Pattern applies to file names only and not to folders.

- Max. Retries: Type or select the number of times the rule should be retried in the event of a failure.
- Wait Time (seconds): Type or select the wait time between retries.
- Notification
  - Use Notification Preset: Select a notification preset to notify a user through e-mail/socket /http. The notification is sent based on the Job States selected below.
  - Job States: Select a job state on which to trigger the notification.

- Schedule
  - Schedule: Set the schedule when the deletion rule should run.

6. Click the Metadata Filter tab.

   Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Metadata Fields for more information.

7. To evaluate the metadata expression when the rule is run, do the following:
   a. In the Evaluate Metadata Filter option, select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.
   b. In the Logical Operator for Filter menu, select one of the following:
      - And: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - Or: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click Add.
   d. Complete the Properties dialog box as follows:
      - Name: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - Operator: Select the logical operator to apply to the metadata expression defined in the Value(s).
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- **Type**: A read-only parameter that presents different **Value** options depending on the Name parameter you selected.

- **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the Name parameter you selected.

  e. When you are done building the metadata filter, click **OK**.

8. To add more metadata expressions, repeat **Step 7**.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click **Delete**.
   c. Click **Yes**.

10. Click **OK** to set up the rule.

   MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to **Running File Deletion Rules**.

### Editing File Deletion Rules

**To edit file deletion rules:**

1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Deletion Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

### Duplicating File Deletion Rules

**To duplicate file deletion rules:**

1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Deletion Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

### Enabling or Disabling File Deletion Rules

**To enable/disable file deletion rules:**

1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Deletion Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.
Running File Deletion Rules

You can immediately run a rule, even if a schedule has already been specified.

To run file deletion rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Deletion Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Run icon.
5. Click OK.

Filtering File Deletion Rules

Filter File Deletion rules to narrow the file deletion information in the Content pane.

1. From the Home page, click File Management.
2. From the Navigation panel, click File Deletion Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

Deleting File Deletion Rules

To delete file deletion rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Deletion Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Delete icon.
5. To delete the object even if it is in use, select Force Delete.
6. Click OK.
7. Click Yes.

Managing File Replication Factor Rules

Set up File Replication Factor rules to schedule periodic creation of file copies. The replication factor is the number of copies of a file. File replication factor rules can be run immediately after they have been created or run from a saved rule.

NOTE: File Replication Factor rules are only supported for MediaGrid folders.
Creating File Replication Factor Rules

To create file replication factor rules:
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Replication Factor Rules**.
3. From the Toolbar, click the **Create** icon.
4. Complete the **Properties** dialog box as follows:
   - Name: Enter a name for the new rule.
   - Enable Rule: Select this check box to enable the File Replication Factor rule.
   - Include Subfolders: Select this check box to also replicate files from the subfolders within the source folders you choose.
   - Source Folder(s): Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
5. Click the **Job Settings** tab.
   - Cut off (days): Set the number of days before a file should receive an updated replication factor by either typing the number directly or selecting a number by clicking the arrows.
   - New Replication Factor: Type or select the replication factor (from 1 to 10). The default replication factor is 3, which means three copies of the file are created. It is not recommended that you use a number lower than 2.
   - Schedule: Set the schedule when the replication factor rule should run.
6. Click **OK** to set up the rule.
   MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.
7. To immediately run the rule, go to **Running File Replication Factor Rules**.

Editing File Replication Factor Rules

To edit file replication factor rules:
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Replication Factor Rules**.
3. In the Content pane, select the **Rule** you want.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

Duplicating File Replication Factor Rules

To duplicate file replication factor rules:
1. From the Home page, click **File Management**.
2. From the Navigation panel, click **File Replication Factor Rules**.
3. In the Content pane, select the **Rule** you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.
Enabling or Disabling File Replication Factor Rules

To enable or disable file replication factor rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Replication Factor Rules.
3. In the Content pane, select the Rule(s) you want.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.

Running File Replication Factor Rules

You can immediately run a rule, even if a schedule has already been specified.

To run file replication factor rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Replication Factor Rules.
3. In the Content pane, select the Rule you want.
4. From the Toolbar, click the Run icon.
5. Click OK.

Filtering File Replication Factor Rules

Filter file replication rules to narrow the file replication information in the Content pane.

To filter file replication factor rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Replication Factor Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.
The results are shown in the Content pane.

Deleting File Replication Factor Rules

To delete file replication factor rules:
1. From the Home page, click File Management.
2. From the Navigation panel, click File Replication Factor Rules.
3. In the Content pane, select the Rule you want.
4. From the Toolbar, click the Delete icon.
5. To delete the object even if it is in use, select Force Delete.
6. Click OK.
7. Click Yes.
Checking the Status of File Jobs

1. From the Page bar, click Status > Jobs.
2. From the Navigation panel, expand the Jobs by Category folder.
3. Click the job of interest.
   The results are shown in the Content pane.
   For more and overview and instructions on managing jobs, refer to Managing Jobs.

Searching the File System

You can search file systems from the File Management app. For an overview and instructions on managing file systems, refer to Using the File Browser App.

Viewing file systems

To view file systems:
1. From the Home page, click File Management.
2. From the Navigation panel, click Search file systems.
3. Expand the file system you want to search.
   The Content pane displays the contents of the file system.

Managing Scheduled Tasks

You can managed scheduled tasks from the File Management app. For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

Viewing Scheduled Tasks

To view scheduled tasks:
1. From the Home page, click File Management.
2. From the Navigation panel, click Scheduled Tasks.
   The Content pane displays scheduled tasks.

Managing Unresolved Issues

An unresolved issue is created when an action is required from a user because of a rule specification, or because an unexpected event occurred. Common reasons for unresolved issues include:

- A rule exists that dictates notifying the user before files are deleted on a Destination folder.
- A file is deleted from the source folder triggering the creation of an unresolved issue.

To manage unresolved issues:
1. From the Page bar, click Status.
2. From the Navigation panel, expand the Unresolved Issues folder.
3. From the Content pane, click the issue you want.
4. From the Toolbar, click the Resolve the selected object icon.
5. Choose from the options provided to resolve the issue. Options vary according to the type of issue to be resolved.
6. Click OK to resolve the issue. The issue is then removed from the database.

Ignoring Patterns in Filenames and Notification Types

Ignore patterns can be configured in the File Management app.

For an overview and instructions on ignoring patterns in filenames and notification types, refer to *Ignoring Patterns in Filenames and Notification Types*. 
Chapter 15
Using the Ignore Patterns App

This chapter explains how to use the Ignore Patterns app to exclude certain files from MAS events. Choose from the following topics:

- About Ignore Patterns
- Ignoring Patterns in Filenames and Notification Types
- Managing Ignore Patterns

About Ignore Patterns

The Ignore Patterns app lets you create regular expressions to exclude certain files from MAS events. For example, you can use Ignore Patterns for the following events:

- Moving, mirroring, transferring, or ingesting files
- Applying closed captions to files
- Archiving or restoring files
- Performing quality checks on files
- Running manual jobs
- Generating proxies
- Transferring AS-02 2011 bundles except the Extra folder

Ignoring Patterns in Filenames and Notification Types

The Ignore Patterns feature lets you ignore file change notifications on files if the file name (full path) matches one of the specified patterns (regular expressions). You also have the flexibility to choose one or more notification types (FILE_DISCOVERED, FILE_DELETED, etc.) to be ignored. For example, the pattern ".*\[sS]\[wW]\[pP]\$" will ignore all notifications with file name that end with ".swp."

For example:

- Files from XDCAM Deck are moved from the /Ingest Edits folder to the Harmonic MediaGrid /Source Edits folder.
- In the ProXplore UI, create Ignore Pattern to ignore all .xml files placed on the Harmonic MediaGrid.
NOTE: Unlike Spectrum, the Harmonic MediaGrid file system supports recursive notifications. Although a subfolder remains unmanaged, notifications will continue to be sent. To discard events under subfolders for a managed Harmonic MediaGrid folder, use the Ignore File Pattern task.

Regular Expressions

Sample regular expressions include:

- `.*mpg`
  - matches all the strings that end with mpg like: `abc.mpg, abcmpg`
  - does not match `abc.MPG, abcMPg`

- `.*\.mpg`
  - matches: `abc.mpg`
  - does not match: `abcmpg`

- `.*\.[mM]\[pP\]\[gG\]`
  - matches: `abc.mpg, abc.MPG, abc.mPg, abc.MpG`

- `.*\.mpg\{0-9\}\{3,\}`
  - matches strings that end with .mpg followed by three or more digits, for example: `abc.mpg321, abc.mpG45345`
  - does not match: `abc.mpG23, abc.mpG34q34`

For example, the ignore pattern `".*\[sS]\[wW]\[pP]\$"` will ignore all file names that end with ".swp."

NOTE: Ignore Patterns are case-sensitive.

For more information about the syntax used in regular expressions, refer to: [http://www.regular-expressions.info/reference.html](http://www.regular-expressions.info/reference.html).
Notification Types

When creating ignore file patterns, you also select the notification type(s) MAS should ignore for files that are consistent with the pattern specified. The following table lists the notifications that are sent by the Spectrum, MediaDeck, or Media Application Server as well as which server processes the notifications.

Table 15–1: Notification Types

<table>
<thead>
<tr>
<th>Notification</th>
<th>Unprocessed</th>
<th>Processed</th>
<th>Notified By</th>
</tr>
</thead>
<tbody>
<tr>
<td>File has been discovered</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been created</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been modified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File has been opened for write</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been opened and is ready to be played out</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File has been closed for write</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been deleted</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been renamed</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid/Spectrum</td>
</tr>
<tr>
<td>File has been closed and is ready for transfer</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
<tr>
<td>File is ready to be read</td>
<td>Spectrum only</td>
<td>Yes</td>
<td>Spectrum/Media Application Server</td>
</tr>
<tr>
<td>Transfer of this file has completed</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid only</td>
</tr>
<tr>
<td>File has been renamed from</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
<tr>
<td>File first write has occurred</td>
<td>Yes</td>
<td>Yes</td>
<td>MediaGrid only</td>
</tr>
<tr>
<td>File replication factor has changed</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Files has been locked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>File has been unlocked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metadata has changed</td>
<td>Yes</td>
<td>Yes</td>
<td>Media Application Server</td>
</tr>
</tbody>
</table>

Managing Ignore Patterns

Viewing Ignore Patterns

To view Ignore Patterns:
1. From the Home page, click Ignore Patterns.
2. From the Content pane, click the Ignore Pattern you want.

Properties for the selected ignore pattern are shown.
Creating Ignore Patterns

To create ignore patterns:
1. From the Home page, click Ignore Patterns.
2. From the Toolbar, click the Create icon.
3. Complete the dialog as follows:
   - **Pattern**: (Required) Enter a regular expression string for the file(s) whose event(s) should be ignored.
   - **Notification Types**: Select the notification type(s) that should be ignored for files that are consistent with the pattern specified.
4. Click Test Pattern to check if the pattern matches the string expected to be ignored.
5. Click OK.

Once configured, you enable ignore patterns using the ignore patterns property in applicable dialog boxes in the UI.

Filtering Ignore Patterns

To filter ignore patterns:
1. From the Home page, click Ignore Patterns.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
4. Click Search Now.

The results are shown in the Content pane.

Editing Ignore Patterns

To edit ignore patterns:
1. From the Home page, click Ignore Patterns.
2. From the Content pane, click the Ignore Pattern you want to edit.
3. From the Toolbar, click the Edit icon.
4. Change the settings as needed.
5. Click OK.

Deleting Ignore Patterns

To delete ignore patterns:
1. From the Home page, click Ignore Patterns.
2. From the Content pane, click the Ignore Pattern you want to delete.
3. From the Toolbar, click the Delete icon.
4. Click OK.
5. Click Yes to confirm deletion of the pattern.
Chapter 16
Using the Jobs App

This chapter provides instructions for using the Jobs app to view the status of MAS jobs. Choose from the following topics:

- About Jobs
- Managing Jobs
- Purging the Database
- Managing “NeededBy” Jobs
- Viewing Saved Queries

About Jobs

MAS provides a centralized mechanism for managing jobs, regardless of which engine (Harmonic or third-party vendors) is processing the job. The Jobs module lets you view all current and past jobs by Type and Status. You can also purge the Jobs database.

Jobs by Category

The Jobs app displays status for the following job categories:

- Archive Jobs
- Browse Jobs
- Closed Caption Jobs
- File Deletion Jobs
- File Move Jobs
- Manual Jobs
- Mirror Jobs
- Prestage Jobs
- QC Jobs
- Restore Jobs
- Transcode Jobs
- Transfer Jobs

You can select a category for information on the status of a job at any point in time. Table 16–1 shows job statuses.
Table 16–1: Job by Status

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aborted Jobs</td>
<td>Indicates that the job execution is in the aborted state.</td>
</tr>
<tr>
<td>Completed Jobs</td>
<td>Indicates that the job completed successfully.</td>
</tr>
<tr>
<td>Failed Jobs</td>
<td>Indicates that the job has failed and is in the error state.</td>
</tr>
<tr>
<td>Jobs in Progress</td>
<td>Indicates that the job is being processed.</td>
</tr>
<tr>
<td>Queued Jobs</td>
<td>Indicates that the job is waiting to be consumed and processed.</td>
</tr>
<tr>
<td>Started Jobs</td>
<td>Indicates that the job has been started.</td>
</tr>
</tbody>
</table>

Managing Jobs

Viewing Jobs

To view jobs:
1. From the Home page, click Jobs.
2. From the Navigation panel, expand Jobs By Category folder.
3. Click the Job Category you want.
   The Content pane contains a Status column that shows the “real time” status of the job(s).
   You can sort the status by clicking on the Status column header. Statuses are color-coded to provide quick access to information about a job. For example, a successfully executed job has a status of “Completed” in green. Alternatively, a failed job has a status of “Error” in red. Information statuses appear in blue.
4. From the Content pane, click any job to view its properties.

Discarding Unprocessed Jobs/Aborting Jobs in Process

NOTE: When a source file is deleted, the Media Application Server aborts the jobs in progress.

To discard unprocessed jobs:
1. From the Home page, click Jobs.
2. From the Navigation panel, expand Jobs By Category.
3. Click the Job Category you want.
4. From the Content pane, click the job to discard.
5. From the Toolbar, click the Discard unprocessed job(s) or Abort job(s) in progress icon.
6. Click OK.

Changing the Date/Time Jobs are Needed

If a job is in queue, you can change the date and time at which the job must be consumed (if not sooner).

To change the date/time jobs are needed:
1. From the Home page, click Jobs.
2. From the Navigation Panel, expand Jobs By Category.
3. Click the **Job Category** you want.
4. From the Content pane, click the job you want.
5. From the Toolbar, click the **Edit** icon.
6. Complete the dialog box as follows:
   - **Source**: Shows the path name of the source file.
   - **Destination**: Shows the path name for the destination file on the Archive server.
   - **Priority**: Select the job priority for consuming the job from “1” (lowest) to “9” (highest). The default priority is “4.” Set the most time-critical jobs to a higher priority, as these are consumed by the system first.
   - **Wait Time (seconds)**: Select the amount of time to wait between retrying the job.
   - **Time Needed By**: Select the date and time in which the job must be consumed (if not sooner). Once jobs are created and in a queue, you can still revise the time you need them by editing the job entry. MAS consumes jobs in the same queue based on their priority, and then by their neededBy value. For jobs that do not have a Time Needed By value specified, MAS uses the dispatch time when the job was first created.
7. Click **OK**.

**Redispatching Completed or Error Jobs**

**To redispatch completed or error jobs:**
1. From the Home page, click **Jobs**.
2. From the Navigation panel, expand **Jobs By Category**.
3. Click the **Job Category** you want.
4. From the Content pane, click the job to redispatch.
5. From the Toolbar, click the **Redispatch job** icon.
6. Click **OK**.

**Forcing Transfer Jobs**

**CAUTION**: Perform this task only if requested to do so by Harmonic Technical Support.

**To force transfer jobs:**
1. From the Home page, click **Jobs**.
2. From the Navigation panel, expand **Jobs By Category**.
3. Click the **Job Category** you want.
4. Click **Jobs in Progress**.
5. Click **Transfer Job**.
6. From the Content pane, click the job that is stuck.
7. From the Toolbar, click the **Force consume the transfer job** icon.
8. Click **OK**.

**Filtering Jobs**

Filter jobs to narrow the job information in the Content pane. Depending on the job category selected, the filter options will differ.

**To filter jobs:**
1. From the Home page, click **Jobs**.
2. From the Navigation panel, expand Jobs By Category.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click Search Now.

The results are shown in the Content pane.

**Purging the Database**

By default, the Media Application Server retains data in time-sensitive data for seven days. You can purge the database to clean up audit log tables (stores a list of executed tasks that are marked for an audit), job tables (stores a list of processed jobs), and event logs that contain time-sensitive information (such as user actions or jobs executions).

For general installations, data is purged every seven days to keep the data set small. For existing installations, please set the Database Purge Cut Off Days parameter to meet your needs. See Settings > General).

**To purge the database:**
1. From the Home page, click Jobs.
2. Expand Jobs By Category.
3. Choose the Job Category you want to purge.
4. From the Toolbar, click the Purge Database icon.
5. Click OK.

**Managing “NeededBy” Jobs**

In scheduling, it is reasonable to expect that jobs should be ready by the time they needed. If the resource is a clip, the clip should be ready at the time it is needed. A “needed” clip is most likely generated and controlled via a workflow defined by multiple rules or user-defined Manual Jobs. The workflow can involve multiple subsystems.

For instance, the clip may have to go through a QC rule, a manual QC job, an Archive rule, and then transferred to its destination. Many jobs involve a clip to require that it be ready by a specified time. How can a user know whether the required clip will be ready before, or by the time it is needed, especially on a heavily-loaded system?

To address this requirement, MAS provides a new feature called “neededBy” for a job whether it is on demand or triggered by a rule.

MAS will consume the message for the job and execute it at or before it is needed. In other words, the job will be consumed no later than it is needed. This feature can only be implemented if the system load is allowed. For example, by the time it is needed and no other jobs are ahead in terms of neededBy time in the job queue.

You can set the needed-by time for an asset or a clip. Normally, this would be fulfilled by setting a metadata value in neededBy field for the object.

Once these jobs are created and in a message queue, you can still revise their neededBy value by either editing the job entry or setting the neededBy value again from the asset metadata values. MAS consumes jobs in the same queue based on their priority, and then by their neededBy value. For jobs that do not have a neededBy value specified, MAS will use the dispatch time when the job was first created. You can also specify a neededBy value for an on-demand job.
NeededBy time can also be specified through assets by updating the `neededby` metadata field.

Refer to `neededBy Field` for more information.

**NOTE:** Depending on job type, the duration of a clip and subsystems involved, some jobs may take longer than others.

---

### Setting the MessageFactory Property

In-queue jobs are jobs that are waiting to be consumed and processed by MAS. The order of in-queue jobs of a certain job type is determined by two factors: its priority and its `neededBy` value (if supported by that job type). The higher-priority jobs are served before lower-priority jobs. For jobs in the same priority queue, jobs with fewer (older) `neededBy` values are served first.

Each job has its own job queue. Some job types are executed much faster than others, given the nature of the job type, and could dominate job consumption. To avoid “starvation” consumption from other job types, you can configure the Resource Starvation parameter in the Server Settings dialog box. When enabled, this option lets MAS serve a job only if the job becomes overdue according to its `neededby` time.

**To set the MessageFactory property:**

1. From the Home page, click **Settings**.
2. From the Navigation panel, click **MessageFactory**.
3. From the Toolbar, click the **Edit** icon.
4. Select the **Handle Time NeededBy** and **Resource Starvation** options.
5. Click **OK**.

By default, the Resource Starvation is false. For example, jobs are served as long as there are no other jobs that precede it in the queue. If this option is set to true, jobs are served only until they are overdue in terms of their `neededby` time.

### Changing the NeededBy Metadata Field for In-queue Jobs

You can change the `neededBy` or priority values for in-queue jobs. The following job types support the `neededBy` metadata field:

- Transfer Job
- Transcode Job
- Proxy Job
- QC Job
- CC Job
- Archive, Prestage, and Restore
- Manual Jobs

**To change the NeededBy metadata field for in-queue jobs:**

1. From the Home page, click **Jobs**.
2. From the Navigation panel, expand **Jobs By Category**.
3. Click the **Job Category** you want.
4. From the Content pane, click the job to edit.
5. From the Toolbar, click the **Edit** icon.
6. Change the Needed By or Priority values as required.
7. Click OK.

**Setting the NeededBy Metadata Field for On-demand Jobs**

You can set a NeededBy time to create an on-demand job using the Transfer dialog box. The following procedure illustrates how to transfer an asset.

**To set the NeededBy metadata field for on-demand jobs:**
1. From the Home page, click Asset.
2. Expand All Assets.
3. From the Content pane, select one or more assets.
4. From the Toolbar, click the Transfer icon.
5. Click Use on Demand to specify that this transfer job takes higher precedence over existing jobs in the queue. This job will not be put in the queue and will come before existing jobs in the queue, if any.
6. Click OK.

The asset is transferred according to the selected mode/schedule.

**Viewing Saved Queries**

Saved status queries can be managed from the Jobs page. For an overview and instructions on creating search queries refer to [Creating Search Queries](#).

**To view saved status queries:**
1. From the Home page, click Jobs.
2. From the Navigation panel, expand Saved Status Queries.

The results are shown in the Content pane.
Chapter 17
Using the Logs App

This chapter provides instructions for using the Logs app to manage MAS logs. Choose from the following topics:

- About Logs
- Managing the Events Dashboard
- Managing Event Logs
- Managing Audit Logs
- Purging Logs
- Viewing Saved Log Queries

About Logs

The Logs app presents a high-level view of events and audit logs in the Media Application Server.

Options

The following options are available for obtaining detailed information about a log.

Table 17-1: Log Options

<table>
<thead>
<tr>
<th>Navigation Panel</th>
<th>Logs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All New Event Log Entries &gt; All New Log Entries</td>
<td>Shows log entries that have not been cleared.</td>
</tr>
<tr>
<td>All New Event Log Entries &gt; Saved Log Queries</td>
<td>Shows saved log queries. Cleared log entries are shown in gray.</td>
</tr>
<tr>
<td>All Audit Log Entries &gt; By Action Status</td>
<td>Shows log entries by status: Success or Failed.</td>
</tr>
<tr>
<td>All Audit Log Entries &gt; Saved Log Queries</td>
<td>Shows saved log queries.</td>
</tr>
</tbody>
</table>

Managing the Events Dashboard

The Dashboard presents a user-configurable snapshot of event status. Information can be presented in tables, graphs, and charts, which are all configurable from the View menu of a cell.

The menu bar, located in the upper-right corner of each cell, provides the following options:

- Edit properties of the selected object
Moving any cell in a drag-and-drop operation to any of the other cell positions, customizing the layout to your preference. The rate at which the cell is updated can be changed using the cell’s Edit menu.

Dashboard cells can be managed from the Logs app. For an overview and instructions on managing dashboards, refer to Managing the Dashboards.

Managing Event Logs

This section explains how to work with event logs.

Viewing Event Logs

To view event logs:
1. From the Home page, click Logs.
2. From the Navigation panel, click All New Event Log Entries or All Event Log Entries. The logs are shown in the Content pane.
3. Click on a column to sort the log entries.
4. Click a log to view its properties.

Clearing Event Logs

To clear event logs:
1. From the Home page, click Logs.
2. From the Navigation panel, click All New Event Log Entries or All Event Log Entries.
3. Click a log category.
4. From the Content pane, click a log entry or entries to clear.
5. From the Toolbar, click the Clear Event or Clear All Events icon. If there are a lot of events, this process can take some time.
6. Click OK.

Filtering Event Logs

Filter logs to narrow the information in the Content pane.

To filter event logs:
1. From the Home page, click Logs.
2. From the Navigation panel, click All New Event Log Entries or All Event Log Entries.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click Search Now.

The results are shown in the Content pane.

Managing Audit Logs

This section explains how to work with audit logs.
Viewing Audit Logs

To view audit logs:
1. From the Home page, click Logs.
2. From the Navigation panel, expand All Audit Log Entries.
3. Do one of the following:
   - Click By Feature Group and click the Feature Group you want.
   - Click By Action Status and select Status: Success or Status: Failed.
   The records are shown in the Content pane.
4. Click on a column to sort the log entries.
5. Click a log to view its properties.

Filtering Audit Logs

Filter logs to narrow the information in the Content pane.

To filter audit logs:
1. From the Home page, click Logs.
2. From the Navigation panel, expand All Audit Log Entries.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click Search Now.

The results are shown in the Content pane.

Purging Logs

The Media Application Server backs up the local database every night at 2 A.M. It keeps the last two copies of the backup. By default, the Media Application Server retains data in time-sensitive data for seven days. You can purge the database to clean up audit log tables and event logs that contain time-sensitive information such as user actions or jobs executions.

You can purge all log entries or specify the conditions under which to purge log entries.

To purge logs:
1. From the Home page, click Logs.
2. Expand All Event Log Entries.
3. From the Toolbar, click the Purge Database icon.
4. Complete the DB Purge panel as necessary.
5. Click OK.
6. Click Yes.

Viewing Saved Log Queries

You can manage saved log queries from the Logs app. For an overview and instructions on creating search queries refer to Creating Search Queries.

To view saved log queries:
1. From the Home page, click Logs.
2. From the Navigation panel, click **Saved Log Queries**.
3. Click the query you want to view.
   The results are shown in the Content pane.
Chapter 18
Using the Manual Jobs App

This chapter provides instruction on how to use the Manual Jobs app to create a Manual Job and manage Manual Job rules. This chapter includes the following:

- About Manual Jobs
- Managing Manual Job Rules
- Working with Manual Jobs
- Searching Assets
- Searching File Systems
- Viewing Scheduled Tasks

About Manual Jobs

A Manual Job (or “human job”) can be used to add human decisions in your workflow. For example, when a QC job completes, you may need to check the QC report, time code in/time code out verification, or contextual correctness. You can also create a Manual Job to track the result of an operation.

Using the Manual Job function, you can:

- Create a Manual Job rule based on the default Manual Job Metadata template (default values are provided).
- Automatically dispatch Manual Job according to the Manual Job rule.
- Select a clip or media instance and run an “on-demand” Manual Job.
- Consume a Manual Job and query for a specific job. Jobs are consumed in the order of the neededBy metadata value.
- Update the status and metadata for a Manual Job.
- Reassign a Manual Job to others workers.
- Abort a Manual Job.

Managing Manual Job Rules


Creating Manual Job Rules

The Manual Job rule dispatches a specified Manual Job for clips in a source folder. A Manual Job is triggered through a rule on an MD_CHANGED event only.

To create manual job rules:

1. From the Home page, click Manual Jobs.
2. Click Manual Job Rules.
3. From the Toolbar, click the Create icon.
4. Complete the **Properties** dialog box as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box to enable the Manual Job rule.
   - **Include Subfolders**: Select this check box to dispatch manual jobs for files in subfolders within the source folder you choose.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.

5. Click the **Manual Job Setting** tab, and complete the dialog as follows:
   - **General**
     - **Enable Filter**: Select this check box to enable the **File Name Pattern** filter. Use this filter to choose specific files in folders targeted for Manual Jobs.
     - **File Ignore Pattern**: Define a regular expression for ignoring a file type. See *Ignoring Patterns in Filenames and Notification Types* for more information.
     - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are the Manual Jobs you want.
     - **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

### Table 18–1: File Name Patterns

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.*(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.(mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.(mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*.abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>abc</td>
</tr>
</tbody>
</table>

**NOTE:** The File Name Pattern applies to file names only and not to folders.

- **Key and Value**
  This section lists the pre-defined metadata fields (**Keys**) specified in the Manual Jobs metadata template. Choose the values you want for each field. When you choose a value, it is shown in the **Values** column.

- To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to *Metadata Fields* for more information.
Chapter 18 Using the Manual Jobs App

Managing Manual Job Rules

- **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
- **Value**: The choices for this value are dependent on the **MetaData Field** setting.

6. Click the **Metadata Filter** tab.

Use this tab to create filters for Manual Jobs based on metadata fields defined in metadata templates. Refer to **Metadata Fields** for more information.

7. To evaluate the metadata expression when the rule is run, do the following:
   a. In the **Evaluate Metadata Filter** option, select **Yes** to trigger the rule on any metadata value change based on the fields added to the **Metadata Filter**.
   b. In the **Logical Operator for Filter** menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click **Add**.
   d. Complete the dialog box as follows:
      - **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - **Operator**: Select the logical operator to apply to the metadata expression defined in the **Value(s)**.
      - **Type**: A read-only parameter that presents different **Value** options depending on the **Name** parameter you selected.
      - **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The **Value** options differ depending on the **Name** parameter you selected.
   e. Click **OK**.

8. To add more metadata expressions, repeat **Step 7**.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click **Delete**.
   c. Click **Yes**.

10. Click **OK**.

MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to **Running Manual Job Rules**.

### Editing Manual Job Rules

To edit manual job rules:

1. From the Home page, click **Manual Jobs**.
2. From the Navigation panel, click **Manual Job Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

**Duplicating Manual Job Rules**

To duplicate manual job rules:
1. From the Home page, click **Manual Jobs**.
2. From the Navigation panel, click **Manual Job Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

**Enabling or Disabling Manual Job Rules**

To enable/disable manual job rules:
1. From the Home page, click **Manual Jobs**.
2. From the Navigation panel, click **Manual Job Rules**.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.

**Running Manual Job Rules**

You can immediately run a rule, even if a schedule has already been specified.

To run manual job rules:
1. From the Home page, click **Manual Jobs**.
2. From the Navigation panel, click **Manual Job Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Run** icon.
5. Click **OK**.

If successful, the files are stored in the destination folder you specified.

**Filtering Manual Job Rules**

Filter Manual Job rules to narrow the Manual Job information in the Content pane.

To filter manual job rules:
1. From the Home page, click **Manual Jobs**.
2. From the Navigation panel, click **Manual Job Rules**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to [Creating Search Queries](#) for instructions on completing the pages.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.
Deleting Manual Job Rules

To delete manual job rules:
1. From the Home page, click Manual Jobs.
2. From the Navigation panel, click Manual Job Rules.
3. From the Content pane, click rule you want.
4. From the Toolbar, click the Delete icon.
5. Select the Force Delete check box, and click OK. When this check box is selected, the system deletes the rule without checking for any conflicting conditions.
6. Click OK

Performing On-Demand Manual Jobs

Use this procedure to perform a Manual Job for the selected object or schedule it to dispatch a job in the future. The following requirements apply:

- You can perform Manual Jobs only on clips and media instances.
- The Job Settings in the Manual Job Entry dialog box are used for an on-demand Manual Job when a rule is not defined.
- The neededBy time is set based on the schedule set in the “Later” parameter of the dialog box. If you specify “Now,” the neededBy time of the source clip is be used. If that time value does not exist, the current time is used.

To perform on-demand manual jobs:
1. From the Home page, click Assets.
2. From the Navigation panel, expand All Clips folder and then open the folder you want.
3. From the Content pane, click the asset that contains the clip you want to use.
4. From the Details pane, expand the asset, and click the clip you want to use.
5. From the Toolbar, click the Perform Manual Job icon.
6. Complete the dialog box as follows:
   - **MetaData Values**
     - **Key and Value**
       - This section lists the pre-defined metadata fields (Keys) specified in the Manual Jobs metadata template. Choose the values you want for each field. When you choose a value, it is shown in the Values column.
   - **File Ignore Pattern**
     - **Enable Filter**: Select this check box to enable the File Name Pattern filter. Use this filter to choose specific files in folders targeted for Manual Jobs.
     - **File Ignore Pattern**: Define a regular expression for ignoring a file type. See Ignoring Patterns in Filenames and Notification Types for more information.
     - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are the Manual Jobs you want. See Table 18-1 for information.
   - **Schedule**
     - Set the schedule for Manual Job generation.
     - **Now**: Run the Manual Job now.
     - **Later**: Run the Manual Job at the specified date and time.
   - **Bottom Panel**
Object: (Read Only) Shows the path of the clip in MAS.

Status: (Read Only) Shows the status of the Manual Job.

7. Click OK.
8. Click OK.

Working with Manual Jobs

You can view the status of Manual Jobs dispatched by on-demand operations, run a Manual Job rule, and manage the job.

To work with manual jobs:
1. From the Home page, click Manual Jobs.
2. From the Navigation panel, expand Manual Jobs.
3. Click the Job Status you want.

MAS provides the following statuses:
- Queued Job
- Started Job
- In Progress Job
- Completed Job
- Failed Job
- Aborted Job

4. From the Content pane, click the Manual Job you want.
5. Click a Toolbar button to perform the task you want, as follows:
   - Consume Manual Job: Consumes Manual Jobs according to selections, rules, and metadata. If you select only one job, MAS consumes the selected job. If you do not select any job, the next job ordered by the neededBy metadata field is consumed. See Managing “NeededBy” Jobs for more information.
   - Abort Manual Job: Aborts a Manual Job after it has been started. Aborted jobs can be edited or redispached, but cannot be reassigned. Jobs that are “in queue,” “started,” or “in progress” can be aborted.
   - Reassign Manual Job: Reassigns a Manual Job that has been “started” or is “in progress.”
   - Purge Database: Set a job to purge the database of time-sensitive material.
   - Redispatch Manual Job: Redispatches a Manual Job that is not “started” or “in progress.”
   - Complete Manual Job: Completes a manual job that is currently “started” or “in progress,” but not “aborted,” not in “error,” or in an “errorWillRetry” state.
   - Fail Manual Job: Fails a manual job that is currently “started” or “in progress,” but not “aborted,” not in “error,” or in an “errorWillRetry” state.

6. (Optional) To change the Manual Job after it has been consumed, do the following:
   a. Select the job and right-click the mouse button. A list of applicable options appear in the drop-down menu.
   b. Choose the option you want. A dialog box for the selected option opens.
   c. Edit the settings in the dialog box, as needed.
   d. Click OK.
Searching Assets

You can search assets from the Manual Jobs app. For an overview and instructions on managing assets, refer to Managing Assets.

To search assets:
1. From the Home page, click Manual Jobs.
2. From the Navigation panel, expand Search Assets, and choose the asset category you want to search.

Results are shown in the Content pane.

Searching File Systems

You can search file systems from the Manual Jobs app. For an overview and instructions on managing file systems, refer to Using the File Browser App.

To search file systems:
1. From the Home page, click Manual Jobs.
2. From the Navigation panel, expand Search file systems.
3. Choose the file system you want to search.

Results are shown in the Content pane.

Viewing Scheduled Tasks

You can manage scheduled tasks from the Manual Jobs app. For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

To view scheduled tasks:
1. From the Home page, click Manual Jobs.
2. From the navigation panel, click Scheduled Tasks.

Results are shown in the Content pane.
Chapter 19
Using the Metadata Templates App

This chapter provides instructions on using the Metadata app to add descriptive metadata values to clips. Choose from the following topics:

- About the Metadata Service
- Managing Default Metadata Templates
- Viewing User Data Written to Media Files Outside of MAS
- Managing Custom Metadata Templates
- Managing Virtual Folders
- Managing Virtual Subfolders
- Managing Metadata Filters and Expressions
- Managing Metadata Rules
- Viewing Track Tags

About the Metadata Service

Through the Metadata Service, the integrated database is pre-populated with properties not found in generic systems such as bit rate, resolution, wrapper type, and video format. Even more importantly, these physical attributes of content are gathered by the system and the database is automatically populated. The Metadata Service also supports extensive customization, allowing the server to support the unique data model requirements of each organization, from tracking episodes and seasons to sponsor and distribution agreement information.

MAS uses structural and descriptive metadata to enable efficient access to and reuse of existing content, reducing the costs associated with locating or reacquiring material. MAS automatically interrogates all managed systems to extract metadata such as format, bit rate, resolution, frame rate, and wrapper type, and leverages that data to streamline the organization and location of content.

You can tailor metadata models to your requirements by employing fields and field types for assets, clips, sub-clips, clip sequences, tracks and even individual frames to ensure accurate content organization and consistent search results.

Virtual folders organize content hierarchically or in groupings based on genre, content type, project, or workflow stage. Drawing on content stored across the system, virtual folders can be dynamically populated with the result of a saved search to provide content required for a specific user or task. Metadata fields created in relation to virtual folders enable context-specific metadata based on category, ensuring that content organization is unrestricted by a single system-wide metadata model.

Object Types

Metadata is system- or user-defined information about an object type in the MAS database. These object types are:

- Asset
- Clip
Metadata describes the characteristics of the object, such as the name, description, format, bit rate, resolution, frame rate, or wrapper type. Metadata can be structural (such as a clip’s format), or descriptive (a summary of the media) that adds functionality and efficiency in object management.

You use metadata to highlight important information about system files and facilitate information searches in MAS. For example:

- Perform quick searches for objects.
- Organize similar groups of objects
- Differentiate among different groups of objects
- Identify the workflow stage for an object
- Identify users who handle objects in a workflow

**Metadata Templates**

A metadata template is a collection of metadata fields that can be assigned to an object type. This allows you to assign values to different instances of the same object.

**Default Metadata Templates**

MAS provides seven, default metadata templates that you access by clicking **Metadata Templates** from the Home page of the the UI.

These default templates are described in the following table.

**Table 19–1: Metadata Templates**

<table>
<thead>
<tr>
<th>Template</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset</td>
<td>Adds metadata to a “logical” container that has clips (hi-res clips, low-res proxies, transcoded clips, etc.).</td>
</tr>
<tr>
<td>Clip</td>
<td>Adds metadata to a media file, such as a movie.</td>
</tr>
<tr>
<td>Subclip</td>
<td>Adds metadata to an object created in MAS with new in/out points and a reference to the high-res clip.</td>
</tr>
<tr>
<td>Track</td>
<td>Adds metadata to an audio or video component of a movie.</td>
</tr>
<tr>
<td>Sequence</td>
<td>Adds metadata to a group of clips and subclips that have the same format, wrapper type, and frame rate.</td>
</tr>
<tr>
<td>Picon</td>
<td>Adds metadata to a picon, a Joint Photographic Experts Group (jpeg) file or thumbnail of a movie file.</td>
</tr>
</tbody>
</table>
Some templates contain default metadata that cannot be deleted. Other templates may not have any pre-defined metadata. To determine the metadata that is currently assigned to a template, from the Navigation panel, expand **AllTemplates** and select the template you want to view. Properties for the selected template display in the Content pane.

**Custom Metadata Templates**

In addition to the default metadata templates, you can create custom templates.

- After a template is created, you can add metadata fields specifically geared for your environment.
- All metadata (structural and descriptive) is stored in the Media Application Server database so there is no performance impact on the managed storage servers when searching.
- New metadata templates can only be created for Asset objects.

**Metadata Fields**

A metadata field represents a field of supported types, along with its definition. It is part of a metadata template that enables you to enter values and tag assets for future use. In MAS, you define metadata fields for different object types in the metadata template. The metadata fields can be of different types, such as text fields, dates, booleans, integers, lists, etc. You can add, modify, and delete user-defined metadata fields. You can reorder them in the list or reset the template to use the default metadata fields.

**Field Types**

The following field types are provided for a new metadata field:

- Text
- Text Area
- Boolean
- Integer
- Long
- Double
- Date
- List
- Timestamp

The MAS database places a restriction on the number of metadata fields that can be added to metadata templates of the same type. The restriction comes from the database in which all metadata values for an object must “fit” into one database page that has a size of 65535 bytes. You will get an error if you exceed the limits. Most metadata fields have a fixed character length, except for Text, Text Area, and List Types.

**Text Field**

A text metadata field can contain up to 255 characters. Each character uses three bytes in database. Thus, a text field can take up to 767 bytes, whereas the size of the metadata field itself takes two bytes.
Text Area Field

A Text Area metadata field can store up to 2048 characters; however, it takes a relatively small number of fixed spaces on a database page. Typically, the data are mostly stored outside the page, if it is not able to fit on a page.

List Field

A List metadata field stores choices, either from single or multiple selections. Each selection defined in the list can take up to 255 characters. For a multiple selection field, the selections are stored as comma-separated list of choices, such as "a,b, or c." This field is limited to 255 characters, including commas.

For example, if you use Text and List metadata fields with 255 characters each, most spaces on a database page will be used. A metadata template can include up to 85 metadata fields. However, using fewer Text and List metadata fields can cause other field types to use a smaller footprint. Thus, you should be able to define hundreds of metadata fields for metadata templates by selecting the proper field types.

neededBy Field

The neededBy metadata field specifies the time when asset-related jobs must be consumed for execution by MAS, if not sooner. When neededBy is set, MAS will consume and execute the job at or before the time it is needed. If the default value is "None," MAS sets the value to the dispatch time based on when the job was first created.

When the neededBy value is set for an object, it has the following impact on jobs that support neededBy:

- A new job associated with this object will have the neededBy time set to this value.
- Jobs currently in-queue that are associated with this object will have their neededBy time set to this value.

The neededBy metadata field is supported in the following MAS jobs:

- Archive, Prestage, and Restore
- Closed Caption
- Manual Job
- Proxy
- Quality Check
- Transcode
- Transfer

Refer to subsequent chapters in the guide for information on these rules associated with these jobs.

**NOTE:** The neededBy field can be used to configure jobs in-queue or on-demand jobs. See Managing "NeededBy" Jobs for more information.

qcPreset Field

The qcPreset metadata field is used to specify the value of a preset used when posting a Quality Control (QC) job. MAS can pick up the qcPreset from the metadata stored at the asset level for that file (or from the job setting).
For example, a.mov is the file and asset, “a,” is created. An operator sets the qcPreset metadata to “full-qc.” Next, the operator creates a QC rule specifying that every file posted to a QC job, pick the value of the preset used from the one stored as metadata on the related asset. This function enables third-party partners to configure the asset metadata programmatically to a value based on the asset, without the need to hard code the preset in the rule.

**NOTE:** The qcPreset field is used when a QC rule is created with the ASSETPROPERTY option.

### qcStatus Field

The default Clip metadata template contains one pre-defined metadata field called **qcStatus**. This field has three values: OK, Error, and Unknown. The purpose of this metadata field is to identify clips that have been verified for quality by an external Quality Control System (QCS). QCS is used to verify clips after transcoding them in MAS. The metadata value is set on a clip by a QC Rule at end of a QC job execution. This field is also used to trigger a metadata change event so that other rules interested in the event can be activated in workflow, such as transcoding only those clips that pass QC.

**NOTE:** A metadata change notification supports only changes to the metadata value.

For example, when running a transcode job, the workflow requires that only validated clips are mirrored. The workflow invokes a QC rule that is defined on the destination folder for the transcode job. A QC job validates the integrity and quality of clips in the folder. It provides its validation status according to the user-defined metadata field and saves it to the associated clip or asset. In this scenario, the workflow defines qcStatus in a metadata field and requires that its value is “OK” in the corresponding metadata value.

### Default Metadata Values

When configuring metadata fields, you can define a default value for that field. When creating a new asset, or modifying the metadata of an existing asset, this field is automatically populated with that default value. For example, you can set a metadata value that will automatically route an asset through the appropriate workflow based on the content type (commercial, long-form etc.).

You can create a default metadata value for each metadata field in a metadata template. The following features apply to default metadata values:

- When creating a default metadata value, MAS validates it to ensure that it is applicable to the current object.
- When updating a metadata field, MAS finds all metadata value instances that do not have the default value and applies them to the objects.
- When adding new media, MAS applies the corresponding default metadata value to the object, if one is defined.
- When a metadata value is not provided, MAS automatically applies your default metadata value to the field.
- When upgrading from a legacy release, MAS sets any missing metadata values to the default values created in the new release.

You can create default metadata values for metadata fields in the default metadata templates or in the custom metadata template for assets.

The default values that are available to use depend on the selected metadata template and field type.
**Managing Default Metadata Templates**

This section describes basic operations you can perform with default templates.

**Using Metadata Field Buttons**

The following table describes the buttons in the Metadata Fields dialog box.

**Table 19–2: Metadata Field Buttons**

<table>
<thead>
<tr>
<th>Button</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Adds a metadata field to the template.</td>
</tr>
<tr>
<td>Modify</td>
<td>Edits a metadata field in an existing template.</td>
</tr>
<tr>
<td>Delete</td>
<td>Removes a metadata field from an existing template. Any metadata</td>
</tr>
<tr>
<td></td>
<td>associated with this field is also removed from the object using this</td>
</tr>
<tr>
<td></td>
<td>rule.</td>
</tr>
<tr>
<td>To Top</td>
<td>Moves the metadata field to the top of the list causing it to be</td>
</tr>
<tr>
<td></td>
<td>evaluated first when used in rules.</td>
</tr>
<tr>
<td>Move Up</td>
<td>Moves the metadata field up a row in the template.</td>
</tr>
<tr>
<td>Move Down</td>
<td>Moves the metadata field down a row in the template.</td>
</tr>
<tr>
<td>To Bottom</td>
<td>Moves the metadata field to the bottom of the list causing it to be</td>
</tr>
<tr>
<td></td>
<td>evaluated last when used in rules.</td>
</tr>
<tr>
<td>Reset Summary</td>
<td>Enables the Summary Field check box for the selected field. If true,</td>
</tr>
<tr>
<td>Fields</td>
<td>it is used to provide quick information about metadata assigned to</td>
</tr>
<tr>
<td></td>
<td>this object.</td>
</tr>
<tr>
<td>Mark Summary</td>
<td>Enables the Summary Field check box for the selected field.</td>
</tr>
<tr>
<td>Fields</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The order in which the metadata fields appear in this dialog box (To Top, Move Up, Move Down, and To Bottom) does not affect rule evaluations.

**Adding Metadata Fields**

To add metadata fields:

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, expand **All Templates**.
3. Click the template you want.
4. From Toolbar, click the **Edit** icon.
5. Click the **Metadata Fields** tab.
6. Click **Add**.

**NOTE:** The New Metadata Field dialog box differs depending on the metadata template selected.
Chapter 19 Using the Metadata Templates App

Managing Default Metadata Templates

7. Complete the properties as follows:
   - **Field Name**: Enter a name for the metadata field. Spaces are not allowed.
   - **Description**: Enter a description of the field name.
   - **Summary Field**: If Yes, it is used to provide quick information about metadata assigned to this object. You can set up to five Summary fields.
   - **Field Type**: Select the metadata field type you want from the drop-down list.

   **IMPORTANT**: When you select a field type that supports default metadata values, a **Definition** panel appears at the bottom of the dialog box. Use the Definition panel to configure the default metadata values. Depending on the metadata template and field type selected, the default metadata values differ.

   - **Text**: This will be a metadata value to which you can add text to describe a file. Enter a **Character Set** for validation purposes and then set the **Length** of the text string as needed.
   - **Text Area**: Use this type to provide space for a broader description.
   - **Boolean**: Select this type for exact matching or for restricting metadata.
   - **Integer**: Select this type to add a number range to the template and then set the **Minimum** and **Maximum** values for the integer.
   - **Long**: Similar to the Integer type, this type is used for a longer number.
   - **Double**: Similar to the Integer and Long types, and contains an attribute to indicate the precision to be used.
   - **Date**: Select to add a date field to the template and then specify whether to use the current date or not.
   - **List**: Select this type to add a drop-down combo box with a list of values (**Single** list definition) or a scrollable list box (**Multiple** list definition).
   - **Timestamp**: Select this type to specify a point in time. The format is: YYYY/MM/DD HH/MM/SS.
   - **Linked User Data to Media File**: Select to link this metadata field to a media file. Use this check box when adding user metadata to media files. This setting is available only on ObjectType: Clip templates.

8. Configure the default metadata values you want. See **Default Metadata Values** for more information.

9. Click **OK**.

10. To add more metadata fields, click the **Add** icon again and repeat the previous steps.

11. In the **Edit MetaDataTemplate** dialog box, click the **Virtual Folders** tab.

12. To add a folder, do the following:
   a. In the **Available Virtual Folders list**, click the folder you want.
   b. Click **Add**.

13. To remove a folder, do the following:
   a. In the **Current Virtual Folders list**, click the folder you want.
   b. Click **Remove**.

14. Click **OK**.
Modifying Metadata Fields

To modify metadata fields:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. Click the template you want.
4. From the Toolbar, click the Edit icon.
5. Click the Metadata Fields tab.
6. Click the metadata field you want to modify.
7. Click Modify.
8. Change the fields as needed.
9. Click OK.
10. Click the Virtual Folders tab.
11. Change the list as needed.
12. Click OK.

Deleting Metadata Fields

Deleting a metadata field also deletes any metadata value associated with it. Be sure that you want to delete the field before proceeding. It may affect your rules.

To delete metadata fields:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. Click the template you want.
4. From the Toolbar, click the Edit icon.
5. Click the Metadata Fields tab.
6. Click the field you want to delete.
7. Click Delete.
8. Click Yes.
9. Click Ok.

Viewing User Data Written to Media Files Outside of MAS

In some cases, you may have written user data to media files outside of MAS but want to view that user data from the MAS UI. In this case, you will need to create a metadata field in the ObjectType: Clip template that matches the key name you created for the user data outside of MAS.

IMPORTANT: The new metadata field name must match the key name of the user data set on the media file outside of MAS. This operation is case sensitive.

To create a metadata field for user data:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. Select default (Object Type: Clip).
4. From the toolbar, click the Edit icon.
5. Click the Metadata Fields tab.
6. Follow the instructions in Adding Metadata Fields. Be sure to select Linked to Media.
7. Click OK.

The user data written to the media file outside of MAS will now appear on the clip in MAS. From the Asset app, select the asset > clip > and click the Clip Metadata tab.

Managing Custom Metadata Templates

This section explains how to create, modify, and delete custom metadata templates.

Creating Custom Metadata Templates

Follow these steps to create a new metadata template.

**NOTE:** A custom metadata template can only be created for an Asset.

To create a custom metadata template:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. From the Toolbar, click the Create a new Metadata Template icon.
4. Complete the dialog box as follows:
   - **Name**: Enter a Name for the template.
   - **Default Template**: Select Yes.
   - **Object Type**: Always Asset.
5. Click the Metadata Fields tab.
6. Click Add.
7. Complete the dialog box as follows:
   - **Field Name**: Enter a name for the metadata field. Spaces are not allowed.
   - **Description**: Enter a description of the field name.
   - **Summary Field**: If true, it is used to provide quick information about metadata assigned to this object. The Summary Field displays in the Details pane.
   - **Field Type**: Select the metadata field type you want from the drop-down list.

**IMPORTANT:** When you select a field type that supports default metadata values, a Definition panel appears at the bottom of the dialog box. Use the Definition panel to configure the default metadata values. Depending on the metadata template and field type selected, the default metadata values differ.

- **Text**: This will be a metadata value to which you can add text to describe a file. Enter a Character Set for validation purposes and then set the Length of the text string as needed.
- **Text Area**: Use this type to provide space for a broader description.
- **Boolean**: Select this type for exact matching or for restricting metadata.
- **Integer**: Select this type to add a number range to the template and then set the Minimum and Maximum values for the integer.
- **Long**: Similar to the Integer type, this type is used for a longer number.
- **Double**: Similar to the Integer and Long types, and contains an attribute to indicate the precision to be used.
- **Date**: Select to add a date field to the template and then specify whether to use the current date or not.
- **List**: Select this type to add a drop-down combo box with a list of values (Single list definition) or a scrollable list box (Multiple list definition).
- **Timestamp**: Select this type to specify a point in time. The format is: YYYY/MM/DD HH/MM/SS.

8. Configure the default metadata values you want. See *Default Metadata Values* for more information.

9. Click the Virtual Folders tab.

10. Select the virtual folder from the Available List and then click the Add icon to add the folder to the Current List.

11. Click OK.

The new template now appears in the Content pane and Navigation panel.

### Editing Custom Metadata Templates

To edit custom metadata templates:

1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. Click the template you want.
4. From Toolbar, click the Edit icon.
5. Edit the settings as needed.
6. Click OK.

### Deleting Custom Metadata Templates

To delete custom metadata templates:

1. From the Home page, click Metadata Templates.
2. From the Navigation panel, expand All Templates.
3. Click the template you want.
4. From the Toolbar, click the Delete icon.
5. Click OK.
6. Click Yes.

### Managing Virtual Folders

A virtual folder is a logical collection of various assets that may be related to certain user-asserted characteristics. Create a virtual folder to collect various related assets in a single folder. Once created, you can add subfolders to the virtual folder to add another level of organization.

### Creating Virtual Folders

To create a virtual folder:

1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. From the Content pane, click the Create icon.
5. In the Properties dialog box, enter a Name for the folder.
6. In the Related Query menu, click the query associated with this folder, if applicable.
   Go to Assigning Queries to Virtual Folders for more information
7. Do one of the following:
   - To create the folder, click OK.
   - To add subfolders to a virtual folder, click the Virtual Folders tab. Create as many subfolders that you need. Refer to Adding Virtual Subfolders for additional information.
   - To add metadata templates to the virtual folder, click the Metadata Templates tab. Refer to Metadata Fields for additional information.

The newly-created folder is stored within Virtual Folders on the File Browser app and is also accessible from the Assets app within Assets By Virtual Folder.

**Editing Virtual Folders**

To edit a virtual folder:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. From the Content pane, click the virtual folder you want.
5. From the Toolbar, click the Edit icon.
6. Change the settings as needed.
7. Click OK.

**Removing Metadata Templates from Virtual Folders**

You can add or remove metadata templates from virtual folders.

To add/remove metadata templates from virtual folders:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. Navigate the folder hierarchy, and select the Virtual Folder you want.
5. From the Toolbar, click the Edit icon.
6. Click the Virtual Folders tab.
7. Click the subfolder you want to modify.
8. Click the Metadata Template tab.
9. Do one of the following:
   - To add the template to a virtual folder, click the virtual folder in the Available List or select the virtual folder and then click the Add icon.
   - To remove the template from a virtual folder, click the virtual folder in the Current List or select the virtual folder and then click the Remove icon.
10. Click OK.
11. Click Yes.
Deleting Virtual Folders

Deleting a virtual folder deletes all subfolders and their contents. If a virtual folder is in use, you cannot delete it.

To delete a virtual folder:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. From the Content pane, click the virtual folder you want.
5. From the Toolbar, click the Delete icon.
6. Click OK.
7. Click Yes.

Assigning Queries to Virtual Folders

You can assign queries to virtual folders to populate them with the result of a saved query. A virtual folder with an assigned query is called a smart folder. You can assign any type of query to an asset, clip, subclip, or sequence.

NOTE: When assigning a query to a smart folder, the smart folder cannot reside under a virtual folder unless it is at the top level of the Navigation panel hierarchy.

Two types of queries are supported: static queries and dynamic queries. With a static query, you create a virtual folder, drag and drop objects in the folder, and then click the folder to run or update the query results. With a dynamic query, you create an object query, assign a predefined virtual folder to it, and then click the query to run or update the query results. Dynamic queries are especially useful for creating quick catalogs of objects.

Creating Static Queries

You can create static queries for assets, clips, subclips, or sequences. This section uses assets as an example of how to create a static query.

To create a static query:
1. Create a virtual folder (with one or more subfolders as needed). Refer to Creating Virtual Folders for instructions.
2. From the Page bar, click Assets.
3. From the Navigation panel, expand the All Assets folder.
4. Expand the Assets by Virtual Folder folder.
5. Locate the virtual folder (or subfolder) into which you want to associate assets with a query.
6. From the Content pane, browse for the assets you want to include in the virtual folder.
7. Select the assets and drag and drop them in the virtual folder (or subfolder).
8. Click OK.
9. From the Navigation panel, click the virtual folder to run or update the query results.

The search results, if any, display in the Content pane.

Creating Dynamic Queries

You can create dynamic queries for assets, clips, subclips, or sequences. This section uses assets as an example of how to create a dynamic query.
To create a dynamic query:
1. From the Page bar, click Search.
2. From the Navigation panel, expand Asset Queries.
3. From the Toolbar, click the Create icon.
4. Enter the Query Name and Query Description.
5. From the Virtual Folder drop-down menu, click the virtual folder you want. Expand All Virtual Folders to find your folder.
6. Configure any other options as needed. Refer to Creating Search Queries for information about the Query settings.
7. Click OK.
8. From the Navigation panel, click the asset query you created.

The search results, if any, display in the Content pane.

Managing Virtual Subfolders

Adding Virtual Subfolders

Follow these steps to add subfolders to existing virtual folders.

To add a virtual subfolder:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. Navigate the folder hierarchy to find the folder you want.
5. From the Content pane, click the virtual folder you want.
6. From the Toolbar, click the Edit icon.
7. Click the Virtual Folders tab.
8. Click the Add icon to add a subfolder.
9. Enter a name for the subfolder.
10. Click OK to add the subfolder.
11. Click OK again to complete the process.

The subfolder is added to the virtual folder and is also accessible from the Assets app within Assets By Virtual Folder.

Editing Virtual Subfolders

To edit a virtual subfolder:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. Navigate the folder hierarchy to find the folder you want.
5. From the Content pane, click the virtual folder you want.
6. From the Toolbar, click the Edit icon.
7. Click the Virtual Folders tab.
8. Click the subfolder you want to modify.
9. Click the Modify icon.
10. Edit the settings as needed.
11. Click OK.
12. Click OK again to complete the process.

Removing Virtual Subfolders

To remove a virtual subfolder:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click Virtual Folders.
3. Expand All Virtual Folders.
4. Navigate the folder hierarchy to find the folder you want.
5. From the Content pane, click the virtual folder you want.
6. From the Toolbar, click the Edit icon.
7. Click the Virtual Folders tab.
8. Click the subfolder you want to delete.
9. Click the Delete icon.
10. Click OK.
11. Click OK again to complete the process.

Managing Metadata Filters and Expressions

A metadata filter is a filter defined in a rule. It is a collection of metadata expressions to be evaluated when metadata changes in an asset or a clip. A rule is executed if the change meets the requirements defined in the filter. A metadata filter is made up of one or more metadata expressions. A metadata expression is built from pre-existing metadata fields that reside in standard or custom metadata templates.

You can configure metadata filters for the following rules:

- Archive
- Browse Generation
- Closed Caption
- File Deletion
- File Notification
- File Move
- Manual Job
- Mirroring
- Quality Check
- Transcode
- Metadata Rules

To evaluate changes in metadata associated with an object, you create a new rule and then add one or more metadata expressions to the metadata filter.
If the metadata expressions in a metadata filter are evaluated to be true, the rule will handle this event. Conversely, if the metadata expressions in a metadata filter are evaluated as false, the rule will not handle the event.

**NOTE:** If metadata changes occur on a clip, the event is evaluated against the clip and all its media instances, and MAS takes the appropriate action afterwards. In the case of metadata changes to an asset, as an asset contains a collection of clips, the event is triggered against all clips and their media instances. For those qualified clips and media instances, MAS takes the appropriate actions.

### Metadata Filter

This section describes the parameters that appear in the Metadata Filter tab of applicable rules.

- **Evaluate Metadata Filter:** Select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.

- **Logical Operator for Filter:** Select one of the following:
  - **And:** If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
  - **Or:** If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.

- **Add:** Adds metadata expressions to the metadata filter.

- **Delete:** Deletes the selected metadata expression from the metadata filter.

- **Metadata Filter:** This panel contains a list of metadata expression used to evaluate whether events of metadata changes is of interest. If evaluated to true, the rule will handle this event.

### Metadata Expression

Clicking the Add icon in the Metadata Filter tab for a rule opens the Metadata Expression dialog box. Use this dialog box to add metadata expressions to a filter.

The metadata expression dialog box has four fields:

- **Name:** A name as defined in a metadata field for a metadata template. Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates. Default metadata fields cannot be deleted.

- **Operator:** A comparison operator that changes depending metadata field. Select the logical operator to apply to the metadata expression defined in the Value. The following operators are supported:

  **Table 19–3: Metadata Operators**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ</td>
<td>Equal to</td>
</tr>
<tr>
<td>NE</td>
<td>Not equal</td>
</tr>
<tr>
<td>LEQ</td>
<td>Less than or equal to</td>
</tr>
<tr>
<td>LT</td>
<td>Less than</td>
</tr>
</tbody>
</table>
Table 19–3: Metadata Operators

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEQ</td>
<td>Greater than or equal to</td>
</tr>
<tr>
<td>GT</td>
<td>Greater than</td>
</tr>
<tr>
<td>LIKE</td>
<td>Relational like (a regular expression)</td>
</tr>
<tr>
<td>NLIKE</td>
<td>Relational not like (negation to a regular expression)</td>
</tr>
<tr>
<td>BETWEEN</td>
<td>x between [a, b] means x &gt;= a and x &lt;= b</td>
</tr>
<tr>
<td>IN</td>
<td>x in [v1, v2, ..., vn] means x is one of vi in the value list</td>
</tr>
</tbody>
</table>

- **Type**: A parameter that presents different **Value** options depending on the **Name** parameter selected. The following types are supported:
  - **Text**: This will be a metadata value to which you can add text to describe a file. Enter a **Character Set** for validation purposes and then set the **Length** of the text string as needed.
  - **Text Area**: Use this type to provide space for a broader description.
  - **Boolean**: Select this type for exact matching or for restricting metadata.
  - **Integer**: Select this type to add a number range to the template and then set the **Minimum** and **Maximum** values for the integer.
  - **Long**: Similar to the Integer type, this type is used for a longer number.
  - **Double**: Similar to the Integer and Long types, and contains an attribute to indicate the precision to be used.
  - **Date**: Select to add a date field to the template and then specify whether to use the current date or not.
  - **List**: Select this type to add a drop-down combo box with a list of values (**Single** list definition) or a scrollable list box (**Multiple** list definition).
  - **Timestamp**: Select this type to specify a point in time. The format is: YYYY/MM/DD HH/SS.

- **Value**: A string based on the interaction between the **Operator** and **Type** fields. Select or enter the name-value pair to be evaluated in the metadata expression. The following table shows the supported functions between the **Operator** and **Type** fields for a metadata expression.
Type and Operator Properties in Metadata Expressions

The following table shows the supported functions between Type and operator for a metadata expression.

Table 19–4: Metadata Expression Operators

<table>
<thead>
<tr>
<th>Operator</th>
<th>Type</th>
<th>Boolean</th>
<th>Number (Integer, Long, or Double)</th>
<th>Date</th>
<th>Text</th>
<th>List</th>
<th>Text Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ/NE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LEQ/GEQ/LT/GT</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>LIKE/NLIKE</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>IN</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>BETWEEN</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

List Type

A List is represented as a set. Comparison of two sets is to determine whether set1 is equal to, not equal to, subset, or superset of set2. The following table defines such comparisons with corresponding operator.

Table 19–5: Lists

<table>
<thead>
<tr>
<th>Set Comparison</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>set1 EQ set2</td>
<td>The two set are identical. For example, the sets have the same list of members.</td>
</tr>
<tr>
<td>set1 NE set2</td>
<td>The two sets are not identical.</td>
</tr>
<tr>
<td>set1 LT set2</td>
<td>Set1 is a proper subset of set2. For example, each member in set1 is also in set2, but set1 is not identical to set2.</td>
</tr>
<tr>
<td>set1 LEQ set2</td>
<td>Set1 is a subset of set2. For example, each member in set1 is also in set2, and set1 may be identical to set2.</td>
</tr>
<tr>
<td>set1 GT set2</td>
<td>Set1 is a proper superset of set2. For example, each member in set2 is also in set1, but set1 is not identical to set2.</td>
</tr>
<tr>
<td>set1 GEQ set2</td>
<td>Set1 is a subset of set2. For example, each member in set1 is also in set2, and set1 may be identical to set2.</td>
</tr>
</tbody>
</table>

Notes:

- If the Type is List, it is stored as a list of strings with “,” as delimiter.
- If the operator is IN, the value is a list of entries, each representing the string value of that Type.
- If the operator is BETWEEN, the string must be a list of exactly two entries. For example, a metadata expression of <rating, BETWEEN, Integer, “2, 4”> indicates that the metadata rating must be between 2 and 4.
How Rules Handle Events from Metadata Changes

This section describes the conditions under which a metadata filter is evaluated.

Table 19–6: Rules and Metadata Changes

<table>
<thead>
<tr>
<th>Evaluate Metadata</th>
<th>Handle Events Enabled</th>
<th>Scheduling or Run Rule Now Enabled</th>
<th>Handle Events Disabled</th>
<th>Scheduling Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Disabled</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

In the table, a “Yes” indicates that the metadata filter will be executed. A “No” indicates that the filter will not be executed. If metadata evaluation is “Disabled,” MAS behaves as if no metadata change notification is introduced (same as the MAS pre-3.3 release). If the metadata evaluation is “Enabled,” the metadata filter is evaluated regardless of whether the rule is performing event handling or running a scheduled rule. In other words, the metadata change itself relies on enabling at least one of the two other flags. There are no impacts to the rule if you only enable the metadata evaluation alone.

Managing Metadata Rules

Set up MetaData rules to schedule metadata insertion.

Creating Metadata Rules

To create a metadata rule:
1. From the Home page, click Metadata Templates.
2. From the Navigation panel, click MetaData Rules.
3. Click the Create new metadata rule icon.
4. Complete the Properties dialog as follows:
   - Name: Enter a name for the new rule.
   - Enable Rule: Select this check box to enable the Folder Synchronization rule.
   - Include Subfolders: Select this check box to trigger the metadata rule for files in subfolders within the source folders you choose.
   - Source Folder(s): Navigate to and then select the folder or folders that you would like to monitor. To open a nested folder, click the folder icon to expand it.
5. Click the MetaData Job Setting tab, and complete the following Job settings:
   - General
     - Filter Required: Select the check box to require a filter.
- **File Name Pattern**: Define a pattern using a regular expression so that only file names with certain formats are filtered.

**Table 19–7: File Name Patterns**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*.abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>.*abc</td>
</tr>
</tbody>
</table>

- **File Ignore Pattern**: Define a regular expression for ignoring a file type. See *Ignoring Patterns in Filenames and Notification Types* for more information.

- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

- **To add or modify a Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: Notification is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to *Metadata Fields* for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the MetaData Field setting.

6. Click the **MetaData Filter** tab, and configure the settings as needed. Refer to *MetaData Filter* for details.

**Editing Metadata Rules**

**To edit Metadata rules:**

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **MetaData Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Edit** icon.
5. Edit the settings as needed.
6. Click **OK**.

**Duplicating Metadata Rules**

**To duplicate Metadata rules:**

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **MetaData Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Edit the settings as needed.
6. Click **OK**.

**Enabling or Disabling Metadata Rules**

To enable/disable Metadata rules:

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **MetaData Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.

**Filtering Metadata Rules**

To filter metadata rules:

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **MetaData Rules**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in Search app. Refer to [*Creating Search Queries*](#) for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

**Deleting Metadata Rules**

To delete metadata rules:

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **MetaData Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Delete** icon.
5. To delete the object even it is in use, select **Force Delete**.
6. Click **OK**.
7. Click **Yes**.

**Viewing Track Tags**

You can manage track tags from the Metadata Templates app. For an overview and instructions on managing track tags, refer to [*Managing Track Tags*](#).

To view track tags:

1. From the Home page, click **Metadata Templates**.
2. From the Navigation panel, click **TrackTags**.

   The results are shown in the Content pane.
This chapter explains how to use the Quality Check (QC) app to manage jobs in MAS. Choose from the following topics:

- About the QC Service
- Before You Begin
- Getting Started
- Viewing the QC Summary
- Managing Notification Presets
- Managing Quality Check Rules
- Searching Assets
- Searching File Systems
- Managing Scheduled Tasks
- Managing Quality Check Jobs

About the QC Service

The QC Service automatically analyzes media assets to help identify problematic files both before and after the transcode process. QC examines each aspect of a file for possible problems, including video properties, audio properties, video quality, standards compliance, and metadata.

QC can verify assets on the incoming branch of an operation to detect potentially flawed or non-compliant assets entering a workflow. Similarly, it can verify assets on the outgoing branch to ensure consistent quality in the deliverables.

As an add-on to the Rhozet WFS and Carbon Coder, QC is embedded into the transcoding workflow process providing the most efficient and scalable method for assessment and verification of video assets by monitoring every step in the workflow.

IMPORTANT: This chapter uses Rhozet as an example of how to manage QC with MAS. Specific configurations and procedures may differ depending on your QC.

WFS Server and Client

Rhozet QC is configured through the WFS™ file-based workflow manager and runs on a WFS server at your site. The Rhozet client is a web-based user interface that can be accessed by any standard browser. The Rhozet client is a part of the Rhozet WFS and QC installation.

Media Application Server

In the case of a WFS, a plugin running on the MAS platform can consume the job, post them in the WFS queue, monitor the status of the job, and update the status of the job in the MAS database. MAS can add jobs to the WFS queue, send transcode and QC jobs, and control both the WFS (Carbon Coder) and ProXchange simultaneously.
Third-party Vendors

Using the MAS Application Programming Interface (API), third-party vendors can use the QC service to quality check transcoded files.

Before You Begin

This section describes the requirements, supported media, and an example setup for using the Rhozet WFS and QC on MAS. You can run QC at any time during your workflow process. For example, after ingesting a clip, before transcoding a clip, or after transcoding a clip. You can repeat QC multiple times on the same clip until you troubleshoot and resolve quality content issues.

Requirements

**IMPORTANT:** To use QC with MAS, knowledge of Rhozet products is assumed.

To use the WFS and QC with MAS, ensure that the following requirements are met:

- Windows server running the Rhozet WFS and QC apps properly configured for use with MAS.
- Network connectivity between the Windows server running WFS, QC, and MAS.

**NOTE:** Refer to your product documentation for complete installation and configuration information.

Supported Media

Rhozet supports the following media:

- **Media Containers:** HDV, MXF (including D-10/IMX), MPEG-2 PS, MPEG-2 TS, GXF, LXF, QuickTime, WMV, ASF, AVI, VOB, 3GPP, 3G2, WMA, WAV, Broadcast WAV, Smooth Streaming, HTTP Live Streaming.
- **Audio Codecs:** PCM, MPEG-1 Layer II, MP3, AAC, AMR-NB, WM Audio, RealAudio, Dolby Digital, Dolby Digital Plus.

Accessing Media Content

Harmonic users can access media content that resides on the:

- Local drive of the server where the WFS is installed
- Shared network folder
- FTP server

You need to register the local drive, network folders, and FTP servers with Harmonic.

Sample Workflow

A sample workflow of how MAS interoperates with Rhozet WFS and QC is as follows:

1. You register the Rhozet WFS server in MAS.
2. You create a preset on the Rhozet WFS.
3. You create a Quality Check rule on MAS to QC clips.
4. MAS discovers the clips for QC in the specified source folder and places them in a “job queue.”
5. QC polls MAS for jobs in the queue. When a job is found, QC consumes the job from the source folder on MAS.
6. QC creates an instance of a status checker to check the progress of the job. As QC processes the job, it posts the status of the job (In Progress) along with a percentage of its completion in MAS.
7. QC completes the QC and places the report in the designated folder after the job is completed.
   - If the QC is successful, a report is placed in the destination directory on MAS. MAS updates the metadata QC Status field for the clip template to “OK.”
   - If the QC verification fails, the clip is returned to the source directory on MAS. MAS updates the metadata QC Status field for the clip template to “Error.”
   - If the clip is not checked, MAS updates the metadata QC status field for the clip template to “Unknown.”
8. The Quality Check rule creates a content verification report summarizing the job status. MAS updates the URL information for the QC report in the clip.

   **NOTE:** Ensure that the URL is accessible via HTTP and the file is correctly translated for display in a web browser.

9. You create a Transcode preset on MAS for the external workflow system. The preset provides a drop-down list from which you can select a pre-configured preset to apply to the clip. See *Managing Rhozet WFS Transcode Presets* for more information.
10. You create a Transcode rule on MAS to transcoding the clip if the QC status for the clip is “OK.” See *Managing Transcode Rules* for more information.

**Preparing Rhozet**

From the Rhozet WFS Manager on a Windows server, you perform the following tasks:

1. Install and configure the WFS components on the Rhozet client.
2. Save the workflow templates so they can be activated by the API call in MAS.

Refer to your product documentation for complete information.

**API**

For information on the Application Programming Interface for the QC, refer to the *Media Application Server API Programmer Guide 3.6.*

**Getting Started**

From the MAS UI, you perform the following tasks:

1. Store, ingest, or copy the files to be transcoded to a source folder in a managed server on MAS. The source folder contains the file that will be verified by QC. See *Chapter 31, Using the Transfer App* for more information.
2. Register the Rhozet WFS server with MAS.
   - Refer to *Managing the Rhozet WFS Server* for complete information.
3. Create a Quality Check rule to perform a QC of the files and then report back the location of the report.
4. Immediately run the rule or schedule the rule to be run in the future.
Viewing the QC Summary

The QC Summary is a series of panels that provide details about the QC service. The following panels are provided:

- **Summary Panel**: Shows if the QC service is enabled and if rules are defined and/or enabled.
- **Settings**: Displays settings for the server that has configured for the QC service. Click the Edit icon to edit server settings. Refer to Configuring Services for more information about server settings.
- **Troubled Hosts**: Displays the IP address and connection status of all hosts in the system.
- **Job Count Panel**: Displays the status and count of QC jobs.
- **QC Alarms**: Displays the ID, alarm raised, and severity of any QC alarms.
- **Job Information**: Displays the Source data, progress, and status of QC jobs. The jobs listed can be sorted by clicking on the available tabs.
- **WFS**: Displays if QC is enabled, the maximum job limit for QC, and the current count of QC jobs.

To view the QC summary:
1. From the Home page, click QC.
2. From the Navigation pane, click Summary.

Managing Notification Presets

Preset are information files that you set up and store for regular inclusion in file management rules. Notification presets are used to notify a user when certain events occur, such as when a file is closed captioned or an error occurs. Once created, presets can be added to the various file and clip management rules. You can also select one or more types of notification presets for the same event.

Notification presets can be managed from the QC app. For an overview and instructions on managing notification presets, refer to Managing Notification Presets.

Managing Quality Check Rules

The next step in setting up QC is to create a Quality Check rule for verifying the integrity of the clip and specify the URL where the QC report is located. You can define a rule to QC files based on the following:

- System events (FILE_CLOSED_FOR_WRITE, WRITE_READY_FOR_TRANSFER, MD_CHANGED, FILE_READY_TO_READ, or FILE_DISCOVERED)
- Periodic schedule
- Metadata based triggering
- On-demand

Creating Quality Check Rules

To create quality check rules:
1. From the Home page, click QC.
2. From the Navigation panel, click Quality Check Rules.
3. From the Toolbar, click the **Create** icon.

4. Complete the **Properties** tab as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select **Yes** to load the rule in the rules engine. If an event occurs on clips in the folder, the rule is triggered. If this option is disabled, the rule will not get triggered automatically based on events.
   - **Include Subfolders**: Select **Yes** to verify clips that exist in nested folders. If this option is disabled, only clips that exist in the source folder are verified with the Quality Check rule. Clips in subfolders are not included in the verification process.
   - **Source Folder(s)**: Select the folder(s) that contain the clips you would like to verify with the Quality Check rule. To open a nested folder, click the folder icon to expand it.
   - **Destination Folder**: Select the folder that you would like to use for the destination. A report of the QC verification is placed in this folder.

5. Click the **Job Settings** tab and complete as follows:
   - **Vendor/Requestor**: Enter the vendor/requestor name for the QC job. The name should match the vendor ID used to consume jobs. For example, Rhozet WFS. For example, Baton. The field is case-sensitive.
     - After you enter the Rhozet WFS in the Vendor field, two new combo boxes appear: Categories and Template, through which you can select any presets created on WFS.
   - **Template Name**: Enter the name of the template you created using third-party software, such as Rhozet or Interra. The template is intended to be used to process your clips on MAS for a QC task.
   - **Enable Filter**: Select this option if a filter is required.
   - **File Ignore Pattern**: Define a regular expression for ignoring a file type. See *Ignoring Patterns in Filenames and Notification Types* for more information.
   - **Use Preset**: Select a preset to be used for QC. This is set in the QC job setting or the Asset/Clip metadata field. See *qcPreset Field* for more information.
   - **Max. Retries**: Type or select the number of times the Quality Check rule should be retried in the event of a failure. The maximum retry count is 100.
   - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are filtered.

**Table 20–1: File Name Patterns**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*\mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz\mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>.*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*[^abc]</td>
<td>Any name starting or ending with “abc” is filtered.</td>
</tr>
</tbody>
</table>
NOTE: The File Name Pattern applies to file names only and not to folders.

- **Wait Time (seconds)**: Select the amount of time to wait between retries.
- **User Preset**: Select User Defined or Asset Property.
- **Handle Growing Clip**: If enabled, the job will be dispatched on FILE_READY_TO_READ.
- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

- To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the **MetaData Field** setting.

- **Events and Schedule**
  - **Handle Events**: Select **Yes** to trigger the rule on the FILE_CLOSED_FOR_WRITE_READY_FOR_TRANSFER, MD_CHANGED, FILE_READY_TO_READ, or FILE_DISCOVERED notification types, depending on the rule. When this option is disabled (not selected), no event will trigger the rule. See Managing File Notification Rules for more information.
  - **Enable Periodic Polling**: Select **Yes** to schedule the rule to run at the specified time.
  - **Schedule**: Set the schedule for the rule.

- **Notification**
  - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http. The notification is sent based on the **Job States** selected below.
  - **Job States**: Select the job states about which you want to receive notifications.

6. Click the **Metadata Filter** tab.

   Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Metadata Fields for more information.

7. To evaluate the metadata expression when the rule is run, do the following:
   a. In the **Evaluate Metadata Filter** option, select **Yes** to trigger the rule on any metadata value change based on the fields added to the **Metadata Filter**.
   b. In the **Logical Operator for Filter** menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
c. Click **Add** and complete the tab as follows:

- **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
- **Operator**: Select the logical operator to apply to the metadata expression defined in the **Value**s.
- **Type**: A read-only parameter that presents different **Value** options depending on the **Name** parameter you selected.
- **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The **Value** options differ depending on the **Name** parameter you selected.

d. When you are done building the metadata filter, click **OK**.

8. To add more metadata expressions, repeat **Step 7**.

9. To delete a metadata filter, do the following:
   a. Click the metadata filter you want to delete.
   b. Click **Delete**.
   c. Click **Yes**.

10. Click **OK**.

    MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

11. To immediately run the rule, go to **Running Quality Check Rules**.

### Editing Quality Check Rules

**To edit** quality check rules:
1. From the Home page, click **QC**.
2. From the Navigation panel, click **Quality Check Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

### Duplicating Quality Check Rules

**To duplicate** quality check rules:
1. From the Home page, click **QC**.
2. From the Navigation panel, click **Quality Check Rules**.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings on as needed.
6. Click **OK**.

### Enabling or Disabling Quality Check Rules

**To enable/disable** quality check rules:
1. From the Home page, click **QC**.
2. From the Navigation panel, click Quality Check Rules.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.

Running Quality Check Rules

You can immediately run a rule, even if a schedule has already been specified.

To run quality check rules:
1. From the Home page, click QC.
2. From the Navigation panel, click Quality Check Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Run icon.
5. Click OK.
6. After running the rule, check the clip to see if it has passed. See Managing Quality Check Jobs for information.

NOTE: Clips that have been previously QC'ed are not posted again during the Run Now operation.

Filtering Quality Check Rules

Filter Quality Check rules to narrow the QC information in the Content pane.

To filter quality check rules:
1. From the Home page, click QC.
2. From the Navigation panel, click Quality Check Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now icon.
The results are shown in the Content pane.

Deleting Quality Check Rules

To delete quality check rules:
1. From the Home page, click QC.
2. From the Navigation panel, click Quality Check Rules.
3. From the Content pane, click the rule you want.
4. From the Toolbar, click the Delete icon.
5. Select the check box to force deletion of the rule and then click OK.
   When this check box is selected, the system deletes the rule without checking for any conflicting conditions.
6. Click OK.
Searching Assets

To search assets:
1. From the Home page, click QC.
2. From the Navigation panel, expand Search Assets.
3. From the Content pane, locate the asset you want.

Searching File Systems

To search file systems:
1. From the Home page, click QC.
2. From the Navigation panel, expand Search file system.
3. From the Content pane, locate the file system you want.

Managing Scheduled Tasks

A scheduled task is a system- or user-designated action to be performed by MAS. For example, backing up the database, checking the server node status, reconciling transfer schedules, and reporting on storage watchers.

You can manage scheduled tasks from the QC app. For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

Viewing Scheduled Tasks:

To view scheduled tasks:
1. From the Home page, click QC.
2. From the Navigation panel, click Scheduled Tasks.

The results are shown in the Content pane.

Managing Quality Check Jobs

You can manage QC jobs from the QC app. For an overview and instructions on managing jobs, refer to Managing Jobs.

Viewing Jobs

To view jobs:
1. From the Home page, click QC.
2. From the Navigation panel, expand Quality Check Jobs.
3. Click the Jobs by Status icon you want.

The results are shown in the Content pane.
Chapter 21
Using the Scheduler App

This chapter provides instructions on using the Scheduler app for monitoring and managing scheduled tasks in MAS. Choose from the following topics:

- About the Scheduler App
- Managing Scheduled Tasks

About the Scheduler App

The Scheduler app provides details about scheduled tasks in MAS. For information on job status, refer to Using the Jobs App.

Managing Scheduled Tasks

A scheduled task is a system- or user-designated action to be performed by MAS. For example, backing up the database, checking the server node status, reconciling transfer schedules, and reporting on storage watchers.

Depending on your overall system configuration, different system tasks may be preconfigured by MAS. The following list provides examples of preconfigured tasks.

- CheckGridAppNodeStatus
- DatabaseBackup
- FolderSynchronization
- OrphanMediaAndAssetsDeletion
- ServerNodeStatus
- SystemManagerConfiguration
- UpdateFolderStatus
- VerifyConfig

- CheckGridAppStatus
- DatabasePurge
- MetaDataPurge
- ReconcileTransferStatusSchedule
- StorageWatcher
- SystemManagerStatus
- UpdateShadowAssetAndClipStatus

Trigger States

A job scheduling system manages each MAS task, such as starting tasks and jobs associated with triggers. Each trigger has a state to indicate its status within the scheduling system. The following table describes the trigger states.

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting</td>
<td>Waiting for the trigger to be fired.</td>
</tr>
<tr>
<td>Acquired</td>
<td>Scheduler has acquired the trigger to be fired.</td>
</tr>
<tr>
<td>Executing</td>
<td>The job is executing.</td>
</tr>
<tr>
<td>Complete</td>
<td>The trigger has no remaining fire times. If the trigger is defined to run five times, it will be complete after the fifth fire time.</td>
</tr>
</tbody>
</table>

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Monitoring Scheduled Tasks

To monitor scheduled tasks:
1. From the Home pane, click Scheduler.
2. From the Content pane, click any task to view its properties and other detailed information.

The Properties tab contains the following fields for each task:
- Job Name
- Job Group
- Description
- CRON Expression
- State
- Next Fire Time
- Previous Fire Time
- Type
- Start Time
- End Time
- Misfire Instructions
- Priority

**NOTE:** The Job Detail tab provides diagnostic information for use by Harmonic Technical Support.

Pausing and Resuming Scheduled Tasks

To pause/resume scheduled tasks:
1. From the Home page, click Scheduler.
2. From the Content pane, click the task to pause or resume.
3. From the Toolbar, click the Pause or Resume icon.

Paused tasks remain paused until you manually resume them. Resumed tasks are run as scheduled.
Rescheduling Tasks

To reschedule tasks:
1. From the Home pane, click Scheduler.
2. From the Content pane, click the task to pause or resume.
3. From the Toolbar, click the Reschedule icon.
4. Select or enter new time and date values to reschedule the task.
5. Click OK.

NOTE: Changing the schedule for a “system” task is only applied for this instance. If the server is stopped and started, the previous settings are loaded. To permanently change the schedule of a system task, use the Settings app.

Running Scheduled Tasks

To run scheduled tasks:
1. From the Home page, click Scheduler.
2. From the Content pane, click the task to run.
3. From the Toolbar, click the Run Now icon.
4. Click OK.

Filtering Scheduled Tasks

Filter tasks to search for specific task properties.

To filter scheduled tasks:
1. From the Home page, click Scheduler.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
4. To perform a search, click the Search Now icon.
   The results are shown in the Content pane.

Deleting Scheduled Tasks

To delete scheduled tasks:
1. From the Home page, click Scheduler.
2. From the Content pane, click the task to delete.
3. From the Toolbar, click the Delete icon.
4. Click OK.
This chapter explains how to use the Search app to search in the MAS database. Choose from the following topics:

- About Searching in MAS
- Managing Search Queries

### About Searching in MAS

MAS supplies a consolidated search across multiple file systems based on structural or descriptive metadata. Search settings can be saved and reused, populate dynamic virtual folders, or drive graphic system status views.

Using the MAS UI, you can search for content across your video server and storage systems from a single user interface. Searches apply to all object types, including clips, folders, jobs, or individual media files, and include count queries for content inventory and user-designed queries with industry-standard SQL.

### Search Objects

You can perform searches based on context-specific or user-defined metadata, such as:

- Asset name
- Asset GUID
- Clip properties
- Track properties
- Frame properties
- Inpoint and outpoint
- File properties

*Table 22–1* lists the query types and names.
### Table 22–1: Queries

<table>
<thead>
<tr>
<th>Queries by Type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Count Queries</strong></td>
<td></td>
</tr>
<tr>
<td>Assets Count</td>
<td></td>
</tr>
<tr>
<td>Clips by Containment type</td>
<td></td>
</tr>
<tr>
<td>Clips by File Status</td>
<td></td>
</tr>
<tr>
<td>Clips by File type</td>
<td></td>
</tr>
<tr>
<td>Clips Count</td>
<td></td>
</tr>
<tr>
<td>Completed Transfer Jobs by Type</td>
<td></td>
</tr>
<tr>
<td>Error Transfer Jobs By Type</td>
<td></td>
</tr>
<tr>
<td>Events by Severity</td>
<td></td>
</tr>
<tr>
<td>Files by Status</td>
<td></td>
</tr>
<tr>
<td>Files Count</td>
<td></td>
</tr>
<tr>
<td>FTP Transfer Hosts Count per Storage Server</td>
<td></td>
</tr>
<tr>
<td>Hosts by Active Transfer Usage</td>
<td></td>
</tr>
<tr>
<td>Hosts by BW/Usage</td>
<td></td>
</tr>
<tr>
<td>Hosts by FTP Transfer Usage</td>
<td></td>
</tr>
<tr>
<td>Hosts by Status</td>
<td></td>
</tr>
<tr>
<td>InProgress Transfer Jobs by Type</td>
<td></td>
</tr>
<tr>
<td>InQ Transfer Jobs by Type</td>
<td></td>
</tr>
<tr>
<td>Jobs by Status</td>
<td></td>
</tr>
<tr>
<td>Jobs by Type</td>
<td></td>
</tr>
<tr>
<td>Jobs by Type and Status</td>
<td></td>
</tr>
<tr>
<td>Storage Server by Types</td>
<td></td>
</tr>
<tr>
<td>Top n Folders by Disk Usage</td>
<td></td>
</tr>
<tr>
<td>Top n Folders by File count</td>
<td></td>
</tr>
<tr>
<td>Top n Virtual Folders by Assets</td>
<td></td>
</tr>
<tr>
<td>Transfer Jobs by Status</td>
<td></td>
</tr>
<tr>
<td>Transfer Jobs by Type and Status</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Search Queries</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Archived Assets</td>
</tr>
<tr>
<td>Archived Clips</td>
</tr>
<tr>
<td>Archived Files</td>
</tr>
<tr>
<td>Assets Created Today</td>
</tr>
<tr>
<td>Asset Modified Today</td>
</tr>
<tr>
<td>Clips Created Today</td>
</tr>
<tr>
<td>Clips Modified Today</td>
</tr>
<tr>
<td>Clips with QCStatus=OK</td>
</tr>
<tr>
<td>Last n Critical Events</td>
</tr>
<tr>
<td>Last n Error Events</td>
</tr>
<tr>
<td>Last n System Events with Warning and Above</td>
</tr>
<tr>
<td>Last n Warning Events</td>
</tr>
<tr>
<td>Offlined Clips</td>
</tr>
<tr>
<td>Troubled Hosts</td>
</tr>
</tbody>
</table>
These search features are especially useful when you are looking for a particular file within a large database and when you would like to search for a number of similar files for comparison purposes.

Other search features include the ability to:
- Save searches that will be frequently used. Refer to Creating Search Queries.
- Search for files created or modified within a specific time range.
- Narrow searches by folder.
- Perform a search using only a file’s name or GUID.

**Supported SQL Operators**

The following operators are supported by the search infrastructure when configuring Where clauses for use in SQL queries. The Where clause is used to extract only those records that fulfill a specified criterion.
Managing Search Queries

Searching for Assets, Clips, or Media Instances

To search for assets or clips:
1. From the Home page, click Search.
2. From the Navigation panel, expand Queries By Type, Asset Queries, or Clip Queries.
3. Choose a category.
   The results are shown in the Content pane.

Creating Search Queries

Create search queries to find specific files using several unique properties. These types of queries are not restricted to just assets and clips. You can search for almost any type of object. In addition, you can also save searches that will be frequently used.

To create a search query:
1. From the Home page, click Search.
2. From the Navigation panel, expand Queries By Type, Asset Queries, or Clip Queries.
3. Choose a category, and from the Toolbar, click Create a new search query.
4. Complete the Properties dialog box as follows:
   - **Query Name**: Enter a name for the new query.
   - **Query Description**: Enter a description of the query.
   - **Start Index**: Enter the start index of the query. This number represents the index from which the result set needs to be shown. For example, if you have 100 records for a result, you can say start from 10th record and show 10 records.
   - **Count**: Enter the count size of the query.

---

Table 22–2: SQL Operators

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>Evaluates to an Equality operation.</td>
</tr>
<tr>
<td>!=</td>
<td>Evaluates to a Non-Equality operation.</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Evaluates to a Less-Than or Equal-To operation.</td>
</tr>
<tr>
<td>=&gt;</td>
<td>Evaluates to a Greater-Than or Equal-To operation.</td>
</tr>
<tr>
<td>&lt;</td>
<td>Evaluates to a Less-Than operation.</td>
</tr>
<tr>
<td>&gt;</td>
<td>Evaluates to a Greater-Than operation.</td>
</tr>
<tr>
<td>Like</td>
<td>Evaluates to finding objects that match a certain pattern.</td>
</tr>
<tr>
<td>Not Like</td>
<td>Evaluates to finding objects that do not match a certain pattern.</td>
</tr>
<tr>
<td>Between</td>
<td>Evaluates to a Between clause operation, in which one or two values are allowed in the value attribute. The single value comes in handy for the Date types, which will have predefined choices. Otherwise, it is expected to have two values only.</td>
</tr>
</tbody>
</table>
查询类型：选择搜索或搜索计数。
对象类型：选择对象类型。
5. 点击选择标签。
   - 点击添加或删除按钮以包含或排除搜索中的特定列，例如剪辑类型或剪辑GUID。
6. 点击哪里标签。
   - 点击添加或删除按钮以包含或排除搜索中的特定属性，例如资产或剪辑的名称是否是某个名称或包含特定文本。
7. 点击样本结果标签以查看查询结果，在运行搜索之前。使用此标签验证是否需要对查询进行任何更改。
8. 点击确定。

查询保存在资产查询或剪辑查询文件夹中，具体取决于创建的搜索查询的类型。参见运行搜索查询以执行搜索查询。

运行搜索查询

要运行搜索查询：
1. 从首页，点击搜索。
2. 从导航面板，点击类型查询，资产查询，或剪辑查询。
3. 在内容面板，点击要运行的查询。
4. 从查询面板，点击结果标签。
   - 如果搜索成功，结果将显示在查询面板。
5. 点击文件以查看其属性和包含的文件。
   - 如果搜索成功，结果将显示在查询面板。

参见过滤资产或过滤剪辑以获取进一步筛选结果的信息。

编辑查询

要编辑查询：
1. 从首页，点击搜索。
2. 从导航面板，展开类型查询，资产查询，或剪辑查询。
3. 从内容面板，点击要编辑的查询。
4. 从工具栏，点击编辑图标。
5. 更改任何必要的设置。
6. 点击确定。

删除搜索查询

要删除搜索查询：
1. 从首页，点击搜索。
2. 从导航面板，展开类型查询，资产查询，或剪辑查询。
3. 从内容面板，点击要删除的查询。
4. 从工具栏，点击删除图标。
5. 点击确定。
Running Live Searches

Use the Live Search function to run any of the following searches: Count, Search, or Native queries.

To run a live search:
1. From the Home page, click Search.
2. From the Navigation panel, click Live Search.
3. Complete the search fields as follows:
   - Query Type: Select the type of query: Search, Search Count, or Native Query.
   - Start Index: Enter the start index of the query. This number represents the index from which the result set needs to be shown. For example, if you have 100 records for a result, you can say start from 10th record and show 10 records.
   - Count: Enter the count size of the query.
   - Object Type: Select the type of object.
   - Where: Select the primary sort column, operator, and value.
   - Clause: Click the Green check mark to enter a value for the search clause. Click the Red “X” to remove the search clause.
4. Do one of the following:
   - To run the query, click the Run icon in the Live Search Toolbar.
   - To save the query, click the Save icon in the Live Search Toolbar.
   - To clear the query, click the Clear icon in the Live Search Toolbar.
5. Click OK.
Chapter 23
Using the Sequences App

This chapter provides instructions for using the Sequences app to manage sequences in MAS. Choose from the following topics:

- **About Sequences**
- **Creating Sequences**
- **Managing Sequences**
- **Generating EDLs**

### About Sequences

Creating sequences, also referred to as “flattening clips” is the process by which clips and subclips can be grouped into a series of clips called a sequence. Sequences are ideal for creating rough cut stories, which can be used for final image and sound assembly by applications such as Final Cut Pro. All of the clips and subclips used in a sequence must be the same format, have the same wrapper type, and have the same frame rate.

### Creating Sequences

A sequence can be built in the following ways:

- Drag-and-drop clips from the Content pane directly into the Player pane
- Create a list of scenes from edited clips

Use the Player pane to build a clip sequence by adding clips and subclips to be used as the building blocks for the final output. Sequences may contain clips and subclips.

A sequence can be either transient or permanent:

- **Transient sequence**: a sequence which is being created and which has not yet been played or saved to the database. The sequence has a system-defined name of null. This is called transient because if you do not actively save it before you close the player or the application, the sequence is lost and cannot be recovered.

- **Permanent sequence**: a sequence which has already been saved and has a user-defined name.

Although you can create either a transient or permanent clip sequence, Harmonic recommends you create a permanent sequence.

### Working With Sequences

While working with sequences, it’s important to know whether your sequence is in the Transient or Permanent state, as the behavior is slightly different between the two. One way to know which state your sequence is in is by looking at the Toolbar. Only the Refresh/Reload icon and Close Player icon appear in the Permanent sequence Toolbar.

- To play a transient sequence, click the **Play** icon on the Toolbar, then press the Play icon in the Player controls.
- To play a permanent sequence, press play from the Player controls.
Creating Sequences

To replay a sequence, select the first subclip on the Subclip tab, then press the Play icon in the Player controls. For Permanent sequences you can also select any other subclip from the Subclip tab, press play, and the sequence will play from there to the end.

In Transient sequences, when dragging new clips to the sequence, drag them to the player control area, not the Subclips tab. This will allow you to set the inpoint and outpost of the clip and save these values to the sequence (keypress “v”).

For Permanent sequences, drag the new clips or subclips directly to the Subclips tab.

If you do drag and drop a new clip or subclip to the sequence after the initial play action, you will need to “Refresh/Reload” the sequence to update the duration and be able to play the newly added content.

Creating Transient Sequences

To create a transient sequence:
1. From the Home page, click Assets.
2. Expand the All Assets folder.
3. Navigate to the asset group that contains the asset you want to use.
4. From the Content pane, select the file you want to use to build the sequence.
   The asset will open in the Details pane.
5. From the Toolbar, click the Play icon.
   The clip opens in the MAS Player. For an overview of the MAS Player refer to Using the MAS Player.
6. Change the inpoint and outpost as needed.
   After you add the clip or subclip to a sequence, the outpost you defined is cleared from the time line.
7. Add subclips to the sequence in one or more of the following ways:
   a. Click the Add to Sequence icon on the Toolbar.
   b. Mark new inpoints and outpoints for the loaded clip, and then click the Add to Sequence icon.
   c. Drag other clips into the Subclips tab below the player controls.
8. Once all of the subclips are added, click the Save Sequence icon.
   The new sequence dialog box opens.
9. Enter a new name in the Name field.
10. Click the Metadata tab, and complete the dialog as needed.
    Metadata values that appear in this dialog box differ depending on the metadata fields configured for it. Refer to Metadata Fields for more information.
11. Click OK.
Once saved, the sequence is stored in the Sequences app.

**NOTE:** You cannot save over an existing sequence.

This sequence is now considered a new asset by the system, with inherited media from other assets. Any references to the sequence’s clips are maintained, and you are notified of this when you try to modify or delete a contained clip.

To edit this sequence by adding new media or changing the inpoint and outpost for the current clip, follow the steps in Editing Sequences.
Creating Permanent Sequences

To create a permanent sequence:
1. From the Home page, click Sequences.
2. From the Toolbar, click the Create a new Sequence icon.
3. In the Properties tab, fill in the Name field.
4. In the Metadata tab, complete any necessary Metadata fields.
5. Click OK.

Loading Sequences

To load a sequence:
1. From the Home page, click Sequences.
2. From the Content pane, click the sequence you want.
3. From the Toolbar, click the Play icon to load the sequence into the MAS player.

Adding Clips or Subclips to a Sequence

To add clips or subclips to a sequence:
1. Load the sequence that you want to modify to the MAS Player. See Loading Sequences for instructions.
2. From the Page bar, click Assets.
3. Expand the All Assets folder.
4. From the Content pane, click the Clip or Subclip you want to add to the sequence.
5. Add subclips to the sequence in one or more of the following ways:
   a. Click the Add to Sequence icon on the Toolbar.
   b. Mark new inpoints and outpoints for the loaded clip, and then click the Add to Sequence icon.
   c. Drag other clips into the Subclips tab below the player controls.
6. Once all of the subclips are added, click the Save Sequence icon.

Managing Sequences

Sequences can be played, edited, filtered, and used to generate new clips.

Played Sequences

Sequences are displayed in the Content pane, and depending on the view selected, several properties may be shown. From this pane you can edit, delete, and filter sequences.

To view a sequence:
1. From the Home page, click Sequences.
2. From the Content pane, click the sequence you want to view.
3. Click the Play icon.

Editing Sequences

To edit a sequence:
1. From the Home page, click Sequences.
2. From the Content pane, click the sequence you want to edit.
3. From the Toolbar, click the Edit icon.
4. In the Name field, enter a name, if necessary
5. Click the Metadata tab.
6. Complete the Metadata dialog as needed.
   Metadata values that appear in this dialog box differ depending on the metadata fields configured for it. Refer to Metadata Fields for more information.
7. Click OK.

Generating Clips

To generate a clip:
1. From the Home page, click Sequences.
2. From the Content pane, click the sequence you want to use to generate the clip.
3. From the Toolbar, click the Generate Clip icon.
4. Select a destination path for the new clip.
   The output path displays.
5. Enter a Clip Name.
6. From the Wrapper Type list, select one of the following:
   - **Discrete**: Use to write separate essence files per track. Essence media is copied (flattened) to new, discrete files in a directory named media.dir beneath the location of the destination movie. The essence file names are identical to the movie, except for the suffix.
   - **Embedded**: Use to write a self-contained clip. Essence media is copied (flattened) to the destination movie and is embedded inside it. The new movie is self-contained.
   - **Reference**: Use to write a wrapper that references the essence from the source clips. No essence media is copied; it is left in place. The new destination movie is constructed with references to these essence files. In this case, make sure that the essence files are located in the same directory as, or below, the destination movie file.
   - **RDD9**: Compatible with Sony’s XDCAM-HD line of cameras and VTRs. The video track is MPEG long-GOP at 18, 25, 35 or 50 Mbps. This allows two to eight audio tracks, each with a single channel and PCM audio.
   - **AS02 2009**: A hybrid between self-contained and referenced clips. The main MXF file is OP1b and contains only clip metadata. The essence files are MXF OP1a, one per track. The index tables for each track are stored in their respective OP1a files.
   - **AS02 2011**: Same as AS02 2009, except the whole clip structure is stored inside a folder and the folder then becomes the clip. This is referred to as a “bundle.” In addition to the clip-related files, the bundle contains .xml files and an optional (extra) folder with custom files. Refer to AS-02 MXF Versioning for more information.
7. Click OK.

Filtering Sequences

To filter a sequence:
1. From the Home page, click Sequences.
2. From the Content pane, click the sequence you want to filter.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to *Creating Search Queries* for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.

5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

### Deleting Sequences

**NOTE**: Deleting a sequence permanently removes the sequence from ProXplore. It does not remove the clips and subclips in the sequence.

**To delete a sequence:**

1. From the Home page, click **Sequences**.
2. From the Content pane, click the sequence(s) you want to delete.
3. To delete the sequence(s), do one of the following:
   - From the Toolbar, click the **Delete** icon.
   - Select the **Force Deletion** check box and then click **OK**. When this box is selected, the system deletes the file without checking for any conflicting conditions.
4. Click **Yes** to confirm your selection.

### Generating EDLs

An EDL (Edit Decision List) is a XML file that uses the source timecode of clips to sequentially list all of the edits that make up a sequence. EDLs are used to move a project from one editing application to another or to coordinate the assembly of a program in a tape-based online editing facility. If you need to move a project to or from a different system or editing workstation, you can export your project to an interchange file format such as EDL or Final Cut Pro XML Interchange Format.

For example, a sequence can be exported as an EDL to Apple Final Cut Pro for final video editing or to ProXchange for flattening. To export the sequence data, save the sequence as XML data and then copy the data to an XML file.

**NOTE**: Only EDLs generated for .mov clips can be imported into Final Cut Pro.

**To generate an EDL:**

1. From the Home page, click **Sequences**.
2. From the Content pane, click the sequence you want.
3. From the Toolbar, click the **Play** icon to load the sequence into the MAS player.
4. Do one of the following:
   - From the Toolbar, click the **Generate EDL** icon.
   - From the MAS Player Toolbar, click the **Generate EDL for current sequence** icon.
5. From the **Generate EDL** dialog box, configure for either
   - Local File (saved to your local desktop).
   - Remote File (saved to a remote location).
6. For the remote file, do the following:
a. Click the Remote File option.

b. From the Select a destination path for the EDL XML file, browse to the location you want.

c. For the Use clips on the same file system as the output EDL check box, do one of the following:
   - To use the instance of the hi-res clip stored on the same file system as the EDL file, select the check box. (If no instance of the clip is found, an error is generated).
   - Clear check box to use the first instance of the hi-res clip in the sequence.

   If the proxies or clips are stored on the same file system as the EDL file, MAS uses the first instance of each clip in that sequence.

d. From the EDL Name field, enter the name of the EDL file.

7. For a local file, do the following:
   a. Click the Local File option.
   b. From the EDL Name field, enter the name of the EDL file, then press enter.
   c. From the Select location for download dialog box, browse to the location to save the EDL file.
   d. When finished, click Open and then Save.

8. When finished, click OK.
Chapter 24
Using the Settings App

This chapter explains how to use the Settings app to manage MAS settings. Choose from the following topics:

- About MAS Settings
- Configuring Services
- Configuring System Pollers
- Configuring Debug Logs
- Updating Licenses
- Backing up the Database
- Restoring the Database

About MAS Settings

For each MAS appliance at your site, you can configure services, system pollers, and debug logs using the Settings app. You can also use the Settings app to update your MAS licenses.

Services

You can configure the following services for MAS:

- Admin Service
- Closed Caption Service
- File Change Notification
- Grid Service
- Message Factory
- Optimization
- Rule Service
- Transcode Service
- MSF-RPC
- Archive Service
- Database
- File Deletion
- IPV Service
- Mirror Service
- Organize Service
- Search Service
- Transfer Service
- Browse Service
- E-Mail
- General
- Media Util
- Notification Service
- QC Service
- SNMP Service
- WFS Service

Refer to Configuring Services for details about each service.

System Pollers

A system poller is a system-wide task that executes at a user-configurable frequency. If enabled, the poller runs at a frequency defined in a CRON expression. Some of the MAS system pollers are described below.
CRON Expression

Polling is specified with a CRON expression. The term “cron” means being able to create a firing schedule such as, “At 8:00am every Monday through Friday,” or “At 1:30 am every last Friday of the month.” A “CRON expression” is a string comprised of six or seven fields separated by white space. The six mandatory fields, and one optional field, are defined below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Allowed Values</th>
<th>Allowed Special Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seconds</td>
<td>0-59</td>
<td>, -* /</td>
</tr>
<tr>
<td>Minutes</td>
<td>0-59</td>
<td>, -* /</td>
</tr>
<tr>
<td>Hours</td>
<td>0-23</td>
<td>, -* /</td>
</tr>
<tr>
<td>Day-of-month</td>
<td>1-31</td>
<td>, -* ? / L W C</td>
</tr>
<tr>
<td>Month</td>
<td>1-12 or JAN-DEC</td>
<td>, -* /</td>
</tr>
<tr>
<td>Day-of-Week</td>
<td>1-7 or SUN-SAT</td>
<td>, -* ? / L C #</td>
</tr>
<tr>
<td>Year (Optional)</td>
<td>empty, 1970-2099</td>
<td>, -* /</td>
</tr>
</tbody>
</table>

- The * character is used to specify all values. For example, * in the minute field means “every minute”.
- The ? character is allowed for the day-of-month and day-of-week fields. It is used to specify “no specific value.” This is useful when you need to specify something in one of the two fields, but not the other. See the examples below for clarification.
- The - character is used to specify ranges. For example, “10-12” in the hour field means “the hours 10, 11 and 12.”
- The , character is used to specify additional values. For example “MON,WED,FRI” in the day-of-week field means “the days Monday, Wednesday, and Friday.”

Table 24–1: MAS System Pollers

<table>
<thead>
<tr>
<th>Poller</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folder Synchronization</td>
<td>Synchronizes the folder tree and files from managed folders.</td>
</tr>
<tr>
<td>System Manager Configuration</td>
<td>Synchronizes information from SystemManagers.</td>
</tr>
<tr>
<td>Storage Watcher</td>
<td>Watches the storage callbacks and reregisters them if required.</td>
</tr>
<tr>
<td>Database Backup</td>
<td>Backs up the MAS database.</td>
</tr>
<tr>
<td>Database Purge</td>
<td>Purges job and audit log tables.</td>
</tr>
<tr>
<td>Orphan Media and Assets Deletion</td>
<td>Deletes orphaned media and assets.</td>
</tr>
<tr>
<td>Server Node Status</td>
<td>Updates non-high availability related attributes of server nodes.</td>
</tr>
</tbody>
</table>

Table 24–2: CRON Expressions
The `/` character is used to specify increments. For example, “0/15” in the seconds field means “the seconds 0, 15, 30, and 45.” And “5/15” in the seconds field means “the seconds 5, 20, 35, and 50.” You can also specify `/` after the `*` character. In this case, `*` is equivalent to having 0 before the `/`.

The `L` character is allowed for the day-of-month and day-of-week fields. This character is short-hand for “last” but it has different meaning in each of the two fields. For example, the value `L` in the day-of-month field means “the last day of the month” (e.g., day 31 for January, day 28 for February on non-leap years). If used in the day-of-week field by itself, it simply means 7 or SAT. If used in the day-of-week field after another value, it means “the last xxx day of the month.” For example, `6L` means “the last Friday of the month.” When using the L option, it is important not to specify lists, or ranges of values, as the results will be confusing.

The `W` character is allowed for the day-of-month field. This character is used to specify the weekday (Monday-Friday) nearest the given day. As an example, if you were to specify `15W` as the value for the day-of-month field, the meaning is “the nearest weekday to the 15th of the month.” So, if the 15th is a Saturday, the trigger will fire on Friday the 14th. If the 15th is a Sunday, the trigger will fire on Monday the 16th. If the 15th is a Tuesday, then it will fire on Tuesday the 15th. However if you specify `1W` as the value for day-of-month, and the first is a Saturday, the trigger will fire on Monday the third, as it will not “jump” over the boundary of a month’s days. The `W` character can only be specified when the day-of-month is a single day, not a range or list of days.

The `L` and `W` characters can also be combined for the day-of-month expression to yield `LW`, which translates to “last weekday of the month.”

The `#` character is allowed for the day-of-week field. This character is used to specify “the nth xxx day of the month.” For example, the value of `6#3` in the day-of-week field means the third Friday of the month (day 6 = Friday and #3 = the 3rd one in the month). Here are additional examples: `2#1` = the first Monday of the month and `4#5` = the fifth Wednesday of the month. Note that if you specify `#5` and there are not five of the given day-of-week in the month, then no firing will occur that month.

The `C` character is allowed for the day-of-month and day-of-week fields. This character is short-hand for “calendar.” This means values are calculated against the associated calendar, if any. If no calendar is associated, then it is equivalent to having an all-inclusive calendar. A value of `5C` in the day-of-month field means “the first day included by the calendar on or after the fifth.” A value of `1C` in the day-of-week field means “the first day included by the calendar on or after Sunday.”

The legal characters and the names of months and days of the week are not case sensitive.

The following table includes examples of each of the expressions.
Table 24–3: Example CRON Expressions

<table>
<thead>
<tr>
<th>Expression</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 12 * * ?</td>
<td>Fire at 12pm (noon) every day.</td>
</tr>
<tr>
<td>0 15 10 ? * *</td>
<td>Fire at 10:15am every day.</td>
</tr>
<tr>
<td>0 15 10 * * *</td>
<td>Fire at 10:15am every day.</td>
</tr>
<tr>
<td>0 15 10 * * ?</td>
<td>Fire at 10:15am every day.</td>
</tr>
<tr>
<td>0 15 10 * * ? 2005</td>
<td>Fire at 10:15am every day during the year 2005.</td>
</tr>
<tr>
<td>0 * 14 * * *</td>
<td>Fire every minute starting at 2pm and ending at 2:59pm, every day.</td>
</tr>
<tr>
<td>0 0/5 14 * * *</td>
<td>Fire every 5 minutes starting at 2pm and ending at 2:55pm, every day.</td>
</tr>
<tr>
<td>0 0/5 14,18 * * *</td>
<td>Fire every 5 minutes starting at 2pm and ending at 2:55pm, AND fire every 5 minutes starting at 6pm and ending at 6:55pm, every day.</td>
</tr>
<tr>
<td>0 0-5 14 * * *</td>
<td>Fire every minute starting at 2pm and ending at 2:05pm, every day.</td>
</tr>
<tr>
<td>0 10,44 14 ? 3 WED</td>
<td>Fire at 2:10pm and at 2:44pm every Wednesday in the month of March.</td>
</tr>
<tr>
<td>0 15 10 ? * MON-FRI</td>
<td>Fire at 10:15am every Monday, Tuesday, Wednesday, Thursday and Friday.</td>
</tr>
<tr>
<td>0 15 10 15 * ?</td>
<td>Fire at 10:15am on the 15th day of every month.</td>
</tr>
<tr>
<td>0 15 10 L * *</td>
<td>Fire at 10:15am on the last day of every month.</td>
</tr>
<tr>
<td>0 15 10 ? * 6L</td>
<td>Fire at 10:15am on the last Friday of every month.</td>
</tr>
<tr>
<td>0 15 10 ? * 6#3</td>
<td>Fire at 10:15am on the third Friday of every month.</td>
</tr>
</tbody>
</table>

NOTE: Pay attention to the effects of ? and * in the day-of-week and day-of-month fields.

- Support for specifying both a day-of-week and a day-of-month value is not complete (you must use the ? character in one of these fields).
- Be careful when setting fire times between mid-night and 1:00 AM. Daylight savings can cause a skip or a repeat depending on whether the time moves back or jumps forward.

**Debug Logs**

The debug logs consist of logs of common problems that can be fixed or tracked locally, such as services errors, configuration errors, or internal execution errors.

The log level defines a set of standard logging levels that can be used to control logging output. They are described in below.
Configuring Services

The Settings app is where you set system-wide parameters for each service you use on a MAS appliance.

To configure services:
1. From the Home page, click Settings.
2. From the Navigation panel, click the Service you want.
3. From the Toolbar, click the Edit icon.
4. Depending on the service, complete the Properties as follows:
   - **Admin Service**
     - **Dump Cache**: Dump the internal cache to investigate any potential anomalies.
     - **Dump Service Map**: Dump the internal service map to investigate any potential anomalies.
     - **MAS Installation Name**: Enter a name to display on the UI Banner.
     - **Search Query for Pattern**: Select the check box to enable.
   - **Archive Service**
     - **Action on Proxy**: Select the action that should be taken on the proxy clip when the hi-resolution clip archived.
     - **Set Files as OK on Restore**: If enabled, the file restored will be marked as OK, otherwise, it is archived.
     - **Send Shutdown Output**: If enabled, MAS will issue a shutdown output on the Socket to the Archive agent.
     - **Socket Timeout**: MAS will wait for the given time to listen from the socket, or an exception is thrown.
     - **Mock Archive Agent Port**: Provide the port number on which the mock Archive agent should listen/send requests/responses.
     - **Skip Ignore Patterns**: If enabled, then all ignore patterns will be ignored while fetching the files from a folder during archiving.

---

Table 24–4: MAS Debug Logs

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace</td>
<td>Informational events that are finer-grained than <strong>Debug</strong> and potentially more useful for debugging an application.</td>
</tr>
<tr>
<td>Debug</td>
<td>Fine-grained, detailed informational events that are useful for debugging an application.</td>
</tr>
<tr>
<td>Info</td>
<td>Informational messages that highlight the progress of the application at a less granular level than debug messages.</td>
</tr>
<tr>
<td>Warn</td>
<td>Potentially harmful situations.</td>
</tr>
<tr>
<td>Error</td>
<td>Error events that may allow the application to continue running.</td>
</tr>
<tr>
<td>Fatal</td>
<td>Very severe error events that usually lead the application to abort.</td>
</tr>
<tr>
<td>Off</td>
<td>The highest possible rank, intended to turn off logging.</td>
</tr>
</tbody>
</table>
Synchronize Managed Folder: If enabled, MAS will synchronize managed folders.

Add timestamp in Additional Data: Add the current timestamp in the archive request.

Send Collection Guid in Delete Request: Send collection GUID in the delete request if the Archive Agent is not media aware and the file to be deleted is archived as a collection.

Add Delay in Updating Status on Restore: Delay updates the status of an asset, clip, and file on restore as the Archive Agent still processes the media objects, even though the job is marked “completed.”

Remove Archived instance on delete: If selected, when a clip is deleted from the archive, archived instances will be deleted from the file system and from the MAS database.

Max Archive Callback Processors: Set the number of archive callback processors.

Browse Service

Delay Proxy Ready to Read: Time duration or delay for the proxy until it is ready to read a file.

Use MediaPort 5000 Proxies: Select to link high resolution clips with MediaPort 5000 generated proxies.

Proxy Directory Model: The name used to create the proxy directory. When clipID is selected, the directory with the clipID is created. When zip is selected, the last 3 letters of the file name (without the extension) are used as a directory name on the server. If the file name has fewer than three characters, a directory is created with the file name. The default is zip.

Closed Caption Service

Closed Caption Field Name: This is the closed caption metadata file name for a subclip.

Database

Ping Device using Ping Command: Enable to ping the device using the ping command.

Rollback Retry Count: Maximum retry entry for rollbacks.

E-Mail

Enable Email: Select to enable the sending of email notifications from the email address specified in Email from Address.

SMTP Server: Enter the address of the SMTP server to be used for sending outgoing mail.

Email from Address: Enter the email address of the sender.

Use Notification Preset: Select a notification preset to notify a user through e-mail/socket/http.

Min Severity: Select the minimum severity level that a notification will be sent.

File Change Notification

Delay Process Ready to Read: Time duration or delay for the process until it is ready to read a file.

First File Write Wait: Enter the amount of time to wait before writing the first file.

Simulate Ready to Read: By default this is set to Yes. Uncheck to prevent the system from polling periodically to find out if a growing file is readable. If such files are found, jobs which can be performed “actively” such as “transfer while record” or “proxy while record” jobs are commenced.
- **MD_Changed Priority**: Use to configure message priority for File Change Notification of MD_CHANGED event.
- **Delay Process Closed for Write**: Time duration or delay for the process until it is closed to write a file.

- **File Deletion**
  - **Delete Proxy on Defer Delete**: Proxy to delete when using defer-delete feature.
  - **Delete Orphan Assets**: Select to delete assets that do not contain clips.
  - **Delete Orphan Proxies**: Select to delete proxies that are not associated with any clips.
  - **Folder Sync File Deletion Limit**: The maximum number of files to be deleted on folder synchronizations. (The default is set to 1000).

- **General**
  - **Playout Version**: Select this value to decide upon what Playout API version should be set in MAS for the workflow.
  - **Enable File Validation**: Select to enable file validations.
  - **Data Purge Cut Off Days**: Select the number of days after which data should be purged from the servers Job and Audit tables.
  - **Worker Poll Interval (seconds)**: Set the interval used by workers to periodically poll for new jobs.
  - **Process Metadata requests in parallel**: If enabled, the metadata setting will be done in parallel in different threads.
  - **Consume Job Count Reconcile**: Select the check box to enable the reconciliation of job counts for proxy, transcode, or QC through WFS.
  - **Validate SSL Certification**: Select the check box to enable the SSL validation between the distribution server and MAS.

- **Grid Service**
  - **GAL RPC Timeout**: Set the timeout for the Grid Application Layer RPC.

- **IPV Service**
  - **WSDL URL**: Provide the URL without the IP address and port number. These parameters are added with the IP and port of the host from the IPV server.
  - **Directory Model**: Sets the name of the directory where the IPV proxy is stored.

- **Media Util**
  - **Media Comparison**: Select to perform a media comparison.
  - **Skip Default in Out**: Select to skip the default out.
  - **Skip Timecode**: Select to skip timecode.
  - **Skip Track Status**: Select to skip track status.
  - **Skip UMID**: Select to skip the Unique media identifier (UMID).
  - **Skip User Data**: Select to skip user data.
  - **Skip Zero Last Frame**: Select to skip zero last frame.
  - **Disassociate Clips with Diff GUID**: Select to disassociate clips with different GUID.
  - **GUID Generation Strategy**: Set to generate GUID from a file name.
  - **Skip AVI Discovery**: Select to skip reading AVI clips when they are discovered.
  - **Manipulate Clip Generate FCRFT**: Select to generate a FILE_CLOSED_AND_READY_EVENT when a clip is manipulated.
- **Native Format**: Choose the native format.

- **Message Factory**
  - **Dump FCN Queue**: Click to dump the queue containing a File Change Notification task (for debugging).
  - **Use Cache**: Select to use cache.
  - **Handle Time Needed By**: Select to support “Time Needed By.”
  - **Resource Starvation**: Select to consume resources only at or after the specified “Time Needed By.”
  - **Bounce Message**: To refresh existing messages unable to consume when doing a takeover from a standby node or an active node left with existing messages before takeover, check to manually bounce queues.

- **Mirror Service**
  - **Ignore Mismatch Clips with Same Duration for Coherency Report**: Select the check box to prevent clips with the same durations from being shown in Coherency Reports.
  - **Check Mod Time on File System When They are Same on DB**: When the modification time for bi-directional mirroring rules are the same on the database, MAS checks their time on the file system. If the times are still identical, the destination file is used.
  - **Keep Old One When Mod Time Differs**: Select to automatically reconcile a clip with an older timestamp for a bi-directional mirroring rule. If not checked, this property transfers the clip with the newer timestamp.
  - **Mirror Transfer When ModTime Differs**: Select to force a transfer even if the source and destination files have the same clip properties, but different modification timestamps. MAS transfers from the clip with the newer modification time.

  **NOTE:** The event, FILE_READY_TO_READ, is not applicable to this property.

- **Skip Transfer Job on Same File System**: If the source and destination clips are from the same file system, select this option to move the files without a transfer job.

- **MSF-RPC**
  - **MediaDeck Throttling**: Select to allow MediaDeck throttling.
  - **RPC Timeout**: Set the timeout to use with the RPC server.
  - **Max Token Count for Generic Storage**: Set the maximum count of opened files allowed for generic storage.
  - **Max Token Count for MediaCenter**: Set the maximum count of opened files allowed for Media Center (D9).
  - **Max Token Count for MediaDeck**: Set the maximum count of opened files allowed for MediaDeck.
  - **Max Token Count for Spectrum**: Set the maximum count of opened files allowed for Spectrum.
  - **Ping Device RPC**: Select to ping the device RPC.
  - **RPC Ping Timeout**: Set the time interval to get the RPC timeout.
  - **Use In–Process OMDAM**: Select to use OMDAM as the in-process library.
  - **Use Movie API**: Select to use movie API to manipulate clips.
- **Check Sample Count**: Select to prevent the Mirror Service from mistakenly "thinking" that the file generated from a failed transfer is a complete one.
- **General Media API Log**: Generate Media API log at /var/log/omneon/media_api.log.
- **Generate Media Grid SDK Log**: Generate Media Grid SDK log at /var/log/omneon/mediagridsdklog.
- **Check Media Format**: Select to make sure the media format is supported before adding user data.
- **Write to Omneon File Only**: Set user data to Omneon-generated files only.
- **Failover on Clip Generation**: If a generated reference clip fails, select this property to generate an embedded clip.
- **Restart RPC Service**: If any RPC server property value is changed, enable this property to restart the RPC service.

**Notification Service**
- **Report Short Job Status XML**: Select to report a short job status in XML.
- **Use Notification Cache**: Use the notification cache.
- **Notification Dispatch Spectrum Events Immediate**: Select this option to immediately dispatch notifications from Spectrum events.

**Optimization**
- **Fastpath**: Bump up message priority for File Change Notification events along with the folder priority setting. This option bypasses some validation.
- **Fire Mirroring Rule in Parallel**: Select to run each mirror task in its own thread to speed up the Mirror Service.
- **Sync Each Source Folder in a Thread**: Select to run each rule in its own thread for each source folder of the rule.
- **Mount Limited Host**: Select to mount hosts with limited bandwidth.

**Organize Service**
- **Create Hardlinks**: Select to create hardlinks for files on MediaGrid.
- **Hardlink Bin Name**: Name for the hardlink bin on the MediaGrid FS.
- **Purge Recycle Bin in File System**: Select to purge the recycle bin in the file system based on this batch size.
- **Purge Recyclebin in File System Batch Size**: Set the batch size of the recycle bin to trigger a purge.
- **Recycle Bin Name**: Name the recycle bin.
- **Multiple Hosts for MCP-22XX**: Select to allow multiple hosts for MCP-22XX.
- **Ping Devices**: Select to ping devices.
- **Update File System Size**: Select to update the file system size.
- **Set Profile Object Validation**: Select to set profile object validation.
- **Skip Check for Cluster**: Select to skip checking for clusters.

**QC Service**
- **Convert Report URL to Mount Path**: Select to convert the give file URL to the mount path.
- **Prefix for Report URL**: Enter the prefix to append to the file URL for QC.
- **Preset MetaData Field Name**: Enter the name of the preset metadata field used to get the QC preset name.
- **Rule Service**
  - **Add Package Retry Count**: Set the maximum retries for add package.
  - **Add Package Wait time on Retry When Busy**: Set the wait time for add package on retry when busy.
  - **Use Unprocessed Events**: Select to use unprocessed events to trigger rules.

- **Search Service**
  - **Search Result Limit**: Set the maximum search count.

- **SNMP Service**
  - **Recv Attrib Event OID**: Shows the OID for the receive attribute event.
  - **Recv Attrib Message OID**: Shows the OID for the receive attribute message.
  - **Recv Attrib Severity OID**: Shows the OID for the receive attribute severity.
  - **Recv Port**: Shows the receive port.
  - **Severity Aborted**: Shows the message set for severity aborted.
  - **Severity Aborting**: Shows the message set for severity aborting.
  - **Severity Completed**: Shows the message set for severity completed.
  - **Severity Error**: Shows the message set for severity error.
  - **Severity Error Will Retry**: Shows the message set for severity error will retry.
  - **Severity Informational**: Shows the message set for severity informational.
  - **Severity In Progress**: Shows the message set for severity in progress.
  - **Severity In Queue**: Shows the message set for severity in queue.
  - **Severity Started**: Shows the message set for severity started.

- **Transcode Service**
  - **Transcode Add Requester Selector**: Select to add a transcode requester selector.
  - **Transcode Add Ranking Selector**: Select to add a transcode ranking selector.
  - **Start Generic Transcode Mock Agent**: Select to start mock agent that will consume the transcode jobs dispatched using the generic transcode presets.
  - **Transcode Timeout (minutes)**: Select the timeout, in minutes, to be used by the JobScaler when a job is stalled.

- **Transfer Service**
  - **Job Assignment Mode**:
    - Set to **Least Used Transfer Host** to first assign transfer jobs to the host with the least number of current transfer jobs.
    - Set to **First Available Host** to assign transfer jobs to a host until that host’s usage limit is reached.
    - Set to **FTP Optimized** to specify that FTP jobs are dispatched until all available host have reached usage limits and the transfer jobs are queued.
  - **Low Latency**: Select to indicate MAS that all incoming clips are of the low latency format.
  - **Use FTP Only**: Select to disable Media API transfers.
  - **Average Clip Duration (minutes)**: Select the average duration of clips, in minutes.
  - **Job Status Interval (seconds)**: Select the time, in seconds, that the status should be checked. The default is every 30 seconds.
  - **Passive Job Status Interval**: Select the time, in seconds or minutes, that the status should be checked for Passive Job. The default is every 30 seconds.
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Configuring System Pollers

To configure system pollers:
1. From the Home page, click Settings.
2. From the Navigation panel, click the Service you want.
3. From the Toolbar, click the Edit icon.
4. Click the System Pollers tab.
5. Under Name, click the System Poller you want.
6. Click Modify.
7. Modify the parameters as needed.
   Refer to System Pollers for information.
8. Select Enable to configure periodic polling on the selected poller and then specify the frequency at which polling will occur. The default is set to run the TransferJobAssigner every 5 seconds.
9. Click OK.

Configuring Debug Logs

To configure debug logs:
1. From the Home page, click Settings.
2. From the Navigation panel, click the Service you want.
3. From the Toolbar, click the Edit icon.
4. Click the Debug Log Settings tab.
5. Under Name, click the Debug Log you want.
6. Click Modify.
7. Select the appropriate logging level from the Log Level list:
   - Off: The highest possible rank, intended to turn off logging.
   - Fatal: Very severe error events that usually cause the application to abort.
   - Error: Events that may allow the application to continue running.
- **Warn**: Potentially harmful situations.
- **Info**: Messages highlighting the progress of an application at a less-granular level than **Debug** messages.
- **Debug**: Fine-grained, detailed informational events useful for debugging an application.
- **Trace**: Information events that are finer-grained than **Debug** and potentially more useful for debugging an application.

8. Click **OK**.

### Updating Licenses

A Media Application Server license is required to log on to the UI. You will need to perform an update when the license is:

- Expired
- Invalid
- Not applicable
- Unknown
- Unreadable

**To update a Media Application Server license:**

1. From the Home page, click **Settings**.
2. From the Toolbar, click **Update License**.
3. Enter the license key.
4. Click **OK**.
5. Click the **License** tab to show license information for your system(s).

### Backing up the Database

Refer to *Backing up the Database* for instructions on backing up the database.

### Restoring the Database

Refer to *Restoring the Database* for instructions on restoring the database.
Chapter 25
Using the Setup App

This chapter provides instructions for using the Setup app to manage server and service settings in MAS. Choose from the following topics:

- About MAS Setup
- Managing MAS Server Settings
- Managing Ignore Patterns
- Managing SystemManagers
- Managing SNMP Managers
- Managing Rhozet WFS Server
- Managing General Storage Servers
- Managing the Archive Storage Server
- Managing BrowseStores
- Managing the IPV Storage Server
- Managing Aspera Storage Servers
- Managing FTP Storage Servers
- Managing Scheduled Tasks

About MAS Setup

The Setup app in the MAS UI lets you configure MAS server settings, SystemManagers, SNMP Managers, the Rhozet WFS™ file-based workflow system (WFS) server, and storage servers. You can also configure Ignore Patterns to exclude files from system operations as well as manage scheduled tasks.

MAS Server Settings

For each MAS appliance at your site, you can edit the services, system pollers, and debug logs using the Setup app. You can also back up and restore the MAS database as well as install licenses.

See Managing MAS Server Settings for information.

Ignore Patterns

The Ignore Patterns feature lets you create regular expressions to exclude certain files from MAS events. For example, you can use Ignore Patterns for the following events:

- Moving, mirroring, transferring, or ingesting files
- Applying closed captions to files
- Archiving or restoring files
- Performing quality checks on files
- Running manual jobs
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About MAS Setup

- Generating proxies
- Transcoding files
- Transferring AS-02 2011 bundles except the Extra folder

See Managing Ignore Patterns for more information.

SystemManagers

The SystemManager application consists of a browser-based UI used for configuring and monitoring Spectrum, MediaGrid, MediaDeck, ProBrowse, and ProXchange systems.

SystemManagers, and the systems they monitor, are “imported” into the Media Application Server for use through the MAS UI. After a SystemManager has been imported, MAS will license the file system to the limit defined in the license file. It will also synchronize the file systems residing on the storage servers associated with the SystemManager. Successful completion of these actions provides you with access to the folders and files on the managed devices.

For example, to access a SystemManager from the UI, MAS must “learn” about the equipment. This is accomplished by adding the SystemManager into the UI. Once the SystemManager is added, information is imported, and the file systems are licensed and re-synced, you will be able to access folders residing on storage servers through MAS.

See Managing SystemManagers for configuration information.

SNMP Managers

SNMP is used in network management systems to monitor network-attached devices for conditions that warrant administrative attention. In MAS 3.6.2, you can use the SNMP Service to perform the following tasks:

- Register your SNMP Managers with the Media Application Server
- Send traps from MAS to your SNMP Managers
- Receive traps from other devices and forward them to your SNMP Managers

Multiple SNMP Managers can be enabled in MAS. For every enabled SNMP Manager, the service opens an SNMP session using the address and the port.

See Managing SNMP Managers for configuration information.

Rhozet WFS Server

The Rhozet WFS is a client/server system for the distributed processing of inter-dependent tasks collected together and processed as a workflow. The WFS processes and stores jobs, which are collections of tasks, through a central and redundant Rhozet Workflow Engine (RWE). The work is consumed through distributed nodes called workflow nodes. These nodes, also referred to as services, include the content verification and transcoding.

Each Engine acts as a core consumer of jobs and a core distributor of tasks in the process of workflow control, management, and execution. The nodes act in a corresponding manner as consumers of tasks and enable the distributed processing of this work across one or more nodes (as a farm).

See Managing the Rhozet WFS Server for configuration information.
**Storage Servers**

A storage server is representation of systems like MediaCenter, MediaGrid, or Spectrum, that contain one or more file systems. A file system contains folders and files and represents a physical folder in the file system. A storage server also contains a list of hosts (network interfaces) from which these file systems can be accessed. For example, one MediaGrid cluster is considered to be one storage server. Similarly, one Spectrum system that is served by five MediaDirectors is considered to be one storage server.

See for *Managing General Storage Servers, Managing the Archive Storage Server, Managing BrowseStores, Managing the IPV Storage Server,* or *Managing Aspera Storage Servers,* for configuration information.

**Scheduled Tasks**

A scheduled task is a system- or user-designated action to be performed by MAS. For example, backing up the database, checking the server node status, reconciling transfer schedules, and reporting on storage watchers.

See *Managing Scheduled Tasks* for more information.

**Managing MAS Server Settings**

You can manage sever settings can be managed from the Setup app. You can edit the services, system pollers, and debug logs using the Setup app.

For an overview of MAS sever settings and instructions on configuring the settings, refer to *Using the Settings App.*

To view MAS server settings:
1. From the Home page, click Setup.
2. From the Navigation panel, click Server Settings.
3. Click a server setting in the content pane to view its configuration.

**Managing Ignore Patterns**

You can manage Ignore Patterns from the Setup app.

For an overview and instructions on managing Ignore Patterns, refer to *Managing Ignore Patterns.*

To view ignore patterns:
1. From the Home page, click Setup.
2. From the Navigation panel, click Ignore Patterns.

The results are shown in the Content pane.

**Managing SystemManagers**

The SystemManager must be imported into MAS in order to view ContentBridges, storage servers, file systems, hosts, ProxyGenerators, and JobScalers that are managed by the SystemManager. To enable MAS to discover the SystemManager as a managed device, you perform two steps:

- Add the SystemManager
- Import the SystemManager
Adding SystemManagers

Follow these steps to add SystemManager as a managed device for use by MAS.

To add a SystemManager:
1. From the Home page, click Setup.
2. From the Navigation panel, click SystemManagers.
3. From the Toolbar, click the Create icon.
4. Enter the first IP Address of this device.
5. Enter the Name for this SystemManager.
6. Click OK.

NOTE: After adding a SystemManager, the Status column indicates that the device is "Unknown." After importing the SystemManager, the Status column indicates "OK." See Importing SystemManagers for more information.

Importing SystemManagers

Follow these steps to import the configuration information from the SystemManager, including all of the storage servers that it manages and their IP addresses, file systems, hosts, etc.

To import a SystemManager:
1. From the Home page, click Setup.
2. From the Navigation panel, click SystemManagers.
3. From the Content pane, click the SystemManager you want.
4. Click the Import from SystemManager icon.
5. Click OK.

The storage devices which the SystemManager manages are now displayed under Storage Servers.

Editing SystemManagers

To edit a SystemManager:
1. From the Home page, click Setup.
2. From the Navigation panel, click SystemManagers.
3. From the Content pane, click the SystemManager you want.
4. From the Toolbar, click the Edit icon.
5. Edit the settings as needed.
6. Click OK.

Filtering SystemManagers

To filter SystemManagers:
1. From the Home page, click Setup.
2. From the Navigation panel, click SystemManagers.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click **Search Now**.

The results are shown in the Content pane.

### Deleting SystemManagers

**To delete SystemManagers:**

1. From the Home page, click **Setup**.
2. From the Navigation panel, click **SystemManagers**.
3. From the Content pane, click the SystemManager you want.
4. From the Toolbar, click the **Delete** icon.
5. To delete even if jobs are in progress, select **Force Delete**.
6. Click **OK**.
7. Click **Yes**.

### Managing SNMP Managers

Using the Setup App, you can add, delete, and edit SNMP managers.

Please review the following concepts before managing SNMP Managers.

#### Traps

SNMP traps enable an Agent to notify the management station of significant events by way of an unsolicited SNMP message. The following types of events are notified via SNMP traps:

- **File Change Notifications**
- **Job State Change Notifications**
- **System Event Log Entries**

To manage traps, a trap handler is attached to a current MAS session and is responsible for detecting trap session errors. A receiver gets the trap attributes from the trap object by looking at the Object IDs defined in the MAS config.properties file. The trap is converted into an Event Log and saved in the database. The SNMP Manager typically receives the trap on UDP port number 162.

#### OID Attributes

An Object ID (OID) is a way of identifying a particular management object, as a sequence of numerical sub-identifiers. The following list shows the OID attributes for MAS:

- **Severity**: .1.3.6.1.4.1.11141.3.1.3.1
  
  The Allowed values are: Critical, Error, Warning, Informational.

- **Message**: .1.3.6.1.4.1.11141.3.1.3.2

- **Event Type**: .1.3.6.1.4.1.11141.3.1.3.3
  
  The Allowed values are: General, MsfServiceAction, file system, NetworkConnection, DeviceAction, HActive, Database, SystemTask, FileNotification, and JobNotification.
SNMPV1 Trap Example

The following is a sample structure of an OID for SNMPV1:

```
snmptrap -v 1 -c public 10.4.198.37 .1.3.6.1.4.1.11141.6.1.0
10.4.198.37 1 0 1 .1.3.6.1.4.1.11141.3.1.3.1 s Critical
.1.3.6.1.4.1.11141.3.1.3.2 s "test msg" .1.3.6.1.4.1.11141.3.1.3.3
s file system
```

SNMPV2 Trap Example

The following is a sample structure of an OID for SNMPV2:

```
snmptrap -v 2c -c public 10.4.198.37 " " UCD-NOTIFICATION-TEST-
MIB::demoNotif .1.3.6.1.4.1.11141.3.1.3.1 s Critical
.1.3.6.1.4.1.11141.3.1.3.2 s "test msg" .1.3.6.1.4.1.11141.3.1.3.3
s file system
```

Workflow

An example workflow for using the SNMP Service on MAS is as follows:
1. A user registers one or more SNMP Managers in MAS.
2. The SNMP Service dispatches the SNMP traps to subscribed SNMP Managers. Based on
   the SNMP Manager version, the appropriate trap is generated by the trap factory. The
   trap is then sent using the trap session created by the SNMP Manager.
3. At system startup, the service creates a SNMP session and listens on the specified port
   for incoming SNMP traps. The SNMP Service receives the SNMP traps from the different
   SNMP Agents.
4. A trap handler is attached to the session and is responsible for receiving SNMPV1 and
   SNMPV2 traps.
5. A trap that is received by the handler is then converted into an event log and saved in
   MIB. The event log is then converted into an SNMP trap and sent to all registered SNMP
   Managers that are interested in the event type.

Requirements

**IMPORTANT:** To use SNMP with MAS, knowledge of SNMP is assumed.

To use the SNMP Service with MAS, ensure that the following requirements are met:

- Client system with SNMP
- SNMP Manager IP addresses and port numbers
- Network connectivity between the SNMP client and MAS

Registering SNMP Managers

To register SNMP managers:
1. From the Home page, click **Setup**.
2. From the Navigation panel, click **SNMP Managers**.
3. From the Toolbar, click the **Create** icon.
4. Complete the settings for the dialog box as follows:
   - **Host:** Enter a valid IP address for the SNMP Manager. This is the host to which MAS
     will send SNMP trap messages, as well as those to which your system will respond
     regarding SNMP requests.
3. From the Content pane, click the SNMP Manager you want.
4. From the Toolbar, click the Edit icon.
5. Change any settings as required.
6. Click OK.

Filtering SNMP Managers

Filter SNMP Managers to perform more detailed searches using specific properties.

To filter SNMP managers:
1. From the Home page, click Setup.
2. From the Navigation panel, click SNMP Managers.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
5. Click the Search Now icon.

The results are shown in the Content pane.

Deleting SNMP Managers

To delete SNMP managers:
1. From the Home page, click Setup.
2. From the Navigation panel, click SNMP Managers.
3. From the Content pane, click the SNMP Manager you want.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, select Force Delete.
6. Click OK.
7. Click Yes.

Managing Rhozet WFS Server

You can manage the Rhozet WFS server from the Setup app.
For an overview and instructions on managing the WFS server, refer to *Managing the Rhozet WFS Server*.

**To view Rhozet WFS Server instances:**
1. From the Home page, click **Setup**.
2. From the Navigation panel, click **Rhozet WFS Server**.

### Managing General Storage Servers

This section explains how to use storage servers to host CIFS and FTP file transfers with Spectrum and MediaGrid. A storage server represents a managed device in a MAS environment. A storage server contains one or more file systems and hosts (network interfaces) that have access to the file system.

The host provides Common Internet File System (CIFS), Network File System (NFS), File Transfer Protocol (FTP), or other protocols to access the files stored in the file system. A ContentBridge provides FTP to access the files stored in the file system.

In one such scenario, the FTP server and CIFS share are on the same server. This deployment resembles the Spectrum configuration where the FTP server and the CIFS share are on the same storage device.

#### CIFS and FTP on the Same Host

You can configure MAS to enable FTP file transfers between a Spectrum or MediaGrid server system and a third-party storage system. In this case, the same host serves CIFS and FTP.

In the following illustration, the CIFS and FTP server pairs exist on the same hosts (10.4.198.222 or 10.4.198.223) on the third-party storage system. MediaGrid has two ContentBridges, each with separate CIFS and FTP servers. File transfers occur via CIFS and FTP between the MediaGrid active storage system and a third-party storage system.

![Diagram](image)

**Figure 25–1: CIFS and FTP on the Same Host**

For example, this system can be accessed via CIFS using UNC notation: `\10.4.198.222\fs` or `\10.4.198.223\fs`. The same hosts can also be used as a source or destination for FTP transfers.
CIFS and FTP on Different Hosts

You can configure MAS to enable FTP file transfers between a Spectrum or MediaGrid server and a third-party storage system. In this case, different hosts serve CIFS and FTP.

In the following illustration, the CIFS and FTP servers exist on two separate hosts (10.4.198.222 and 10.4.198.223) on a third-party storage system. MediaGrid has two ContentBridges, each with separate CIFS and FTP server pairs. File transfers occur via CIFS and FTP between a MediaGrid server and a third-party storage system. ContentDirectors can be mounted (with omfs) to manage media and ContentBridges can be used for FTP transfers.

For example, the system can be accessed via CIFS using \10.4.198.222\fs and a bridge (10.4.198.223) can be used for FTP transfers.

FTP Configuration Recommendations

The FTP server that will be used with third-party storage server should be configured for the following:

- The FTP server should support Passive mode.
- Server-Server transfer should be allowed. For Windows FTP servers, [http://support.microsoft.com/kb/247132](http://support.microsoft.com/kb/247132), for more information.
- The valid port number range that the Passive transfers use must be increased to 65535. For Windows FTP servers, refer to [http://support.microsoft.com/kb/555022](http://support.microsoft.com/kb/555022), for more information.

For any other types of FTP servers, refer to your FTP server documentation.

Configuration Requirements

To enable a CIFS share to be accessed by the Media Application Server, you must grant full read/write permissions to the share.

**IMPORTANT:** When the CIFS and FTP are handled by different hosts, the Host responsible for CIFS is added during the creation of StorageServer and the host responsible for FTP must be added as ContentBridge-Other.
To enable the FTP server to interact with MAS, ensure that Port 21 is open on the FTP server. A CIFS share must be exposed for MAS to be able to mount it and perform further actions, like synchronize and transfer to and from the third-party storage.

Limitations

The following limitations apply to third-party storage systems:

- Active transfers (to or from) real-time file system notifications
- Uses configurable polling of specified location to manage
- Storage not supporting CIFS and (non-passive) FTP via the same host
- Non-spinning disk storage such as tape archives

Swapping the Grid

Use this procedure to swap grid usage from one MediaGrid to another. For example, when you swap MediaGrid1 to MediaGrid2, all grid app nodes and applicable rules that belong to MediaGrid1 are disabled and swapped to MediaGrid2. The grid app nodes and applicable rules are now enabled on MediaGrid2.

To swap MediaGrid usage:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers, and click a storage server.
3. From the Content pane, click the storage server you want.
4. From the Toolbar, click the Swap Grid icon.
5. Complete the dialog box as follows:
   - From Storage Server: Select the MediaGrid from which you want to swap. All transcode jobs and applicable rules are removed from this MediaGrid.
   - Make Offline: Select this option to take this MediaGrid offline after it is swapped.
   - To Storage Server: Select the MediaGrid to which you want to swap. All transcode jobs and applicable rules are moved to this MediaGrid.
6. Click OK.

Adding General Storage Servers

Any storage that provides both CIFS AND RFC-compliant (passive) FTP can be added as third-party storage. Third-party storage provides the following functions:

- CIFS for content discovery
- FTP for content transfers
- Metadata harvesting
- Inclusion in any rule
- Used in file transfers, mirroring, and notifications

To add general storage servers:
1. From the Home page, click Setup.
2. From the Navigation panel, click Storage Servers.
3. From the Toolbar, click New > General Storage Server.
4. Complete the Properties dialog box as follows:
   - Name: Enter the name of the storage server to add to the Media Application Server.
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Managing General Storage Servers

- **Domain Name:** Enter the Domain name of the storage server.
- **Storage Type:** The default is set to General.
- **Sub Storage Type:** From the drop-down menu, make a selection.
- **Online:** Select this option to enable the storage server for transfers.
- **Use Bridge:** Select this option to specify that FTP transfers from this storage server will be handled by a different host such as ContentBridge-other.

**NOTE:** With respect to third-party storage servers, if the Use Bridge option is enabled, the fields FTP User Name and FTP Password in the add/modify Host dialog box are disabled.

- **Supports AS02 2011 Bundles:** AS-02 serves as a collection point for all of the media and metadata necessary to assemble multiple versions into a “bundle.”

**NOTE:** ASO2 2011 support is not a configurable option for all archive servers.

5. Click the **File Systems** tab.
6. Click the **Add** icon to add file systems on this storage system.
7. Complete the dialog box as follows:
   - **Name:** Enter the name of the file system.
   - **Storage Server:** Shows the name to which this storage server belongs.
   - **User Name:** Enter the name of the user who has access to the file system.
   - **Password:** Enter the password of the user who has access to the file system.
   - **Licensed:** Select Yes if MAS licensed is enabled to access this file system type (third party). Otherwise, a new MAS licensed will be need to be installed in order to access third party storage devices.
   - **FTP Prefix:** Enter the FTP path to the root of the file system. If they are the same, enter a forward slash (/).
     - If FTP will start at the CIFS Share root folder, then enter a forward slash “/”.
     - If FTP will start at a subfolder, then enter the full path name “/archive/content” where /archive is the CIFS Share root folder and /content is the subfolder.
   - **Low Water Mark:** Enter the low water mark to manage the recycle bin on the file system root folder. The default is 60 (60 percent).
   - **High Water Mark:** Enter the high water mark to manage the recycle bin on the file system root folder. The default is 80 (80 percent).
   - **Min. Hours:** Enter the minimum number of hours a file can stay in the recycle bin when there is a shortage of space. The default is 120 (5 days).
     Refer to *Managing the Purge Policy* for more information.
8. Click **OK**.
9. Click the **Hosts** tab.
10. Click **Add** to add hosts that have access to content on this storage system.
11. Complete the dialog box as follows:
   - **Storage Server:** Shows the name of the storage server (where CIFS is implemented)
   - **IP Address:** Enter the primary IP address (eth0) of the third-party storage server.
   - **IP Address 2:** Enter the secondary IP address (eth1) of the third-party storage server.
   - **Bandwidth Usage:** Set to Full to allow full bandwidth usage for transfer to or from this host.
   - **FTP Transfer Usage:** Choose one of the following:
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- Set to **None** to prohibit usage of this host for FTP transfers.
- Set to **Source** to make this host the source for FTP transfers. When you assign an FTP host as the source, you can also change the Max. FTP Transfer Reads to a value other than the default number of four.
- Set to **Destination** to make this host the destination for FTP transfers. When you assign an FTP host as the destination, you can also change the Max. FTP Transfer Writes to a value other than the default number of three.
- Set to **Any** to specify the maximum number of FTP reads and writes. When you enable this setting, the Max. FTP Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of six.

- **Max. FTP/Reads Writes**: If FTP Transfer Usage is set to Any, select a maximum number of FTP reads and writes, up to 16.
- **Use in EDL**: Please ignore. Not applicable.
- **FTP User Name**: Enter the name of the user who can access the host via FTP.
- **FTP Password**: Enter the password of the user who can access the host via FTP.
- **FTP Port**: The default is set to port 21.

12. Click **OK**.

**IMPORTANT**: To use a storage system where different hosts serve CIFS and FTP, CIFS is added during the creation of the storage server. You must, however, define a ContentBridge as part of the complete setup process. See *Managing ContentBridges* for complete information.

**NOTE**: If you use third-party storage systems for file transfers via CIFS and FTP, note that no notifications are sent when files have been modified.

## Editing General Storage Servers

**To edit general storage servers:**

1. From the Home page, click the **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **General Storage Server**.

**NOTE**: Storage Servers can also be managed from the File Browser app.

4. From the Content pane, click the storage server you want.
5. From the Toolbar, click the **Edit** icon.
6. Edit the settings as needed.
7. Click **OK**.

## Filtering General Storage Servers

**To filter general storage servers:**

1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **General Storage Server**.
4. From the Toolbar, click the **Filter** icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
6. To perform a search, click the Search Now icon. The results are shown in the Content pane.

Deleting General Storage Servers

Deleting a storage server will delete the host and file system from MAS for that storage server. **To delete general storage servers:**
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click General Storage Server.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, select Force Delete.
6. Click OK.
7. Click Yes.

Managing the Archive Storage Server

You can manage the archive storage server from the Setup app. For an overview and instructions on managing the archive server, refer to Managing the Archive Server.

Viewing the Archive Storage Server

**To view the archive storage server:**
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click Archive.

The results are shown in the Content pane.

Managing BrowseStores

The BrowseStore is used for storing picons and low-res files known as proxies. The BrowseStore hardware can be configured as a standalone system, a high availability system, or it can be included with the MAS appliance.

**IMPORTANT:** BrowseStores cannot be created on Dell 860 or 1950 hardware.

**NOTE:** Harmonic recommends that you do not manage folders containing proxies. When creating folders on BrowseStore, MAS will not allow you to manage any folders. However, if you create folders for proxies on the MediaGrid, you will need to make sure that the folders are not monitored/managed at the time the folders were created.

Creating BrowseStores

The BrowseStore file system automatically gets created during installation if high-storage space is available. Otherwise, you need to create the BrowseStore by following the steps in this section.
To create a BrowseStore:
1. From the Home page, click Setup.
2. From the Navigation panel, click Storage Servers.
3. From the Toolbar, click New > BrowseStore.
4. In the Create BrowseStore dialog box, enter the following information:
   - Name: Enter the name for the BrowseStore.
   - URL: Enter the URL in the format: //IP_address/browsestore.

**NOTE:** When using an A-2100 HA system for BrowseStore, use the virtual IP address to create the BrowseStore.
5. Click OK.

Editing BrowseStores

To edit a BrowseStore:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click BrowseStore.
4. From the Content pane, click the BrowseStore you want.
5. From the Toolbar, click the Edit icon.
6. Edit the settings as needed.
7. Click OK.

Filtering BrowseStores

To filter a BrowseStore:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click BrowseStore.
4. From the Toolbar, click the Filter icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
6. Click the Search Now icon.

The results are shown in the Content pane.

Deleting BrowseStores

To delete a BrowseStore:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click BrowseStore.
4. From the Content pane, click the BrowseStore you want.
5. From the Toolbar, click the Delete icon.
6. To delete even if jobs are in progress, select Force Delete.
7. Click OK.
8. Click Yes.
Managing the IPV Storage Server

MAS supports the generation of H.264 proxies (low bit-rate copy of the original high-resolution video media) with MediaPorts running Spectrum 7.0, and the Rhozet WFS 1.4.4. These proxies can be stored on an IPV storage server for streaming on an IPV proxy player.

IPV is treated like a storage server as it virtualizes the proxy storage. This lets you define multiple IP addresses representing different IPV servers. You can define the actual physical directory that maps to an alias in IPV system. You can also use IPV storage as a destination for a uni-directional mirror rule.

Proxies

MAS creates a “clip” object to represent the proxy clip in the database. When a proxy clip is created in Spectrum or MediaGrid by Rhozet WFS, MAS associates the physical file as an instance of this clip. When this proxy is transferred to the IPV storage server, MAS creates an entry in the MediaInstance table and associates it with the same clip.

Typically, a proxy rule creates the entire proxy package, including thumbnail. In the case of IPV, the proxy that is generated is transferred to the IPV storage server as a post-process of the proxy job. The IPV storage server, where the transfer is initiated, is selected from one of the hosts that is least used. This way, simultaneous transfer jobs to IPV hosts can be load-balanced.

Players

Based on license and use of IPV-based proxies, you can play proxies using an IPV proxy player and an associated web-based apps. You can play proxies on Windows and Mac platforms using Internet Explorer or Mozilla FireFox.

NOTE: MAS cannot play IPV-based proxies using the MAS player.

Transfers

You can actively transfer IPV-compliant proxies created by Spectrum via FTP. The proxies will be mxf OP1a LL wrapped. This will allow transfer management via FTP. MAS will return the right location of IPV proxies for use in the player.

You can stream proxies in the proxy player within 10 seconds of transfer, control the maximum number of transfers to the IPV storage server, and process at least 24 transfers simultaneously. MAS uses job management and retrial mechanisms should transfers fail in the first attempt.

NOTE: Although you can configure Spectrum to generate IPV proxies, it cannot transfer them. This allows MAS to manage transfers should a user require transfer management. MAS also provides job management and retrial mechanisms should the transfers fail on the first attempt.
Assumptions

- The IPV server is correctly configured in MAS.
- MAS supports unique file names across all storage systems that it manages. The same file name with two different UMIDS is not supported.

You can store proxies on any proxy storage using the following default alias: “ipv_proxies.” To do so, you configure a storage server to use the alias, “ipv_proxies,” that refers to an actual folder in a file system. When requesting transfers of proxies generated by Spectrum or Rhozet WFS to an IPV storage server, MAS uses this alias to store the proxies.

- File names are assumed to be case sensitive. For example, the concomitant use of “Nnn.mxf” and “nnn.mxf” is not supported.
- Proxies generated by Spectrum or Rhozet WFS are MXF OP1a wrapped for IPV proxy transfers. This allows transfer management via FTP.
- Rhozet WFS will continue to generate thumbnails and storyboards.
- An operator will not generate more than 4000 clips in a 24-hour window.

Requirements

These features are dependent on:

- RMP 4.1
- Spectrum 7.0
Deployment Scenarios

This section provides example deployment scenarios for using MAS with the IPV storage server.

Configuration

1. Configure the Spectrum player to:
   - Generate IPV proxies.
   - Add date subdirectories.
   - NOT to transfer to the IPV storage server.

   **NOTE:** MAS will create a directory on the IPV storage server using the current date as the name.

2. Configure MAS as follows:
   - Add a list of IPV storage servers where the alias “ipv_proxies” is defined.
   - Create uni-directional mirror files in proxy.dir to the IPV storage server.
   - Create a proxy job for file-based workflows to generate an IPV proxy.

New File Recorded

1. When a new file is recorded in Spectrum, a proxy appears in proxy.dir.
2. MAS identifies this file as a proxy that needs to be transferred to the IPV storage server.
3. MAS uses FTP on Spectrum to initiate the transfer to the IPV storage server.
4. If the MAS UI requests the proxy location for this file, MAS returns the URL using the IPV storage server that is being used for the transfer.
5. When the file transfer is complete, MAS marks its database with the IPV proxy path for the high-resolution clip.

New File Dropped in MediaGrid

1. When a new file is dropped in MediaGrid, a proxy job is created in MAS.
2. You define a file mirror or file move rule to transfer proxies to the IPV storage server.
3. When the proxy is completed, MAS updates its database with the IPV proxy path for that high-resolution clip.

MAS Requests to Play Proxy

In MAS, the IPV player is not integrated with MAS; it cannot play the IPV proxy.

IPV Stores the Proxy in MediaGrid

1. Configure the IPV storage server with an alias. For example:
   
   `ipv_proxies` is the directory in MediaGrid (//10.4.196.200/pantherFS/ipv_proxies)

2. Configure MAS with an IPV storage server. For example, use these parameters:
   - Host: 1.2.3.4
   - Rootfolder: ipv_proxies

   **NOTE:** //1.2.3.4/ipv_proxies will not be CIFS accessible but for IPV needs, it will point to //10.4.196.200/pantherFS/ipv_proxies.
3. Spectrum or Rhozet WFS creates the proxy.
4. The following URL is used for the purpose of storing the proxy. For example:
   //1.2.3.4/ipv_proxies/<date-dir>

   MAS creates a directory on the IPV storage server to transfer proxy files to it. Two formats
   are supported: date format or zip file.
   - When **date** is selected, the directory with the current date is created on the IPV
     server.
   - When **zip** is selected, the last 3 letters of the file name (without the extension) are
     used as a directory name on the IPV server. If the file name has fewer than three
     characters, a directory is created with the file name. The default is **zip**.

5. Upon receiving the FTP request, the IPV storage server stores the proxy in a directory.
   For example:
   //10.4.196.200/pantherFS/ipv_proxies/<date-dir>

**Before You Begin**

Before adding IPV storage servers, you need to store your proxies on any proxy storage
system using the default alias called **ipv_proxies**. In this storage server, configure the alias,
ipv_proxies, that refers to an actual folder in a file system. When requesting transfers of
Spectrum or Rhozet WFS system-generated proxies to IPV, this alias is used to store the
proxies.

When defining the IPV root folder, you must map the root folder to a physical folder. This is for
file management, should the proxy need to be deleted.

Generally, a proxy rule creates the entire proxy package, including the thumbnail. In the case
of IPV, the proxy that is generated is transferred to an IPV server as a post process of the
proxy job. You’ll need to create a proxy job for file-based workflows to generate an IPV proxy.

**Adding IPV Storage Servers**

You can configure IPV storage servers in MAS. This enables you to:

- Define multiple hosts representing different IPV storage servers.
- Use IPV storage as a destination for a uni-directional mirroring rule

MAS uses alias (ipv_proxies) added as file system root folder for IPV storage server. You can
define multiple hosts where each host represents an IPV server.

To add IPV storage servers:

1. From the Home page, click **Setup**.
2. From the Navigation panel, click **Storage Server**.
3. From the Toolbar, click **New > IPV Storage Server**.
4. Complete the dialog box as follows:
   - **Name**: Enter the name of the storage server to add to the Media Application Server.
   - **Storage Type**: By default, IPV is selected.
   - **SubStorage Type**: Not Applicable is set.
   - **Online**: Enable or disable usage of this storage server for various workflows.

   **NOTE:** ASO2 2011 support is not a configurable option for all archive servers.

5. Click the **Hosts** tab.
6. Click **Add** to add hosts that have access to content on this storage system.
7. Complete the dialog box as follows:
   - **Storage Server**: Enter the name of the storage server (where CIFS is implemented).
   - **IP Address**: Enter the primary IP address (eth0) of the third-party storage server.
   - **IP Address 2**: Enter the secondary IP address (eth1) of the third-party storage server.
   - **Port Number**: Enter the port number depending on the selected protocol.
   - **Bandwidth Usage**: Set to Full to allow full bandwidth usage for transfer to or from this host.
   - **Media API Transfer Usage**: The default value is None.
   - **FTP Transfer Usage**: The default is Destination.
   - **Max. FTP/Reads Writes**: If FTP Transfer Usage is set to Any, select a maximum number of FTP reads and writes, up to 16.
   - **FTP User Name**: Enter the name of the user who can access the host via FTP.
   - **FTP Password**: Enter the password of the user who can access the host via FTP.
   - **FTP Port**: The default is set to 21.

8. Click **OK**.
9. Click the **Modify** button to edit a host or the **Delete** button to remove a host.
10. Click **OK**.

### Editing IPV Storage Servers

**To edit IPV storage servers:**
1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **IPV**.
4. From the Content pane, click the IPV server you want.
5. From the Toolbar, click the **Edit** icon.
6. Edit the settings as needed.
7. Click **OK**.

### Filtering IPV Storage Servers

**To filter IPV storage servers:**
1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **IPV**.
4. From the Toolbar, click the **Filter** icon.
5. Configure filtering by checking the applicable option(s) and clicking operators to modify the filter results.
6. Click the **Search Now** icon.

The results are shown in the Content pane.

### Deleting IPV Storage Servers

Deleting a storage server will delete the host and files system from MAS for that storage server.
To delete IPV storage servers:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click IPV.
4. From the Content pane, click the IPV server you want to delete.
5. From the Toolbar, click the Delete icon.
6. To delete even if jobs are in progress, select Force Delete.
7. Click OK.
8. Click Yes.

Managing Aspera Storage Servers

The Aspera storage server used by the MAS Distribute service offers high-performance file transfers across wide area networks (WAN). Aspera Transfer Protocol can provide maximum transmission speeds regardless of file size, transfer distance, or network conditions. File transfers are initiated by MAS, but executed by the Aspera enterprise server running on the Aspera storage server. The Aspera enterprise server must be running on both local and remote Aspera Storage servers.

Using Aspera you can perform the following tasks:
- Discover folders on a local Aspera node, or both files and folders on remote Aspera nodes
- Transfer files from/to a local Aspera storage server or to/from remote Aspera storage servers.

**NOTE:** Although MAS only supports file transfers from remote Aspera nodes to a local Aspera node, it does support clip-aware transfers from local nodes to remote nodes.
- Track the progress of transfer jobs
- Abort in-progress transfer jobs
- Create, rename, and delete folders on Aspera Storage servers

Requirements

**IMPORTANT:** Knowledge of Aspera products is assumed for completion of tasks described in this chapter.

To use the Aspera server with MAS, ensure that the following requirements are met:
- At least two Aspera Storage servers (either Linux or Windows) running the Aspera Enterprise Server.
  - You must have one local Aspera storage server, but you can have multiple remote Aspera Storage servers.
- The Aspera Enterprise Server must have a node license.
- Aspera storage servers must have network connectivity to MAS.
- The node user must be configured on the Aspera storage server (refer to Configuring the Node User on the Aspera Storage Server).
- Mount file systems on the Aspera storage servers as required by MAS (refer to Mounting File Systems on the Aspera Storage Server).
- Link a local storage server to a local Aspera storage server (refer to Linking a Local Storage Server to a Local Aspera Storage Server).
- Update the config file (aspera.conf) on the Aspera storage servers (refer to Updating the Configuration File on the Aspera Storage Servers).

**IMPORTANT:** To use an Aspera storage server for transfers, you must configure/open certain ports on the firewall. For information on which ports to configure/open, please contact Aspera technical support.

### Setting up Aspera Storage Servers

**NOTE:** For complete details on setting up an Aspera storage server, refer to your Aspera documentation.

#### Configuring the Node User on the Aspera Storage Server

**To configure the node user:**

1. Navigate to one of the following locations:
   - Linux users: /opt/aspera/bin
   - Windows users: C:/Program Files/Aspera/Enterprise Server (or your installed path)/bin
2. Add a node user with a node API username (for example, "John") and a node user with a node API password (for example "Password"):
   ```
   /opt/aspera/bin/asnodeadmin-a-u John-x xferUser -p Password -x asp1
   ```
   - xfer User needs to exist as as login for the Aspera Storage Server.
   - The node user name and password must match the Aspera Node user names and passwords set in Adding Aspera Storage Servers.

#### Mounting File Systems on the Aspera Storage Server

**To mount a file system on the Aspera Storage Server:**

1. Open the Aspera configuration file from one of the following locations:
   - Linux users: /opt/aspera/etc/aspera.conf
   - Windows users: C:/Program Files/Aspera/Enterprise Server (or your installed path)/etc
2. Mount the local storage server: `/any_mount_point/ipAddress of all full usage hosts of local storage server/fs_of_local_storage_server`
3. In the Aspera configuration file, set docroot to match the Aspera Storage file system configured in MAS: `/any_mount_point (anything above/ipAddress of all Full usage hosts)`
   - Refer to Updating the Configuration File on the Aspera Storage Servers.

#### Updating the Configuration File on the Aspera Storage Servers

**To update the configuration file on the Aspera Storage server:**

1. Open the Aspera configuration file from one of the following locations:
   - Linux users: /opt/aspera/etc/aspera.conf
   - Windows users: C:/Program Files/Aspera/Enterprise Server (or your installed path)/etc
2. In the configuration file, make the following changes (indicated by bold text):

```xml
<?xml version='1.0' encoding='UTF-8'?>
<CONF version="2">
  <central_server>
    <persistent_store>enable</persistent_store>  // this makes statistics query available
    <port>40001</port>
    <address>IP address of the Aspera Storage server you are configuring</address>
  </central_server>
  <aaa />
  <default>
    <file_system>
      <access>
        <paths>
          <path>  // for docroot
            <absolute>/mnt</absolute>  (this should match with /any_mount_point set in Mounting File Systems on the Aspera Storage Server)
            <read_allowed>true</read_allowed>
            <dir_allowed>true</dir_allowed>
            <write_allowed>true</write_allowed>
          </path>
        </paths>
      </access>
    </file_system>
  </default>
</CONF>
```

3. For the changes to take effect, restart the Aspera Storage service and the Aspera central service.

**Adding Aspera Storage Servers**

**To add an Aspera storage server:**

1. From the Home page, click **Setup**.
2. From the Navigation panel, click **Storage Server**.
3. From the Toolbar, click **New > Aspera Storage Server**.
4. Complete the dialog box as follows:
   - **Name**: Enter the name of the Aspera storage server.
   - **Storage Type**: Distribute is selected.
   - **SubStorage Type**: Aspera is set.
   - **Online**: Enable or disable usage of this storage server for various workflows.
   - **Local Aspera Node**: Select the check box if you are adding a local Aspera storage server.
5. Click the **File Systems** tab.
6. Click the **Add** icon to add file systems on this storage system.
7. Complete the **New FileSystemRootFolder** dialog box as follows:
   - **Name**: Specify the name of the file system you want to use for the Aspera storage server.
   - **Storage Server**: (Read-only) The name of the storage server you specified in *Step 4*.
   - **Licensed**: Select this option to license the file system.
   - **Docroot**: Enter the docroot path configured on the Aspera server.

8. Click the **Edit** button to edit a file system or the **Delete** button to remove a file system.
9. Click **OK**.
10. Click the **Hosts** tab.
11. Click **Add** to add hosts that have access to content on this storage system.
12. Complete the dialog box as follows:
   - **Storage Server**: (Read-only) The name of the storage server you specified in *Step 4*.
   - **IP Address**: Enter the primary IP address (eth0) of the Aspera storage server when Aspera Enterprise is running.
   - **Max. Transfer /Reads Writes**: Select the maximum number of transfer jobs this host can handle.
   - **Transfer User Name**: Enter the name of the user who can initiate an Aspera transfer (the login credentials for the Aspera storage server).
   - **Transfer Password**: Enter the password of the user who can initiate an Aspera transfer (the login credentials for the Aspera storage server).
   - **Aspera Node Username**: Enter the node user defined in *Configuring the Node User on the Aspera Storage Server*.
   - **Aspera Node Password**: Enter the password of the user defined in *Configuring the Node User on the Aspera Storage Server*.

13. Click **OK**.
14. Click the **Modify** button to edit a host or the **Delete** button to remove a host.
15. Click **OK**.

**Linking a Local Storage Server to a Local Aspera Storage Server**

To link a local storage server to a local Aspera storage server:
1. From the Home page, click **FileBrowser**.
2. From the Navigation panel, expand **All Storage Servers**.
3. Select the local storage server you mounted to the Aspera storage server in *Mounting File Systems on the Aspera Storage Server*.
4. From the Content pane, select the local storage server, and click the **Edit** icon.
5. Click the File Systems tab.
6. Click the file system, and then click **Modify**.
7. Select the **Link to local Aspera node** check box.
8. Click **OK**.
9. Click **OK**.

**Editing Aspera Storage Servers**

To edit an Aspera storage server:
1. From the Home page, click **Setup**.
2. From the Navigation panel, expand Storage Servers.
3. Click Aspera.
4. From the Toolbar, click the Edit icon.
5. Edit the settings as needed.
6. Click OK.

Filtering Aspera Storage Servers

To filter an Aspera storage server:
1. From the Home page, click Setup.
2. From the Navigation panel, expand Storage Servers.
3. Click Aspera.
4. From the Toolbar, click the Filter icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
6. Click the Search Now icon.

The results are shown in the Content pane.

Deleting Aspera Storage Servers

Deleting a storage server will delete the host and files system from MAS for that storage server.

To delete an Aspera storage server:
1. From the Home page, click Setup.
2. From the Navigation panel, click Storage Servers.
3. Click Aspera.
4. From the Content pane, click the Aspera server you want to delete.
5. From the Toolbar, click the Delete icon.
6. To delete even if jobs are in progress, select Force Delete.
7. Click OK.
8. Click Yes.

Managing FTP Storage Servers

MAS supports the ability to manage remote FTP storage servers using standard FTP protocol only.

Please note the following about using FTP storage servers:

- MAS only supports FTP storage servers as destinations for File Mirror rules, File Move rules, and Folder Synchronization rules. Since MAS does not support Media Management on FTP storage servers, any operations should be done on media instances as some clip and asset operations will not be available.

- Transfers to the FTP server are only supported in passive mode using ProxyFTP/FXP. Active transfers are possible only if the “Low Latency” and “Use FTP Only” options are set in the server settings. (In the Settings app, click Server Settings > Transfer Service.)
When creating unidirectional File Mirror/File Move rules using the FTP storage server as a destination, be sure to generate GUID’s from filenames. (In the Settings app, click Server Settings > MediaUtil > General > GUID Generation Strategy.)

IMPORTANT: MAS does not support bidirectional Mirror rules using FTP storage servers. In addition, unidirectional Mirror rules are not supported using FTP storage servers as a source.

To use a Spectrum server as an FTP storage server, the Spectrum host must be removed from MAS and then added as an FTP storage server.

Adding FTP Storage Servers

To add FTP storage servers:
1. From the Home page, click Setup.
2. From the Navigation panel, click Storage Server.
3. From the Toolbar, click New > FTP Storage Server.
4. Complete the dialog box as follows:
   - **Name**: Enter the name of the storage server to add to the Media Application Server.
   - **Storage Type**: By default, FTP is selected.
   - **Online**: Enable or disable usage of this storage server for various workflows.
5. Click the File Systems tab.
6. Click the Add icon to add file systems on this storage system.
7. Complete the New FileSystemRootFolder dialog box as follows:
   - **Name**: Specify the name of the file system you want to use for the FTP storage server.
   - **Storage Server**: (Read-only) The name of the storage server you specified in Step 4.
   - **Licensed**: Select this option to license the file system.
   - **FTP Prefix**: Enter the FTP path to the root of the file system. If they are the same, enter a forward slash (/).
     - If FTP will start at the CIFS Share root folder, then enter a forward slash “/”.
     - If FTP will start at a subfolder, then enter the full path name “/archive/content” where /archive is the CIFS Share root folder and /content is the subfolder.
   - **Min Hours**: Enter the minimum number of hours a file can stay in the recycle bin when there is a shortage of space. The default is 120 (5 days).
8. Click the Edit button to edit a file system or the Delete button to remove a file system.
9. Click OK.
10. Click the Hosts tab.
11. Click Add to add hosts that have access to content on this storage system.
12. Complete the dialog box as follows:
   - **Storage Server**: Shows the name of the storage server (where CIFS is implemented)
   - **IP Address**: Enter the primary IP address (eth0) of the third-party storage server.
   - **IP Address 2**: Enter the secondary IP address (eth1) of the third-party storage server.
   - **Bandwidth Usage**: Set to Full to allow full bandwidth usage for transfer to or from this host.
   - **FTP Transfer Usage**: Choose one of the following:
     - Set to None to prohibit usage of this host for FTP transfers.
Set to **Source** to make this host the source for FTP transfers. When you assign an FTP host as the source, you can also change the Max. FTP Transfer Reads to a value other than the default number of four.

Set to **Destination** to make this host the destination for FTP transfers. When you assign an FTP host as the destination, you can also change the Max. FTP Transfer Writes to a value other than the default number of three.

Set to **Any** to specify the maximum number of FTP reads and writes. When you enable this setting, the Max. FTP Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of six.

- **Max. FTP/Reads Writes**: If FTP Transfer Usage is set to Any, select a maximum number of FTP reads and writes, up to 16.
- **FTP User Name**: Enter the name of the user who can access the host via FTP.
- **FTP Password**: Enter the password of the user who can access the host via FTP.
- **FTP Port**: The default is set to port 21.

13. Click **OK**.

**Editing FTP Storage Servers**

To edit FTP storage servers:

1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **FTP**.
4. From the Content pane, click the FTP server you want.
5. From the Toolbar, click the **Edit** icon.
6. Edit the settings as needed.
7. Click **OK**.

**Filtering FTP Storage Servers**

To filter FTP storage servers:

1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **FTP**.
4. From the Toolbar, click the **Filter** icon.
5. Configure filtering by checking the applicable option(s) and clicking operators to modify the filter results.
6. Click the **Search Now** icon.

The results are shown in the Content pane.

**Deleting FTP Storage Servers**

Deleting a storage server will delete the host and files system from MAS for that storage server.

To delete FTP storage servers:

1. From the Home page, click **Setup**.
2. From the Navigation panel, expand **Storage Servers**.
3. Click **FTP**.
4. From the Content pane, click the FTP server you want to delete.
5. From the Toolbar, click the Delete icon.
6. To delete even if jobs are in progress, select Force Delete.
7. Click OK.
8. Click Yes.

Managing Scheduled Tasks

You can manage scheduled tasks from the Setup app.

For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

Viewing Scheduled Tasks

To view scheduled tasks:
1. From the Home page, click Setup.
2. From the Navigation panel, click Scheduled Tasks.

The results are shown in the Content pane.
Chapter 26
Using the Software Builds App

This chapter explains how to use the Software Builds app to upload the system software on a MAS system. Choose from the following topics:

- About the Software Builds App
- Managing Software Builds

About the Software Builds App

The Software Builds app provides software for standalone, high availability, and cluster configurations. After uploading a software build, refer to Using the Appliance App for installation instructions.

Managing Software Builds

From the Software Builds app, you can upload, delete, and filter software builds.

Uploading Software Builds

To upload software builds:
1. Download the MAS software file from the Harmonic Support server.
2. Open a web browser and type the IP address for the server in the address bar.
3. From the Home page, click Software Builds.
4. From the Toolbar, click the Upload Software icon.
5. Browse to the location where the tar.gz file is located.
6. Click the Upload button.
7. Click OK.

Deleting Software Builds

To delete software builds:
1. Open a web browser and type the IP address for the server in the address bar.
2. From the Home page, click Software Builds.
3. From the Content pane, click the software build to delete.
4. From the Toolbar, click the Delete Software icon.
5. Click OK.

Filtering Software Builds

To filter software builds:
1. From the Home page, click Software Builds.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
4. Click the Search Now icon.
This chapter provides instructions for using the Storage Watches app in MAS. Choose from the following topics:

- About the Storage Watches App
- Managing Storage Watches

About the Storage Watches App

The Storage Watcher app lets you set up a storage watch for a system, a list of folders, or a particular folder. It lets you register, unregister, or reregister watches for objects. You also have the option to remove a watch entry from the database.

Managing Storage Watches

The Storage Watcher provides a list of managed objects that MAS is watching via an IP address. It also indicates whether a folder is still managed or failed.

The Storage Watcher supplies the following information:

- ID of the storage server
- Path of the folder being registered
- ID of the host used for callback registration
- Status of the watcher
- Error text, if the watch has failed
- Listener IP (typically localhost)

Viewing the Status of Storage Watches

The following table shows possibilities for the status of storage watches.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed</td>
<td>MAS failed to register for notifications Reasons are provided in an error message.</td>
</tr>
<tr>
<td>InProgress</td>
<td>MAS is in the process of registering with the storage system.</td>
</tr>
<tr>
<td>ParentRegistered</td>
<td>MAS has registered the parent. For Harmonic MediaGrid, only the parent is registered.</td>
</tr>
<tr>
<td>Registered</td>
<td>MAS has registered with storage system for notifications.</td>
</tr>
</tbody>
</table>
To view the status of storage watches:
1. From the Home page, click **Storage Watches**.
2. From the Content pane, locate the folder of interest.
3. The status column shows the status of each folder.
4. To see the status of a registered folder in the msf-app-server.log, type the following commands:
   ```bash
   cd /var/log/omneon
   grep registered msf-app-server.log | more
   2010-09-20 22:06:00,356 172.17.255.102
   (storageWatcherJobWorker-64) DEBUG [com.omneon] Message executed
   for topic/queue=queue/StorageWatcherJobs with result =
   Reregistered status = [class=StorageWatcherStatus,
   primaryKey=30421, storageId=280,
   path=/fs0/class-mas-ops/group-2/clip.dir]
   ```
5. Press **Enter**.

**Registering Notifications**
You can choose folders to watch for notifications.

**To register a notification:**
1. From the Home page, click **Storage Watches**.
2. From the Content pane, locate the folder of interest.
3. From the Toolbar, click the **Watch** icon.
4. Click **OK**.

**Unregistering Notifications**
You can choose folders to unregister for notifications.

**To unregister a notification:**
1. From the Home page, click **Storage Watches**.
2. From the Content pane, locate the folder of interest.
3. From the Toolbar, click the **Unregister** icon.
4. Click **OK**.

**Filtering Watches**
Filter watches on storage systems to search for specific issues.

### Table 27–1: Storage Watcher Status

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>MAS has unregistered for notifications, however the entry still remains in the database.</td>
</tr>
<tr>
<td>Unregistered</td>
<td>MAS has unregistered for notifications, however the entry still remains in the database.</td>
</tr>
<tr>
<td>Disabled</td>
<td>MAS has a defer-deleted folder in its database.</td>
</tr>
</tbody>
</table>
To filter watches:
1. From the Home page, click Storage Watches.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
4. To perform a search, click the Search Now icon.

The results are shown in the Content pane.
Chapter 28
Using the Subclip App

This chapter explains how to use the Subclip app to manage subclips in MAS. Choose from the following topics:

- About Subclips
- Creating Subclips
- Managing Subclips

About Subclips

A subclip is an object created in the MAS database with new in/out points and a reference to the high-res clip. When you play the subclip, it will play the original clip marked with new in/out points. The original high-res clip remains unchanged.

Creating Subclips

*Figure 28–1* shows an overview of the process for creating subclips.

*Figure 28–1: Creating a Subclip*

The MAS Player is required to create a subclip. Refer to *Using the MAS Player* for an overview of the MAS Player.

To create a subclip:
1. From the Home page, click *Assets*.
2. From the Navigation panel, expand *All Assets*, and choose an Asset group.
3. From the Content pane, expand the asset containing the clip you want to use.
4. Click the clip you want to use.
5. From the Toolbar, click the **Play** icon
   The file opens in the player ready to play from its starting position.
6. Using the **Set Inpoint** and **Set Outpoint** controls, set the inpoints and outpoints for the clip.
7. Click the **Save** icon, located to the right of the slider, to save the changes.
8. Click the **Create Subclip** option.
9. Enter a **Name** for the subclip.
10. Click **OK**.
11. Click **OK**.

The subclip is now accessible from the Subclips app and can be used to create a sequence or a new clip.

**Managing Subclips**

You can edit, play, delete, filter, and use subclips to generate new clips.

**Editing Subclips**

To edit subclips:
1. From the Home page, click Subclips.
2. From the Content pane, click the subclip you want to edit, and click the **Edit** icon.
3. Edit the properties as needed.
4. Click **OK**.

**Playing Subclips**

To play a subclip:
1. From the Home page, click Subclips.
2. From the Content pane, click the subclip you want to play, and click the **Play** icon.
   The subclip opens in the MAS Player. For an overview of the MAS Player, refer to *Using the MAS Player*.

**Generating Clips**

To generate a clip:
1. From the Home page, click **Subclips**.
2. From the Content pane, click the subclip you want to use to generate the clip.
3. From the Toolbar, click the **Generate Clip** icon.
4. Select a destination path for the new clip.
   The output path displays.
5. Enter a **Clip Name**.
6. From the **Wrapper Type** list, select one of the following:
   - **Discrete**: Use to write separate essence files per track. Essence media is copied (flattened) to new, discrete files in a directory named media.dir beneath the location of the destination movie. The essence file names are identical to the movie, except for the suffix.
Embedded: Use to write a self-contained clip. Essence media is copied (flattened) to
the destination movie and is embedded inside it. The new movie is self-contained.

Reference: Use to write a wrapper that references the essence from the source clips.
No essence media is copied; it is left in place. The new destination movie is
constructed with references to these essence files. In this case, make sure that the
essence files are located in the same directory as, or below, the destination movie
file.

RDD9: Compatible with Sony’s XDCAM-HD line of cameras and VTRs. The video
track is MPEG long-GOP at 18, 25, 35 or 50 Mbps. This allows two to eight audio
tracks, each with a single channel and PCM audio.

AS02 2009: A hybrid between self-contained and referenced clips. The main MXF
file is OP1b and contains only clip metadata. The essence files are MXF OP1a, one
per track. The index tables for each track are stored in their respective OP1a files.

AS02 2011: Same as AS02 2009, except the whole clip structure is stored inside a
folder and the folder then becomes the clip. This is referred to as a “bundle.” In
addition to the clip-related files, the bundle contains .xml files and an optional (extra)
folder with custom files. Refer to AS-02 MXF Versioning for more information.

7. Click OK.

Deleting Subclips

To delete a subclip:
1. From the Home page, click Assets.
2. From the Content pane, click the subclip(s) you want to delete.
3. To delete the subclip(s), do one of the following:
   - From the Toolbar, click the Delete icon.
   - Select the Force Delete check box to force deletion of the subclip and then click OK.
     When this box is selected, the system deletes the file without checking for any
     conflicting conditions.

4. Click Yes.

Filtering Subclips

1. From the Home page, click Assets.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify
   the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently
     used queries. Saved queries are stored in the Search app. Refer to Creating Search
     Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
4. To perform a search, click the Search Now icon.

The results are shown in the Content pane.
Chapter 29
Using the Track Tags App

This chapter provides instructions for using the Track Tags app to manage track tags in MAS. Choose from the following topics:

- About Track Tags
- Managing Track Tags

About Track Tags

A track tag represents a value that can be assigned to any audio/video track of any clip. The collection of tags can be deployed to a Spectrum or MediaDeck file system.

Managing Track Tags

MAS provides a default set of track tags that you can apply to a clip. These tags are described below.

Table 29–1: Track Tags

<table>
<thead>
<tr>
<th>Tag</th>
<th>Standard Definition</th>
<th>High Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Tag</td>
<td>Yes (conversion depends on player configuration)</td>
<td>Yes (conversion depends on player configuration)</td>
</tr>
<tr>
<td>Pillarbox</td>
<td>Yes (image shown full height with black side bars)</td>
<td>Not available</td>
</tr>
<tr>
<td>Anamorphic</td>
<td>Yes (image stretched to fill 16x9)</td>
<td>Yes (image squeezed to fit 4x3)</td>
</tr>
<tr>
<td>Crop</td>
<td>Yes (top and bottom cropped to display as 14x9)</td>
<td>Yes (sides cropped to display as 14x9)</td>
</tr>
<tr>
<td>Letterbox</td>
<td>Not available</td>
<td>Yes (image shown full width, black bars top and bottom)</td>
</tr>
<tr>
<td>Full</td>
<td>Not available</td>
<td>Yes (sides cropped to fit 4x3)</td>
</tr>
</tbody>
</table>

You can create your own track tags, import and use all track tags from the Spectrum file systems, and deploy the track tags created using MAS to the same file systems.

Usage Notes

- Clip generation and track editing must be contained to a single file system.
- Both audio and video tracks can be tagged.
- Video track tags are statically defined, and allow users to control the aspect ratio of clips.
- Audio track tags are user-defined- and allow users to control which audio track is played on a MediaPort.
Viewing Track Tags

To view track tags:
1. From the Home page, click Track Tags.
2. From the Content panel, click the track tag you want to view.

Creating Track Tags

The Media Application Server system allows you to create new track tags that can also be exported to the Spectrum file systems managed by Media Application Server.

**NOTE:** Only audio track tags can be created on a Media Application Server system.

To create a track tag:
1. From the Home page, click Track Tags.
2. From the Toolbar, click the Create a new Track Tag icon.
3. Enter a name of the new track tag in the Value field.
4. Click OK.

Editing Track Tags

To edit a track tag:
1. From the Home page, click Track Tags.
2. From the Content pane, click the track tag you want.
3. Click the Edit icon.
4. Edit the settings as needed.
5. Click OK.

Exporting Track Tags

You can export the track tags created using Media Application Server for use by the same file systems.

To export track tags:
1. From the Home page, click Track Tags.
2. From the Content pane, click the track tag you want to deploy.
3. From the Toolbar, click the Deploy Tags icon.
4. Click OK.

This action exports the track tags that you have created to the Spectrum file systems. Once deployed, the track tag file “TrackKeyValueDefs.txt” is updated with the new tags and deployed to each Spectrum file system.

The track tag file, located in the MediaDirector’s “config” directory, contains the language labels used in your facility for track tagging. By using a consistent set of labels throughout your facility, your video server and storage systems can read the labels and automatically route the audio to the appropriate channels. Refer to the Harmonic SystemManager User Guide for more information about editing the track tag file.

Importing Track Tags

The track tags used by connected Spectrum file systems can be imported into Media Application Server.
To import track tags:
1. From the Home page, click Track Tags.
2. From the Toolbar, click the Load Tags icon.
   This action imports all of the track tags from the Spectrum file systems.
3. Click OK.

Deleting Track Tags

NOTE: Video tags cannot be deleted from a Media Application Server. Only audio track tags can be deleted. Once deleted, however, you can deploy the list of tags to synchronize with the Spectrum file system. Refer to Importing Track Tags and Exporting Track Tags for more information.

To delete track tags:
1. From the Home page, click Track Tags.
2. From the Content pane, click the tag(s) you want to delete.
3. From the Toolbar, click the Delete icon.
4. Click OK.

Filtering Track Tags

To filter track tags:
1. From the Home page, click Track Tags.
2. From the Toolbar, click the Filter icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
4. To perform a search, click the Search Now icon.
   The results are shown in the Content pane
Chapter 30
Using the Transcode App

This chapter provides instructions on using the Transcode app to create transcode presets and transcode rules to convert audio and video clips from one format to another in MAS. Information in this chapter applies to content from ProXchange, Harmonic, or other third-party systems. Choose from the following topics:

- About Transcoding in MAS
- Preparing for Transcoding
- Viewing the Transcode Summary
- Managing JobScalers
- Managing GRID Applications and Grid App Nodes
- Managing ProXchange Transcode Presets
- Managing Rhozet WFS Transcode Presets
- Managing Generic Transcode Presets
- Managing Notification Presets
- Managing Transcode Rules
- Transcoding a Panasonic P2 Clip
- Performing On-Demand Manual Transcode Jobs
- Managing Transcode Jobs
- Viewing Scheduled Tasks
- Viewing Unresolved Issues

About Transcoding in MAS

Transcoding is the process of translating or converting audio and video clips from one format to another. Transcoding facilitates moving media across production, post-production, archival, and delivery ecosystems. Transcoding can be managed by ProXchange, the Rhozet WFS™ file-based workflow system (WFS), or a third-party system using transcode presets and rules.

The Transcode Service also provides the fastest video transcoding on the market by leveraging the Grid Processing capability of the MediaGrid clustered storage system.

ProXchange

The Media Application Server automates and integrates ProXchange into the workflow. The Media Application Server’s built-in rules engine can respond to system events, such as the arrival of new content, or time-based criteria. Once a set of rules has been applied to a specific directory in MediaGrid, ProXchange will automatically begin processing any files appearing there. ProXchange can produce multiple output formats.

For example, ProXchange can take MPEG-2 50 Mbps I-Frame content, automatically create a transmission copy in MPEG-2 12 Mbps Long GOP, and at the same time create an H.264 clip for distribution to IPTV or the web. Full monitoring and reporting keeps you informed as to the progress and transcode performance of the jobs.
Rhozet WFS

WFS is an open and extensible task-based engine for managing video centric workflows. WFS enables control of multiple ProMedia Carbon nodes configured as a transcoding farm. The distributed nature of WFS allows for automated processing of high-volume transcoding tasks, failover support, managing job distribution, job prioritization, load balancing, FTP transfer, status monitoring, and job notification.

Third–Party Vendors

Using the MAS Application Programming Interface (API), third-party vendors can use the Transcode Service to transcode files.

Transcode Rules and Presets

To transcode media, you perform three steps:

- Create a transcode preset
- Create a Transcode rule
- Run or schedule the transcode job

A transcode preset determines the parameters required to create the output format you want, such as wrapper type, format, bit rate, resolution, and audio format. A Transcode rule determines the destination folder, the source folder, and indicates which transcode preset to use. Transcode presets can be used in multiple Transcode rules.

Transcode Workflow

The Figure 30–1 shows a workflow for using a Transcode rule to transcode video clips from one format to another.

1. Transcode content from the MediaGrid /edits directory to the MediaGrid /playout directory (for playout).
2. Transcode content from the MediaGrid /edits directory to the /ipod and /windows-media (for mobile) directories.
Preparing for Transcoding

This section describes the steps you need to perform to prepare your site for transcoding in MAS.

**MediaGrid**
Install and run a Compute Node license on MediaGrid (license enables grid processing).

**JobScaler**
Install and run a license on JobScaler. Ensure that the JobScaler version and MAS / Rinda Bulletin Board Service version are matched. If the version do not match, install the required MAS PX-plugin file on the Media Application Server. The PX-plugin file is located on FTP site. Please contact Harmonic Support for password to install file.

**SystemManager**
Ensure that JobScaler is accessible (viewable) from SystemManager. Verify that the SystemManager can see the JobScaler in it's network. If not, manually add the JobScaler as a device.
Preparing for Transcoding

Media Application Server

- Install and run a license on the Media Application Server that has support for ProXchange. See the Media Application Server Installation and Configuration Guide for information.
- Add and import SystemManager into the MAS environment. Refer to Managing SystemManagers for information.
- Enable JobScaler to consume jobs from MAS. The JobScaler software version must match the MAS Grid Service version running on the Media Application Server. Refer to Managing JobScalers for information.
- Configure the Grid Resource Manager (GRM) to transcode jobs. Refer to Managing GRID Applications and Grid App Nodes for information.
- Configure MediaGrid and MAS for a DNS server. To do so, edit the /etc/hosts file on the MAS server. Then add the MediaGrid ContentDirectors public IP addresses and the name of the MediaGrid cluster.
- Create transcode presets and Transcode rules in the UI. See Managing ProXchange Transcode Presets and Managing Transcode Rules (this chapter) for information.

Rhozet WFS

- WFS is a software application from Harmonic. It separates the workflow and automation processes from the transcoder. Refer to the Harmonic Workflow System Installation and Quick Start Guide for more information.
- Optionally perform a quality check of the clips before transcoding them. See Using the Quality Check App for more information.
- Create transcode presets and Transcode rules in the UI. See Managing Rhozet WFS Transcode Presets and Managing Transcode Rules (this chapter) for information.
Third-Party Vendors

- The user needs to know the name of the preset created on the third-party software. MAS will pass the same name to the third-party software through the transcode job.

Viewing the Transcode Summary

The Transcode Summary is a series of panels that provide details about the Transcode service. The following panels are provided:

- **Summary Panel**: Shows if the Transcode service is enabled and if rules are defined and/or enabled.
- **Settings**: Displays settings for the server that has configured for the Transcode service. Click the **Edit** icon to edit server settings. Refer to Configuring Services for more information about server settings.
- **Troubled Hosts**: Displays the IP address and connection status of all hosts having problems.
- **Job Count Panel**: Displays the status and count of Transcode jobs.
- **Transcode Alarms**: Displays the ID, alarm raised, and severity of any Transcode alarms.
- **Job Information**: Displays the Source data, progress, and status of Transcode jobs. The jobs listed can be sorted by clicking on the available tabs.
- **WFS**: Displays if transcoding is enabled, the maximum job limit for transcodes, and the current count of transcode jobs.
- **ProXchange**: Displays the statuses of JobScalers and Grid Nodes.

Managing JobScalers

ProXchange JobScalers can be added to a system to increase scalability and performance for parallel processing of transcode jobs by the ProXchange system. The JobScaler consumes jobs from MAS and distributes the transcode jobs to the Harmonic MediaGrid. It is managed by the SystemManager and requires its own run time license.

In order for MAS to discover JobScalers, the SystemManager that is managing the JobScaler needs to be imported into the Pro Application Portal. Once imported, when ProXplore can see the JobScaler displayed in the interface, configure the JobScaler to consume jobs from MAS.

*Figure 30–3* provides an overview of a JobScaler employed in a larger system.
Configuring JobScalers

The basic steps for configuring a JobScaler are as follows.
1. Install the JobScaler hardware.
2. Configure the network settings.
3. Install the JobScaler license.
4. Verify the SystemManager can see the JobScaler. If not, add the JobScaler as a managed device.
5. Import the SystemManager into ProXplore.
6. Verify that ProXplore can see the JobScaler.
7. Configure the JobScaler to consume jobs from MAS.
8. Create a transcode preset.
9. Create a transcode Rule.
10. Apply the transcode preset to the transcode Rule.
11. Run the transcode Rule. Refer to Running Transcode Rules for more information.

Enabling JobScalers

Enable JobScaler to consume transcode jobs from MAS.

To enable JobScaler:
1. From the Home page, click Transcode.
2. From the Navigation panel, click JobScalers.
3. From the Content pane, click the JobScaler you want to enable.
4. From the Toolbar, click the Configure JobScaler/ProxyGenerator to consume jobs from this MAS icon.
5. Click OK.

Editing JobScalers

To edit a JobScaler:
1. From the Home page, click Transcode.
2. From the Navigation panel, click JobScalers.
3. From the Content pane, click the JobScaler you want to edit.
4. Click the Edit icon.
5. If needed, edit the name of the device.
6. Click OK.

Filtering JobScalers

To filter JobScalers:
1. From the Home page, click Transcode.
2. From the Navigation panel, click JobScalers.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

Deleting JobScalers

To delete a JobScaler:
1. From the Home page, click Transcode.
2. From the Navigation panel, click JobScalers.
3. From the Content pane, click the JobScaler you want to delete.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, select Force Delete.
6. Click OK.
7. Click Yes.

Managing GRID Applications and Grid App Nodes

IMPORTANT: This section applies only to Harmonic MediaGrid systems with the ContentServer 1000 series or 2000 series. Systems with the ContentServer 3000 series do not support grid applications.

The Harmonic MediaGrid active storage system combines clustered storage with grid computing, using multiple interconnected-yet-independent nodes to create a scalable system that can serve as a grid-processing engine for processor-intensive media processing applications.
By using the Grid Resource Manager (GRM) for transcoding jobs, MAS distributes work to JobScalers/ContentServers, resulting in better performance by processing jobs in parallel. Such performance improvements become particularly beneficial when working with large Harmonic MediaGrid systems because the volume of work can be greatly increased. Additional JobScalers/ContentServers can share the load by splitting the jobs into manageable sub-tasks and performing the wrapping and re-wrapping often required in transcode jobs.

**Grid Applications**

In MAS 3.6.2, the only available grid application is Transcode.

**Grid App Nodes**

A grid is a group of nodes allocated to MAS for a job, in this case, a transcode job. A grid app node is a JobScaler or ContentServer that can join the grid to process transcode jobs.

ContentServers belong to MediaGrid clusters, and cluster names are displayed in the **Cluster** column. JobScalers are not part of clusters. They are listed in the **JobScalers** list.

**Requirements**

You can form a grid using JobScalers as well as ContentServers. To form a grid, JobScaler 1.7 is required. Only ContentServers and JobScaler 1.7 can participate to form a grid using GRM. You will not see JobScaler 1.6 listed in the Grid App Nodes.

**Viewing Grid App Nodes**

To view Grid App Nodes:
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Grid App Nodes**.
   
   The Grid App Nodes display in the Content pane. The Status column indicates the following statuses:
   - **Available**: The grid app node is available to form a grid.
   - **Unavailable**: The grid app node is not available to form a grid (someone else is using it).
   - **Unreachable**: The grid app node is unreachable or not connected.
   - **Load Requested**: A grid app node has been requested to form a grid.
   - **Running**: A grid app node successfully joined the grid.
   - **Unknown**: The status of the grid app node is unknown.
3. From the Content pane, click a **Grid App Node** to view.

   The details are shown in the Details pane.

**Editing Grid App Nodes**

Use this procedure to enable or disable specific ContentServers or JobScalers from participating in the active grid.

To edit a Grid App Node:
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Grid App Nodes**.
3. From the Content pane, click the Grid App Node you want to edit.
4. From the Toolbar, click the Edit icon.

5. Complete the dialog box as follows:
   - **Cluster**: A read-only field that shows the ContentServer cluster. This option is not available for JobScalers.
   - **Enable**: Select Yes to enable this ContentServer/JobScaler to participate in the active grid. Disabling this option prevents this ContentServer/JobScaler from participating in the active grid.
   - **IP Address**: A read-only field that shows the IP address of the ContentServer or JobScaler.
   - **IP Address 2**: A read-only field that shows the IP address of the ContentServer or JobScaler.

6. Click OK.

**Filtering Grid App Nodes**

To filter a Grid App Node:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Grid App Nodes.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

**Deleting Grid App Nodes**

To delete a Grid App Node:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Grid App Nodes.
3. From the Content pane, click the Grid App Node you want to delete.
4. From the Toolbar, click the Delete icon.
5. To force delete jobs in progress, select Force Delete.
6. Click OK.
7. Click Yes.

**Polling Grid App Nodes**

MAS polls only for grid app nodes on which a request has been made to form a grid. All other grid app nodes, whether disabled or not, are used in forming a grid but will display a status of “unknown.”

**Editing the Grid Transcode Application**

To edit the Grid transcode applications:
1. From the Home page, click Transcode.
2. From the Navigation panel, click **Grid Applications**.
3. From the Content pane, click the **Transcode** application.
4. From the Toolbar, click the **Edit** icon.
5. Complete the dialog box as follows:
   - **Type**: This is a read-only field.
   - **Enable**: Select this check box if you want to load/run grid application on grid app nodes. Clear this check box to stop/unload grid application on grid app nodes.
   - **Grid App Node Types**: Select the JobScaler or ContentServer types to add to the grid. The types are shown with model numbers. A type may represent multiple servers. For example, if you select the JobScaler type, all JobScalers at your site are added to the grid.
   - **Memory Required (MB)**: This is a read-only property predefined based on the application type.
   - **Grid ID**: This is a read-only property assigned by MAS to the grid.
   - **Use All Available**: Select this option to use all JobScalers and ContentServers available in MAS system to form the grid. The number of servers you can add is limited by the licenses installed on MAS.
   - **Number of nodes requested to run app**: Select the number of nodes to run the transcode jobs. The number of servers you can add is limited by the licenses installed on MAS. For example, if you request 15 nodes, but are licensed for 10 node; only 10 nodes will be used in the grid.
   - **Number of nodes app is running**: Shows the number of nodes running. This is a read-only field.
   - **Number of NFS Mounts**: Shows the number of Network File System mounts.
   - **Number of CIFS Mounts**: Shows the number of Common Internet File System mounts.
6. Click **OK**.

### Filtering the Grid Transcode Application

**To filter the Grid transcode application:**

1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Grid Applications**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to **Creating Search Queries** for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.
Managing ProXchange Transcode Presets

Transcode presets define your video and audio output and wrapper formats, and must be created before Transcode rules can be added. ProXchange provides several different video output resolutions and formats from which to choose. Preset options vary according to the wrapper, video format, and output resolution that you choose.

Creating ProXchange Transcode Presets

**NOTE:** Files can only be transcoded on the same MediaGrid system.

To create ProXchange transcode presets:

1. From the Home page, click Transcode.
2. From the Navigation panel, expand ProXchange Integration.
3. Click ProXchange Transcode Presets.
4. From the Toolbar, click the Create icon.
5. Complete the Properties dialog box as follows:
   - **General**
     - **Name:** Enter a name for the new preset.
     - **File name template:** Use the following characters to include attributes of the output format in the name:
       - Use “#s” to include the source name; use “#f” to include the video format; use “#r” for the bit rate.
     - **If Clip Exists:** Select what should be done when file names conflict:
       - **Replace:** Replace the current clip with the new clip.
       - **Skip:** Do not transcode the clip.
       - **Append Timestamp:** Add the date and timestamp to the name of the new clip.
       - **Ask User:** Notify the user before replacing the clip. An unresolved issue is created if the destination file already exists.
     - **Command Line:** Reserved for future use.
   - **Source Clip**
     - **Contains Open GOP:** Select Yes if the Transcode rule will be applied to clips that are generated by or edited using third-party applications, such as Apple Final Cut Pro.
     - **Program Numbers in Transport Stream:** This option is used if the output is a transport stream. ProXchange will extract each program listed and create one output file for each program. List the program numbers to transcode in the Transport Stream. Enter up to two numbers separated by a comma (,). enter a set of comma separated number. Up to two program numbers can be entered. If left blank, the first two programs are transcoded.
     - **Note:** If you list tracks here and also list tracks in the Audio Track Selection option on the Audio/Video Settings tab, the total number of tracks in the transport stream is cumulative.
     - **Handle Growing Transport Stream:** Select Yes to enable transcoding of a transport stream as soon as it appears in the source folder, while it is being captured on the MediaGrid.
For example: 1) A feed is recorded off a satellite. 2) The IRD receiver uncompresses the Transport Stream. 3) The MediaGrid takes up the Transport Stream, creates a file, and then places it on the MediaGrid using the File System Driver. 4) The Transport Stream is now ready for transcoding.

6. Click the **Video/Audio Settings** tab, and complete the dialog box as follows:

**IMPORTANT**: Preset options vary depending on the combination of parameters you configure in the Video/Audio Settings dialog box of the **New Transcode Presets** window. All available options are described in this section, but might not be visible in the dialog box due to your configuration selections.

- **Video/Audio Encoder**
  - **Output Aspect Ratio**: Choose the output format from the list, including for mobile devices. Select the **Re-Wrap Only** option to transform the wrapper without transcoding video or audio essence. Additional preset options vary depending on the Output Aspect Ratio format you select.

**NOTE**: 5:4 and 3:2 are also available whenever Width and Height fields are available.

- **Wrapper**: Choose the wrapper format for the transcoded clips. The options are: ASF, MP4, MPEG TS, MPEG2 PS, MXF OP1a, MXF OP1a EVTR, MXF OP1b, QT7 Reference, or QT7 Self. Additional preset options vary depending on the Wrapper format you select.

- **Video Format**: Choose the video format for the transcoded clips. The options are: AVC-Intra, DNX-HD, VC-1 Advanced L1, H.264 ML 3.1, H.264, MPEG I-Frame, MPEG LGOP 4:2:0, MPEG LGOP 4:2:2, IMX 30/40/50, DVC Pro HD, XDCAMHD 4:2:0, XDCAMHD 4:2:2, DVC Pro 50, DV25, DV Pro 25, ProRes (Apple ProRes 422), or Same as Source. Additional preset options vary depending on the Video Format you select.

- **10 Bit Video Output**: This option is available if the 16:9 Output Aspect Ratio, MXF OP1a Wrapper, and DNxHD Video Format properties are selected. Select **Yes** to enable 10-bits per color channel (or 30-bits per pixel) video output.

- **Output Video Width**: This option varies depending on the Underburn Timecode Display property. Select an output video width.

- **Output Video Height**: This read-only setting changes based on the Output Video Width setting.

- **Video Bit Rate**: Select the video bit rate for the transcoded clips. The options vary depending on the Video Format setting.

- **Audio Encoding**: This option varies depending on the audio encoder. Select the audio encoding to use for the transcoded clips. The options are: WMA, AES3, AAC-LC, AAC+, MP3, AAC, AAC-MPEG2, MPEG-1 Layer 2, or Copy Original Audio.

- **Audio Bit Rate**: Select the audio bit rate to use for the transcoded clips. The options are: 32, 48, 64, 96, or 128.

- **Resample Audio**: Select **Yes** to resample the audio. This option is available for ASF and MP4 wrapper types.

- **Audio Sampling Rate**: This option varies depending on the Audio Bit Rate choice. The options are: 16 KHz, 22 KHz, 32 KHz, or 44.1 KHz.

- **Multiple Output Clips**: Select **Yes** to create multiple clips based on the selected audio track for mobile format clips. This option is available for ASF and MP4 wrapper types.
- **Audio Track(s)** Selection: Enter the 1-based audio track number.
- **Video Resolution**: Choose the video resolution for the transcoded clips. This option depends on the input and output family settings.
- **Bitrate Profile**: This option is available for the ProRes Video Format property. Choose the bitrate profile for ProRes clips. The options are: Standard, Proxy, LT, or HQ.
- **DVD Output**: This option is available for the MPEG2 PS Wrapper property. Select Yes if the transcoded clips are intended for DVD output.
- **Final Cut Pro Compliant**: This option is available for the XDCAM HD 4:2:0 Video Format property. If you use Final Cut Pro to edit the output after transcoding, select this option.

- **Time Code Options**
  - **Restripe Timecode**: If selected, this option replaces the timecode in the video essence of the output clip.
    - If the source is an EDL, ProXchange will either 1) use the timecode specified in the .xml file if the EDL file was saved with the EDL Timecode offset box was selected, or 2) use the timecode of the first frame of the first clip if the Timecode offset box was not selected.
    - If the source is not an EDL and not MXF Op1a, the timecode is taken from the wrapper.
    - If the source is MXF OP1a, ProXchange will get the start timecode from the Material Package. If the Material Package does not have a time track with a start time, the system will use a default start time of 00:00:00:00.
  - **Underburn Timecode Display**: Select this option to add an underburn area that contains the timecode. If the restripe option is selected, the output timecode contains the new timecode values.

  **NOTE**: The restripe option is and only for video resolutions that are equal to or less than 1070 x 600. However, the underburn timecode option is only supported with Flash and Windows media formats.

- **H.264 Options/Video Conversion**
  - **Aspect Conversion**: Choose to convert the aspect ratio of the clip to the following formats:
    - **Letterbox**: Image shown full width, with black bars on the top and bottom of the image.
    - **14:9 Crop**: Top and bottom cropped to display as 14x9.
    - **Full page**: Sides cropped to fit an aspect ratio of 4x3.
    - **Anamorphic**: Image stretched to fill an aspect ratio of 16x9.
    - **Pillarbox**: Image shown with black bars on the left and right of the image.
  - **Processing Options**: The options are:
    - **Standard Processing**: Select for standard (single-pass) encoding.
    - **Multipass CBR**: Select for multi-pass constant bit rate (CBR) encoding. Note that this option takes longer than standard processing.
    - **Multipass VBR**: Select for multi-pass variable bit rate (VBR) encoding. Note that this option takes longer than standard processing.
    - **iPod Compatible**: Select to create iPod compatible clips.
    - **Video GOP Size**: Enter the desired Group of Pictures (GOP) size.
- **Encode for Streaming**: When generating MP4 wrapped H.264 clips, select this option to generate a clip that can be played while downloading from the server to the browser.

- **H264 Profile**: When selected, each profile defines what feature set the encoder may use and limits the decoder implementation complexity. The options are: 1SEG, AVCHD, Baseline, BD (Blu-Ray SD), BD HDMV (Blu-Ray HD), Cif, D1, DivX, DVD, Flash High-Res (640x480), Flash Low-Res (820x240), HDTV 1080i, HDTV 720p, High, Main, PSP 480x270, PSP 640x480, or SVCD. The parameters for the H.264 profiles are in the following table.

<table>
<thead>
<tr>
<th>Display Name</th>
<th>Parameter</th>
<th>Video Format</th>
<th>Aspect Ratio</th>
<th>Width</th>
<th>Height*</th>
<th>Bit Rate (kbits)</th>
<th>GOP size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>baseline</td>
<td>H.264 BL</td>
<td>4:3</td>
<td>320</td>
<td>240</td>
<td>600</td>
<td>33</td>
</tr>
<tr>
<td>Cif</td>
<td>cif</td>
<td>H.264 BL</td>
<td>Selectable</td>
<td>352</td>
<td>0</td>
<td>600</td>
<td>33</td>
</tr>
<tr>
<td>Main</td>
<td>main</td>
<td>H.264 ML</td>
<td>Selectable</td>
<td>704</td>
<td>0</td>
<td>3000</td>
<td>33</td>
</tr>
<tr>
<td>SVCD</td>
<td>svcd</td>
<td>H.264 ML</td>
<td>Selectable</td>
<td>480</td>
<td>0</td>
<td>1150</td>
<td>33</td>
</tr>
<tr>
<td>D1</td>
<td>d1</td>
<td>H.264 ML</td>
<td>Selectable</td>
<td>720</td>
<td>0</td>
<td>3000</td>
<td>33</td>
</tr>
<tr>
<td>High</td>
<td>high</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1920</td>
<td>1080</td>
<td>6000</td>
<td>33</td>
</tr>
<tr>
<td>DVD</td>
<td>dvd</td>
<td>H.264 High</td>
<td>Selectable</td>
<td>720</td>
<td>0</td>
<td>3000</td>
<td>33</td>
</tr>
<tr>
<td>BD (Blu-Ray SD)</td>
<td>bd</td>
<td>H.264 High</td>
<td>Selectable</td>
<td>720</td>
<td>0</td>
<td>8000</td>
<td>33</td>
</tr>
<tr>
<td>BD HDMV (Blu-Ray HD)</td>
<td>bd_hdmv</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1920</td>
<td>1080</td>
<td>2000</td>
<td>33</td>
</tr>
<tr>
<td>HDTV 720p</td>
<td>hdtv_720p</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1280</td>
<td>720</td>
<td>8000</td>
<td>33</td>
</tr>
<tr>
<td>HDTV 1080i</td>
<td>hdtv_1080i</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1920</td>
<td>1080</td>
<td>1000</td>
<td>33</td>
</tr>
</tbody>
</table>

*Height value for H.264 High profiles is hidden if not overridden. If overridden, the value is 33.
Table 30–1: H.264 Profiles

<table>
<thead>
<tr>
<th>Display Name</th>
<th>Parameter</th>
<th>Video Format</th>
<th>Aspect Ratio</th>
<th>Width</th>
<th>Height*</th>
<th>Bit Rate (kbits)</th>
<th>GOP size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVCHD</td>
<td>avchd</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1920</td>
<td>1080</td>
<td>2000</td>
<td>18</td>
</tr>
<tr>
<td>1SEG</td>
<td>1seg</td>
<td>H.264 BL</td>
<td>4:3</td>
<td>320</td>
<td>240</td>
<td>384</td>
<td>33</td>
</tr>
<tr>
<td>PSP 480x272</td>
<td>psp_480x270</td>
<td>H.264 ML</td>
<td>16:9</td>
<td>480</td>
<td>272</td>
<td>900</td>
<td>30</td>
</tr>
<tr>
<td>PSP 640x480</td>
<td>psp_640x480</td>
<td>H.264 ML</td>
<td>4:3</td>
<td>640</td>
<td>480</td>
<td>2000</td>
<td>30</td>
</tr>
<tr>
<td>DivX</td>
<td>divx</td>
<td>H.264 High</td>
<td>16:9</td>
<td>1920</td>
<td>1080</td>
<td>2000</td>
<td>Hidden if not overridden. If overridden, the value is 33.</td>
</tr>
<tr>
<td>Flash Low-Res (320x240)</td>
<td>flash_lowres</td>
<td>H.264 BL</td>
<td>4:3</td>
<td>320</td>
<td>240</td>
<td>300</td>
<td>33</td>
</tr>
<tr>
<td>Flash High-Res (640x480)</td>
<td>flash_highres</td>
<td>H.264 ML</td>
<td>4:3</td>
<td>640</td>
<td>480</td>
<td>670</td>
<td>33</td>
</tr>
</tbody>
</table>

(*) 0 indicates the value is calculated automatically based on aspect ratio.

- **Override H.264 Profile**: Select Yes to enable changes to the values supplied (bitrate, resolution, GOP, or aspect ratio) by the profile.

**IMPORTANT**: Be very careful when using this option and changing the video resolution. Depending on H.264 profile, certain resolutions might not work and the transcode job might fail.

- **Closed Caption**: If the source clip has closed captioning, select this check box to include this info in the H.264 video.
- **Cropping Left**: This option crops the source content from the left. The cropping will occur before content is resized or aspect conversion is performed. Enter the pixels that you wish to crop.
- **Cropping Right**: This option crops the source content from the right. The cropping will occur before content is resized or aspect conversion is performed. Enter the pixels that you wish to crop.
- **Cropping Top**: This option crops the source content from the top. The cropping will occur before content is resized or aspect conversion is performed. Enter the pixels that you wish to crop.
- **Cropping Bottom**: This option crops the source content from the bottom. The cropping will occur before content is resized or aspect conversion is performed. Enter the pixels that you wish to crop.
- **Frame Rate Conversion**
  - **Inverse Telecine**: Changes the frame rate from 29.97 to 23.98. If selected, this option performs the inverse telecine conversion, which converts 29.97 FPS interlaced material, which was originally 23.98 FPS, back to 23.98 FPS. Note the
If selected, ProXchange will perform this operation before any cropping or resizing of the source content.

- Inverse telecine requires an input clip that has been telecined using 3:2 pulldown.
- ProXchange will perform inverse telecine on clips which contain both regular and irregular cadence transitions. Irregular cadence transitions usually occur in clips that were edited after being telecined. Sometimes an edit is made in the middle of the 3:2 cadence, which causes an irregular transition to the next cadence. If ProXchange processes such a clip, any of the following defects may be present in the output clip:
  - A repeat frame may be inserted.
  - An interlaced frame may be inserted.
  - Irregular motion may be noticeable in high motion scenes.
  - A/V Sync may be off for a short period of time.

Notes:

- Inverse telecine does not support the propagation of metadata within the essence from the source to the output.
- Inverse telecine does not support 10-bit source material when the desired output is ProRes 10-bit. This transcode will be blocked and will result in an error.
- Telecine: Changes the frame rate from 23.98 to 29.97.

**NOTE:** When generating H.264 (H264 ML 3.1, H264) or MPEG2 (MPEG LGOP 420 or 422) as a video format with a custom GOP size, that GOP size must be a multiple of 5. When this box is checked, if the GOP size is not a multiple of 5, the GOP is rounded to the nearest applicable multiple of 5.

- Progressive Output: When selected, this option converts interlaced material to progressive material.

**NOTE:** When converting from interlaced to progressive, the source must be deinterlaced prior to creating the progressive frame.

7. Click the Transport Stream Options tab, and complete the Transport Streams Options dialog box as follows:

- **Transport Stream Options**

  This section applies to MPEG TS wrappers only. Transport streams are supported as both an input and output format. Only single program transport streams (STPS) are allowed as an output.

  - **TS Bitrate (Mbits/sec):** Select the transport stream bit rate for the clip. The maximum is 150 Mbits/sec.
  - **MIP-4010 Compatible:** This option is not for general use.
  - **Choice for PIDs:** The options are Use PID Profile or Use User-defined Profile.
  - **Use PID Profile:** If selected, the PID Profile option is enabled. The PID Profile options are: None, ATSC, ATSC Hi, AVCHD, Blu-Ray, Cablelabs, or DVB.
Table 30–2: Transport Stream Options

<table>
<thead>
<tr>
<th>Display Name</th>
<th>Parameter</th>
<th>Program PID</th>
<th>PCR PID</th>
<th>Video PID</th>
<th>Audio PID (track #: 1,2,3,4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>none</td>
<td>1000</td>
<td>1001</td>
<td>1001</td>
<td>32-35</td>
</tr>
<tr>
<td>ATSC</td>
<td>atsc</td>
<td>16</td>
<td>17</td>
<td>17</td>
<td>20-23</td>
</tr>
<tr>
<td>ATSC Hi</td>
<td>atschi</td>
<td>16</td>
<td>17</td>
<td>17</td>
<td>20-23</td>
</tr>
<tr>
<td>AVCHD</td>
<td>avchd</td>
<td>256</td>
<td>4097</td>
<td>4113</td>
<td>4352-4355</td>
</tr>
<tr>
<td>Blu-Ray</td>
<td>blu ray</td>
<td>256</td>
<td>4097</td>
<td>4113</td>
<td>4352-4355</td>
</tr>
<tr>
<td>Cablelabs</td>
<td>cablelabs</td>
<td>480</td>
<td>481</td>
<td>481</td>
<td>482-485</td>
</tr>
<tr>
<td>DVB</td>
<td>dvb</td>
<td>129</td>
<td>2064</td>
<td>2064</td>
<td>2068-2071</td>
</tr>
</tbody>
</table>

- **Use User-defined PID Profile**: If selected, the PID Profile option is hidden and additional user-configurable parameters are shown for a custom PID profile. Configure the following parameters for when generating output transport streams:
  - **Program Number**: Range 1-32764, default 1.
  - **Program PID**: Range 16-8190, default 1.
  - **PCR PID**: Range 16-8190, default 1.
  - **Video PID**: Range 16-8190, default 1.
  - **Video Delay**: Range 0-1000.
  - **Audio Delay**: Range 0-1000.
  - **PCR Interval**: Range 0-255 ms.
  - **PMT Interval**: Range 0-255 ms.
  - **PAT Interval**: Range 0-255 ms.

- **Output Audio Tracks**
  By default, output audio tracks are listed for the selected MPEG TS wrapper type. You can add up to as many language input audio tracks as needed. The system generates only one SPTS with the output.

  **NOTE**: If the wrapper type is not MPEG TS, the Output Audio Tracks panel is disabled.

  - **Add**: Click to add an input audio track to the MPEG TS wrapper type. You can add up to ten language input audio tracks to the transcode preset.
  - **Input Track ID**: Select the source PID track number.
  - **Audio PID**: Select the audio PID number. The audio PID cannot be a duplicate.
  - **Language Tag**: Select the language tag for the output audio track from the menu.

8. Click **OK** to save the new transcode audio track.

**TIP**: By default, 485 languages are listed in the Language Tag menu. You can modify this list. Go to [Modifying Languages for Transcoding Audio Tracks](#) for information.
9. Click **Modify** to modify the selected audio track.
   - **Delete:** Click to delete the selected audio track from the transport stream.
   - **Move Up:** Click to move the selected audio track up in the transport stream.
   - **Move Down:** Click to move the selected audio track down in the transport stream.
10. Click **OK**.
11. To create a Transcode rule, go to *Creating Transcode Rules* for information.

### Editing ProXchange Transcode Presets

To edit ProXchange transcode presets:
1. From the Home page, click **Transcode**.
2. From the Navigation panel, expand **ProXchange Integration**.
3. Click **ProXchange Transcode Presets**.
4. From the Content pane, click a transcode preset.
5. From the Toolbar, click the **Edit** icon.
6. Change the settings as needed.
7. Click **OK**.

### Duplicating ProXchange Transcode Presets

To duplicate ProXchange transcode presets:
1. From the Home page, click **Transcode**.
2. From the Navigation panel, expand **ProXchange Integration**.
3. Click **ProXchange Transcode Presets**.
4. From the Content pane, click a transcode preset.
5. From the Toolbar, click the **Duplication** icon.
6. Change the settings as needed.
7. Click **OK**.

### Filtering ProXchange Transcode Presets

Filter Transcode presets to narrow the information in the Content pane.

You cannot filter the source based on input type.

To filter ProXchange transcode presets:
1. From the Home page, click **Transcode**.
2. From the Navigation panel, expand **ProXchange Integration**.
3. Click **ProXchange Transcode Presets**.
4. From the Toolbar, click the **Filter** icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query:** Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to *Creating Search Queries* for instructions on completing the pages.
   - **Clear:** Click the icon to clear filter attributes.
6. To perform a search, click the **Search Now** icon.
   The results are shown in the Content pane.
Deleting ProXchange Transcode Presets

**NOTE:** A transcode preset cannot be deleted if it is used in a Transcode rule.

To delete a ProXchange transcode preset:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand ProXchange Integration.
3. Click ProXchange Transcode Presets.
4. From the Content pane, click the transcode preset you want to delete.
5. From the Toolbar, click the **Delete** icon.
6. To delete the object even it is in use, select **Force Delete**.
7. Click **OK**.
8. Click **Yes**.

Modifying Languages for Transcoding Audio Tracks

By default, 485 languages are listed in the Language Tag menu. You can modify the transcode_languages_template.xml file in the data directory to show only those languages that you want. Before modifying the xml file, save a copy of it in case you want to return to the default list.

The data directory is located at:

```
/opt/msf/server/clustered/data
```

The data directory contains two files: transcode_languages_template.xml and transcode_languages.xml. Modify the transcode_languages.xml, as needed, to show the languages you want.

The transcode_languages_template.xml provides the list of all the languages that can be used as a reference for customizing the transcode_languages.xml. The languages shown in MAS UI are read from transcode_languages.xml, not from the transcode_languages_template.xml.

Managing Rhozet WFS Transcode Presets

In this section, you create and manage transcode presets for the Rhozet WFS. Transcode presets are based on workflow templates originally created on a WFS server. Refer to your product documentation for information on working with workflow templates.

**Before You Begin**

Before creating WFS transcode presets, you must register the Rhozet WFS server with MAS. Refer to *Managing the Rhozet WFS Server* for an overview and instructions.

Creating Rhozet WFS Transcode Presets

To create WFS transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Rhozet Integrations.
3. Click Rhozet WFS Transcode Presets.
4. From the Toolbar, click the **Create** icon.
5. Complete the dialog box as follows:
   - Category: Select the category of the preset.
Name: Select the name of the preset you created using the Rhozet WFS. This preset will be applied to the clip.

If Clip Exists: Take the following action if a clip with the same name already exists:

- Replace: Select this option to replace the transcoded file in the destination folder if a file with the same name is already present.
- Append Number: Select to append a number to a clip name to avoid replacement of a clip when it is transcoded more than once.

6. Click OK.
7. To create a Transcode rule, go to Creating Transcode Rules.

Editing Rhozet WFS Transcode Presets

To edit WFS transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Rhozet Integrations.
3. Click Rhozet WFS Transcode Presets.
4. From the Content pane, click the transcode preset you want to edit.
5. From the Toolbar, click the Edit icon.
6. Change the settings as needed.
7. Click OK.

Filtering Rhozet WFS Transcode Presets

Filter transcode presets to narrow the information in the Content pane.

You cannot filter the source based on input type.

To filter WFS transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Rhozet Integrations.
3. Click Rhozet WFS Transcode Presets.
4. From the Toolbar, click the Filter icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the pages.
   - Clear: Click the icon to clear filter attributes.
6. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

Deleting Rhozet WFS Transcode Presets

**NOTE:** A transcode preset cannot be deleted if it is used in a Transcode rule.

To delete a WFS transcode preset:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Rhozet Integrations.
3. Click Rhozet WFS Transcode Presets.
4. From the Content pane, click the transcode preset you want to delete.
5. From the Toolbar, click the **Delete** icon.
6. To delete the object even it is in use, select **Force Delete**.
7. Click **OK**.
8. Click **Yes**.

### Managing Generic Transcode Presets

The generic transcode preset supports any third-party vendor using the MAS API. A sample workflow is explained below.

1. A user defines a Transcode rule in MAS to transcode files to the required format found in a set of folders.
2. MAS discovers the files as clips. When the clips are closed for writing, MAS posts a job for transcoding in the specified format.
3. The Transcode Service consumes the job from MAS and processes it as follows:
   a. The job setting provides information about the transcode format. This information is set in the form of the predefined preset from the vendor.
   b. The job setting contains the vendor name.
   c. The job is dispatched as an XML response to the specific vendor’s “consume job” request.
4. The transcode vendor transcodes the source file and places the new format file in the destination folder specified in the job.
5. The Transcode Service running on MAS recognizes the newly-created file in the destination folder and links it to the asset associated with the source file.

After the job is completed, MAS posts an “updateTranscodeStructureJob,” which merges the destination and source asset to the same asset if they are different.

### Creating Generic Transcode Presets

The preset name that is registered with MAS is case sensitive. It must be the same name as the one defined by the vendor’s software.

**To create a generic transcode preset:**

1. From the Home page, click **Transcode**.
2. From the Navigation panel, expand **Generic Transcode Integration**.
3. Click **Generic Transcode Presets**.
4. From the Toolbar, click the **Create** icon.
5. Complete the dialog box as follows:
   - **Vendor Name**: Enter the vendor name
   - **Name**: Enter the name of the Preset created on the third-party software. MAS will pass on the same name to the third-party software through the transcode job.
   - **If Clip Exists: Replace** is the default. This option overwrites the transcoded file in the destination folder, if the file with the same name is already present.
6. Click **OK**.
7. To create a Transcode rule, go to **Creating Transcode Rules**.
Editing Generic Transcode Presets

To edit generic transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Generic Transcode Integration.
3. Click Generic Transcode Presets.
4. From the Content pane, click the transcode preset you want to edit.
5. From the Toolbar, click the Edit icon.
6. Change the settings as needed.
7. Click OK.

Filtering Generic Transcode Presets

Filter transcode presets to narrow the information in the Content pane.

You cannot filter the source based on input type.

To filter generic transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Generic Transcode Integration.
3. Click Generic Transcode Presets.
4. From the Toolbar, click the Filter icon.
5. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the pages.
   - **Clear**: Click the icon to clear filter attributes.
6. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

Deleting Generic Transcode Presets

**NOTE**: A transcode preset cannot be deleted if it is used in a Transcode rule.

To delete generic transcode presets:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Generic Transcode Integration.
3. Click Generic Transcode Presets.
4. From the Content pane, click the transcode preset you want to delete.
5. From the Toolbar, click the Delete icon.
6. To delete the object even it is in use, select Force Delete.
7. Click OK.
8. Click Yes.

Managing Notification Presets

You can manage notification presets from the Transcode app.
For an overview and instructions on managing notification presets, refer to Managing Notification Presets.

**Viewing Notification Presets**

**To view notification presets:**
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Notification Presets**.

The results are shown in the Content pane.

**Managing Transcode Rules**

Set up Transcode rules to convert the format of media files using the transcode preset variables. Transcode rules can be run immediately after they have been created or run from a saved rule. Transcode rules can be created for use with ProXchange, Rhozet WFS, or third-party vendors.

**Creating Transcode Rules**

**To create a transcode rule:**
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Transcode Rules**.
3. From the Toolbar, click the **Create** icon.
4. Complete the **Properties** dialog box as follows:
   - **Name**: Enter a name for the new rule.
   - **Enable Rule**: Select this check box if you want the newly created/renamed files to be transcoded immediately without running the rule.
   - **Include Subfolders**: Select this check box to also transcode from the subfolders within the source folders you choose.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
   - **Destination Folder**: Navigate to and then select the folder that you would like to use for the destination.
5. Click the **Job Setting** tab.
6. Complete the **Job Settings** dialog box as follows:
   - **General**
     - **Preset**: Select a transcode preset created for use by ProXchange, Harmonic, or a third-party vendor.
     - **Priority**: Set the priority for a job. The highest priority is “9” and the lowest priority is “1.” The default priority is “4.”
     - **Transcode on JobScaler**: If you want to transcode on a JobScaler, select **Yes** to transcode jobs. When this option is selected, the dispatched job has a ranking of 50 (meaning it is a difficult job). If this option is not selected, the job has a ranking of 10 (meaning it is an easy job). If JobScaler is able to process jobs without the grid, jobs with rankings of 50 and 10 are consumed. If JobScaler cannot process jobs without using the grid, only jobs with a ranking of 10 are consumed. Refer to Managing GRID Applications and Grid App Nodes for information.
NOTE: Transcode on JobScaler is only applicable if a ProXchange preset is used.

- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

- **Retry**
  - **Transcode Retry Count**: Type or select the number of times the Transcode rule should be retried in the event of a failure. The maximum retry count is 3.
  - **Wait Time (seconds)**: Type or select the wait time between retries.

- To add or modify a Metadata Event, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to **Metadata Fields** for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the MetaData Field setting.

- **Notification**
  - **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the **Job States** below.
  - **Job States**: Select the job states about which you want to receive notifications.

- **Filter**
  - **Filter**: Select this check box to enable the File Name filter.
  - **File Name Pattern**: Define a pattern using a regular expression. enter special characters so that only files with certain name formats are transcoded. The Filter check box must be selected to enter an expression.

### Table 30–3: File Name Patterns

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>..(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.(mov)</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>.*abc</td>
</tr>
</tbody>
</table>

NOTE: The File Name Pattern applies to file names only and not to folders.

7. Click the **Metadata Filter** tab.

Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See **Metadata Fields** for more information.
8. To evaluate the metadata filter when the rule is run, do the following:
   a. In the **Evaluate Metadata Filter** option, select *Yes* to trigger the rule on any metadata value change based on the fields added to the **Metadata Filter**.
   b. In the **Logical Operator for Filter** menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click **Add**, and complete the dialog box as follows:
      - **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - **Operator**: Select the logical operator to apply to the metadata expression defined in the **Value(s)**.
      - **Type**: A read-only parameter that presents different **Value** options depending on the **Name** parameter you selected.
      - **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the **Name** parameter you selected.
   d. When you are done building the metadata filter, click **OK**.
9. To add more metadata expressions, repeat **Step 8**.
10. To delete a metadata filter, do the following:
    a. Select the metadata filter you want to delete.
    b. Click **Delete**.
    c. Click **Yes**.
11. Click **OK**.

   MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.
12. To immediately run the rule, go to **Running Transcode Rules**.

## Editing Transcode Rules

**To edit a transcode rule:**
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click **Transcode Rules**.
3. From the Content pane, click the transcode rule you want to edit.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

**NOTE:** Changes made to rules take effect in approximately 20 seconds.

## Duplicating Transcode Rules

**To duplicate a transcode rule:**
1. From the Home page, click **Transcode**.
2. From the Navigation panel, click Transcode Rules.
3. From the Content pane, click the transcode rule you want to duplicate.
4. From the Toolbar, click the Duplicate icon.
5. Change the settings as needed.
6. Click OK.

Enabling or Disabling Transcode Rules

To enable/disable transcode rules:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Transcode Rules.
3. From the Content pane, click a transcode rule.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.
6. Click OK.

Running Transcode Rules

You can immediately run a Transcode rule.

To run a transcode rule:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Transcode Rules.
3. From the Content pane, click a transcode rule.
4. From the Toolbar, click the Run icon.
5. Click OK.
6. Click OK.

If successful, the files are stored in the destination folder you specified.

Filtering Transcode Rules

Filter Transcode rules to narrow the file deletion information in the Content pane.

To filter transcode rules:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Transcode Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the pages.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.
Deleting Transcode Rules

To delete a transcode rule:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Transcode Rules.
3. From the Content pane, click the transcode rule you want to delete.
4. From the Toolbar, click the Delete icon.
5. To delete the object even it is in use, select Force Delete.
6. Click OK.
7. Click Yes.

Transcoding a Panasonic P2 Clip

To transcode a Panasonic P2 clip, you need to create a Transcode rule on a the Contents directory called “CLIP” which contains the XML files. The basic structure of a P2 clip is illustrated in Figure 30–4.

Then, you add a file name pattern to the Transcode Rule dialog box to transcode only the XML files and ignore the other files. The pattern is:

".*\.(xml | XML)"

See Managing Transcode Rules for more information.
Performing On-Demand Manual Transcode Jobs

You can dispatch a transcode job on demand using the “Manual Transcode” function. You can use a pre-existing preset or create a new preset (which will not be saved in the database).

1. To use the Assets app, do the following:
   a. Expand All Assets.
   b. Navigate to the asset that contains the clip you want, and in the Content pane, click that asset.
   c. Click the Summary tab.
   d. From the Details pane, click the clip you want.
   e. From the Toolbar, click Manual Transcode.
   f. Go to Step 3.

2. To use the File Browser app, do the following:
   a. Expand All Storage Servers.
   b. From the Navigation panel, click a storage server.
   c. From the Content pane, click a file system > a folder > and a media instance.
   d. From the Toolbar, click the Manual Transcode icon.

3. Complete the dialog box as follows:
   - **General**
     - **Destination Folder**: Select the destination folder for the transcoded clip.
   - **Job Settings**
     - **Select Preset**: Select this option and choose Transcode preset saved in the database from the combo box.
     - **Select the Enter ProXchange Preset or Enter Rhozet WFS Preset option.**
   - **General**: Specify general settings.
     - **Priority**: (optional) to move the task to the top of the transcode queue. High-priority tasks are placed at the top of the job queue and start before normal-priority tasks. However, jobs that are currently in progress are completed and not interrupted even if a high-priority job appears in the queue.
     - **Transcode on JobScaler**: Note: This setting is only applicable for ProXchange presets selected or configured for on-demand requests. Select Yes to transcode the job without using the MediaGrid. If this option is selected, the dispatched job has a ranking of 50 (meaning it is a difficult job). If this option is not selected, the job has a ranking of 10 (meaning it is an easy job). When JobScaler consumes a job from the Media Application Server, it includes capability information with it. If JobScaler can process jobs without using MediaGrid, jobs with rankings of 50 and 10 are consumed. If JobScaler cannot process jobs without using MediaGrid, only jobs with a ranking of 10 are consumed.
     - **Transcode Retry Count**: Type or select the number of times the Transcode rule should be retried in the event of a failure. The maximum retry count is 3.
     - **Wait Time (seconds)**: Type or select the wait time between retries.
     - **Use Notification Preset**: Select a notification preset to use when the Transcode rule is run.
   - **File Ignore Pattern**
     - **Enable Filter**: Select the check box to enable.
     - **File Name Pattern**: Enter file name matching using regular expressions.
File Ignore Pattern: Define a regular expression for ignoring a file type. See Ignoring Patterns in Filenames and Notification Types for more information.

Set MetaData: Lists the metadata to be set on the source object as per the set notification or job state change.

Schedule: Set the schedule when the transcode should run.
- Now: Run the transcode now.
- Later: Run the transcode at the specified date and time.

4. Click OK.

Managing Transcode Jobs

You can manage transcode jobs from the Transcode app.

For an overview and instructions on managing jobs, refer to Managing Jobs.

Viewing Transcode Jobs

To view transcode jobs:
1. From the Home page, click Transcode.
2. From the Navigation panel, expand Transcode Jobs.
3. Expand Jobs By Status and click a category.

The results are shown in the Content pane.

Viewing Scheduled Tasks

You can view scheduled tasks from the Transcode app.

For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

To view scheduled tasks:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Scheduled Tasks.

The results are shown in the Content pane.

Viewing Unresolved Issues

You can view unresolved issues from the Transcode app.

For an overview and instructions on managing unresolved issues, refer to Managing Unresolved Issues.

To view scheduled tasks:
1. From the Home page, click Transcode.
2. From the Navigation panel, click Unresolved Issues.

The results are shown in the Content pane.
Chapter 31
Using the Transfer App

This chapter provides instructions for using the Transfer app to transfer content to and from managed systems on a network. Choose from the following topics:

- About the Transfer Service
- Viewing the Transfer Summary
- Managing Notification Presets
- Managing SystemManagers
- Managing General Storage Servers
- Managing Hosts
- Managing ContentBridges
- Managing Content Bridges—Others
- Managing Resource Pools
- Managing File Mirroring Rules
- Managing File Move Rules
- Managing Coherency Reports
- Searching Assets
- Searching file systems
- Managing Transfer Hosts
- Managing Scheduled Tasks
- Managing Mirror Jobs, Transfer Jobs, and Move Jobs
- Managing Unresolved Issues
- Configuring the Media Application Server for Transfers
- Using Managed Devices for Transfers
- Transferring Files and Folders
- Transferring Assets
- Transferring AS-02 Assets
- Transferring Clips

About the Transfer Service

The Transfer Service manages the movement of content as defined by rules or user requests. It automatically senses growing and static files and selects the most appropriate transfer method. With MAS, you can transfer content media files (folders, assets, and clips) locally—between an in-house MediaGrid and a Spectrum system. Source and destination folders are easily located using the Tree, regardless of location; content can be transferred using Toolbar buttons or using a drag-and-drop operation.
Figure 31–1: Local or Remote Transfers

Transfer Service Workflow

The Transfer Service allows you to transfer content among storage systems such as:

- MediaGrid
- Spectrum
- MediaDeck
- MediaDeck II
- Third-party storage

You can transfer media, clips, assets, and virtual folders.

The following example shows a workflow for using the Transfer Service to transfer content:

1. From Spectrum /ingest directory to MediaGrid /source directory.
2. From Editing Station to MediaGrid /edits directory.
3. From MediaGrid /source directory to MediaDeck /playout directory.
4. From MediaGrid /edits directory to MediaDeck /playout directory.
Transfer Modes

Transfers are performed in active, passive, or auto mode.

Active Mode

Active mode supports the following:
Transfer while recording or play while transferring
- Spectrum using Internal Media API
- ContentBridge using Remote Media API
- Low-latency Op1a and MPEG-1 proxies using FTP tail mode

**Passive Mode**

Passive mode supports FTP between the following devices:

- MediaGrid to MediaGrid
- MediaDeck/MediaDeck II to MediaGrid
- MediaDeck/MediaDeck II to MediaDeck/MediaDeck II
- MediaDeck/MediaDeck II to Spectrum
- Spectrum to Spectrum
- Spectrum to MediaGrid
- Spectrum to MediaDeck/MediaDeck II
- MediaGrid to Spectrum
- MediaGrid to MediaDeck/MediaDeck II
- MediaDeck/MediaDeck II to MediaGrid

For information on configuring third-party storage systems for use in file transfers via CIFS and FTP, refer to *Managing General Storage Servers*.

**Auto Mode**

Auto mode can be any one of the previously described modes, depending on the availability of the hosts. If both the Remote Media API and the Internal Media API routes are available for Spectrum and ContentBridge, the Remote Media API via a ContentBridge route will be processed first. If both routes are available, depending on whether the flag, *Prefer RMA Spectrum*, in *Settings > Transfer Service* is set to Yes or No, the Internal Media API may or may not be used. See *Configuring the Media Application Server for Transfers* for more information.

For MediaDirector MCP2201/2, ProXplore will use the CIFS authentication settings from the SystemManager for FTP transfer. This only applies to the MediaDirector MCP2201/2. If you forget to set CIFS authentication fields, the FTP transfer will fail because the FTP authentication process had failed.

**Source and Destination Servers**

The source and destination servers must be set up to enable active transfers and FTP transfers between storage systems. The settings you use are dependent on factors such as the format type and rate, and can be optimized to take full advantage of storage capacity and throughput, or customized to restrict bandwidth usage.

**Maximum Transfer Reads and Writes**

The Media Application Server supports the following Reads and Writes per transfer host and is based on bandwidth and load on host.
Chapter 31 Using the Transfer App

Viewing the Transfer Summary

The Transfer Summary is a series of panels that provide details about the Transfer service. The following panels are provided:

- **Summary Panel**: Shows if the Transfer service is enabled and if rules are defined and/or enabled.
- **Settings**: Displays settings for the server that has configured for the Transfer service. Click the Edit icon to edit server settings. Refer to Configuring Services for more information about server settings.
- **Troubled Hosts**: Displays the IP address and connection status of transfer hosts having problems with transfer rules.
- **Job Count Panel**: Displays the status and count of Transfer jobs.
- **Transfer Alarms**: Displays the ID, alarm raised, and severity of any Transfer alarms.
- **Job Information**: Displays the Source data, progress, and status of Transfer jobs. The jobs listed can be sorted by clicking on the available tabs.

Managing Notification Presets

You can manage notification presets from the Transfer app.

For an overview and instructions on managing notification presets, refer to Managing Notification Presets.

Viewing Notification Presets

To view notification presets:
1. From the Home page, click Transfer.
2. From the Navigation panel, click Notification Presets.

The results are shown in the Content Pane.

Table 31–1: Maximum Transfer Reads and Writes

<table>
<thead>
<tr>
<th>Transfer Type</th>
<th>Reads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Active Transfer Reads</td>
<td>5</td>
</tr>
<tr>
<td>Maximum Active Transfer Writes</td>
<td>5</td>
</tr>
<tr>
<td>Maximum FTP Reads and Writes</td>
<td>16</td>
</tr>
<tr>
<td>Maximum FTP Reads and Writes for ContentBridge (CB)</td>
<td>16</td>
</tr>
<tr>
<td>Maximum FTP Reads and Writes for High Bandwidth ContentBridge (HCBCB)</td>
<td>24</td>
</tr>
</tbody>
</table>

**NOTE**: Contact Harmonic Technical Support for suggestions regarding limits for your specific media format and workflow.
Managing SystemManagers

You can manage SystemManagers from the Transfer app.

For an overview and instructions on managing SystemManagers in MAS, refer to Managing SystemManagers.

Viewing SystemManagers

To view SystemManagers:
1. From the Home page, click Transfers.
2. From the Navigation panel, click SystemManagers.
The results are shown in the Content pane.

Managing General Storage Servers

You can manage general storage servers from the Transfer app.

For an overview and instructions on managing general storage servers, refer to Managing General Storage Servers.

Viewing General Storage Servers

To view General Storage Servers:
1. From the Home page, click Transfers.
2. From the Navigation panel, click General Storage.
The results are shown in the Content pane.

Managing Hosts

When SystemManager is added to MAS, hosts that are associated with the SystemManager are also imported. In this case, a host represents the IP that is used to communicate with a file in a file system. It is the IP portion in the UNC notated URL. For example, if a URL is \\10.35.73.10\fs\clip.dir, the host is 10.35.73.10.

Editing Hosts

To edit a host:
1. From the Home page, click Transfer.
2. From the Navigation panel, click Hosts.
3. From the Content pane, click the host you want to edit.
4. From the Toolbar, click the Edit icon.
5. Complete the dialog box as follows:
   - **Storage Server**: Shows the name of the storage server to which this host belongs.
   - **IP Address**: Shows the IP address of the shared drive.
   - **IP Address 2**: Shows the IP address of the second shared drive, if available.
   - **Port Number**: Shows the Port Number configured for the host.
   - **Bandwidth Usage**:
     - Set to **Full** to allow full bandwidth usage for transfer to or from this host.
Set to Limited to prohibit file transfers and file change notifications, and to only use the host for playout and recording.

**Media API Transfer Usage:**
- Set to None to prohibit active file transfers using the Media API.
- Set to Source to make this host the source for transfers using the Media API. When you assign this host as the source, you can also change the Max. Active Transfer Reads to a value other than the default number of three.
- Set to Destination to make this host the destination for active transfers. When you assign this host as the destination, you can also change the Max. Active Transfer Writes to a value other than the default number of three.
- Set to Any to specify the maximum number of transfer reads and writes separately.

**Max. Active Transfer Reads**: If Active Transfer Usage is set to Any, select a number for the maximum number of transfer reads that can be completed simultaneously, up to five.

**Max. Active Transfer Writes**: If Active Transfer Usage is set to Any, select a number for the maximum number of transfer writes that can be completed simultaneously, up to five.

**FTP Transfer Usage:**
- Set to None to prohibit usage of this host for FTP transfers.
- Set to Source to make this host the source for FTP transfers. When you assign this host as the source, you can also change the Max. FTP Transfer Reads to a value other than the default number of three.
- Set to Destination to make this host the destination for FTP transfers. When you assign this host as the destination, you can also change the Max. FTP Transfer Writes to a value other than the default number of three.
- Set to Any to specify the maximum number of FTP reads and writes. When you enable this setting, the Max. FTP Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of six.

**Max. FTP Transfer Reads/Writes**: If FTP Transfer Usage is set to Any, Source, or Destination, select a number for the maximum number of transfer reads/writes that can be completed simultaneously (up to 16).

**FTP User Name/Password**: The username and password for FTP server access.

**Use in EDL**: In previous software versions, MAS generated an EDL using host0. Now, you can specify the host to use in the EDL. When this option is selected, the EDL will have the paths to the clip using the host.

**Share Name**: Specify the share name to use on the Mac OS. For example, if a user mounts a Spectrum host on a Mac OS, the file system name is appended by h0/h1 (the share on the Mac OS looks like fs0-h0 or fs0-h1). For example, to enable MAS to create the EDL, specify the share name to use on MAS, otherwise MAS will create an EDL using host0 and that EDL will not work on the Mac OS.

6. Click OK to save the changes for the next transfer job. Changes made are immediately put into effect for the next set of transfer jobs.

**Filtering Hosts**

To filter hosts:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Hosts.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to *Creating Search Queries* for instructions on completing the screens. Choose from the following options:
     - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.
6. The results are shown in the Content pane.

### Managing ContentBridges

The ContentBridge component of Harmonic MediaGrid provides open access for clients over standard file system protocols such as FTP, AFP, NFS, and CIFS (Samba mount). It is an optional component that provides access to Harmonic MediaGrid for clients not using a Harmonic MediaGrid File System Driver (FSD), for example, when you want to transfer files from Spectrum to Spectrum, from Spectrum to Harmonic MediaGrid, or from Harmonic MediaGrid to Spectrum. These systems are automatically populated in MAS when you import SystemManager. You can perform active transfers via the remote Media API using Harmonic MediaGrid’s ContentBridge or perform passive transfers via FTP.

This section explains how to configure a ContentBridge for transfers. After configuring the ContentBridge, go to *Using ContentBridge/SystemManager for Transfers* for information on transferring data.

### Editing ContentBridges

This procedure explains how to edit a ContentBridge to perform active transfers via the remote Media API or passive transfers via FTP.

**To edit a ContentBridge:**
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges.
3. From the Content pane, click the ContentBridge you want to edit.
4. From the Toolbar, click the Edit icon.
5. Complete the Edit dialog box as follows:
   - **Media API Transfer Usage**:
     - Set to None to prohibit usage for active transfers.
     - Set to Source to make this ContentBridge the source for active transfers. When you assign this ContentBridge as the source, you can also change the Max. Active Transfer Reads to a value other than the default number of three.
     - Set to Destination to make this ContentBridge the destination for active transfers. When you assign this ContentBridge as the destination, you can also change the Max. Active Transfer Writes to a value other than the default number of three.
     - Set to Any to specify the maximum number of transfer reads and writes separately.
     - Set to In Place to perform active transfers of files within this Harmonic MediaGrid system. When you enable In Place, the Maximum Active Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of three.
- **Max. Active Transfer Reads**: If Active Transfer Usage is set to Any, select a number for the maximum number of transfer reads that can be completed simultaneously, up to five.

- **Max. Active Transfer Writes**: If Active Transfer Usage is set to Any, select a number for the maximum number of transfer writes that can be completed simultaneously, up to five.

- **FTP Transfer Usage**:
  - Set to **None** to prohibit usage of this host for FTP transfers.
  - Set to **Source** to make this host the source for FTP transfers. When you assign this ContentBridge as the source, you can also change the Max. FTP Transfer Reads to a value other than the default number of four.
  - Set to **Destination** to make this host the destination for FTP transfers. When you assign this ContentBridge as the destination, you can also change the Max. FTP Transfer Writes to a value other than the default number of three.
  - Set to **Any** to specify the maximum number of FTP reads and writes. When you enable this setting, the Max. FTP Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of six.

- **Max. FTP/Reads Writes**: If FTP Transfer Usage is set to Any, select a maximum number of FTP reads and writes, up to 16. The max value for HBCBs is 24.

6. Click OK.

### Filtering ContentBridges

To filter ContentBridges:

1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **ContentBridges**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to [Creating Search Queries](#) for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

### Deleting ContentBridges

To delete ContentBridges:

1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **ContentBridges**.
3. From the Content pane, click the ContentBridge you want to delete.
4. From the Toolbar, click the **Delete** icon.
5. To delete even if jobs are in progress, select **Force Delete**.
6. Click OK.
7. Click Yes.
Rebooting the Server

To reboot the server:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges.
3. From the Content pane, click the ContentBridge you want to reboot.
4. From the Toolbar, click the Reboot Server icon.

Managing Content Bridges—Others

This section explains how to add third-party storage systems to MAS. In one such scenario, an FTP server runs on one system and a CIFS share runs on another system. This model resembles the Harmonic MediaGrid configuration where the FTP server runs on a ContentBridge and the omfs share is available through the ContentDirector.

Adding ContentBridges—Others

To add a ContentBridge—Other:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges—Others.
3. From the Toolbar, click the Create icon.
4. Complete the New Device dialog box as follows:
   - **IP Address**: Enter the primary IP address (eth0) of the third-party device.
   - **IP Address 2**: Enter the secondary IP address (eth1) of the third-party device.
   - **Name**: Enter a name for this device.
   - **Host IP Address**: Enter the IP address of the third-party FTP server.
   - **High Bandwidth**: Select to allow full bandwidth usage for transfer to or from this host.
   - **File System Name**: Enter the name of the third-party device.
   - **User Name**: Enter the name of the user who can access the host via FTP.
   - **Password**: Enter the password of the user who can access the host via FTP.
   - **FTP Transfer Usage**:
     - Set to None to prohibit usage of this host for FTP transfers.
     - Set to Source to make this host the source for FTP transfers. When you assign an FTP host as the source, you can also change the Max. FTP Transfer Reads to a value other than the default number of four.
     - Set to Destination to make this host the destination for FTP transfers. When you assign an FTP host as the destination, you can also change the Max. FTP Transfer Writes to a value other than the default number of three.
     - Set to Any to specify the maximum number of FTP reads and writes. When you enable this setting, the Max. FTP Transfer Reads and Writes are combined into one setting and can be adjusted from the default number of six.
   - **Max. FTP/Reads Writes**: If FTP Transfer Usage is set to Any, select a maximum number of FTP reads and writes, up to 16.
5. Click OK.
Editing ContentBridges—Others

To edit a ContentBridge—Other:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges—Others.
3. From the Content pane, click the ContentBridge—Other you want to edit.
4. From the Toolbar, click the Edit icon.
5. Edit the settings as needed.
6. Click OK.

Filtering ContentBridges—Others

To filter ContentBridges—Others:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges—Others.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.
   The results are shown in the Content pane.

Deleting ContentBridges—Others

To delete ContentBridges—Others:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges.
3. From the Content pane, click the ContentBridges—Others you want to delete.
4. From the Toolbar, click the Delete icon.
5. To delete even if jobs are in progress, select Force Delete.
6. Click OK.
7. Click Yes.

Rebooting the Server

To reboot the server:
1. From the Home page, click Transfers.
2. From the Navigation panel, click ContentBridges—Others.
3. From the Content pane, click the ContentBridges—Others you want to reboot.
4. From the Toolbar, click the Reboot Server icon.
Managing Resource Pools

The Media Application Server lets you define and manage a list or pool of resources for building valid paths for transfer jobs. Hosts are grouped into a pool, and transfer job paths are created based on where the host is located in the pool.

When you create a transfer job, you are presented with a choice of resource pools. Only one resource pool can be selected for any given transfer job, and only hosts within that resource pool are used to create the paths for the transfer job. If you do not select a resource pool for a transfer job, then all hosts are available for the given transfer job.

A transfer host can belong to one or more resource pools. When the transfer host no longer exists, you can delete it from the resource pool.

Figure 31–4: Resource Pool Overview

Creating Resource Pools

NOTE: To perform Remote Media API transfer using ContentBridge to or from a Spectrum system, add both the ContentBridge and the Spectrum hosts to the resource pool.

To create a resource pool:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Resource Pools.
3. From the Toolbar, click the Create icon.
4. In the Properties dialog box, enter the name of your resource pool.
5. Click the Transfer Hosts tab.
6. Select one or more transfer hosts by doing the following:
   - To select transfer hosts using Windows or Linux:
     - To select random transfer hosts, press and hold down the CTRL key and then click the individual transfer hosts.
     - To select a group of transfer hosts, press and hold down the SHIFT key, click the first transfer host and then click the last transfer host.
   - To select transfer hosts using Mac OS X:
To select random transfer hosts, press and hold down the Command (\(\text{⌘}\)) key and then click the individual hosts, or
- To select a group of transfer hosts, press and hold down the SHIFT key, click the first transfer host and then click the last transfer host.

7. Click Add to add the selected transfer hosts to the resource pool.

**NOTE:** The transfer hosts enter the resource pool in the order in which you add them.

8. Click OK.

**Editing Resource Pools**

MAS allows you to change the name of a resource pool and to change the list of transfer hosts in it.

**To edit a resource pool:**
1. From the Home page, click Transfers.
2. From the Navigation panel, click Resource Pools.
3. From the Content pane, click the resource pool you want to edit.
4. Change the settings as needed.
5. Click OK.

**Filtering Resource Pools**

**To filter resource pools:**
1. From the Home page, click Transfers.
2. From the Navigation panel, click Resource Pools.
3. From the Content pane, click the Filter icon.
4. Configure filtering as follows:
   - **Save as Query:** Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the pages.
   - **Clear:** Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.

The results are shown in the Content pane.

**Deleting Resource Pools**

**NOTE:** When you delete a resource pool you are only deleting the list of transfer hosts, not the actual transfer hosts.

**To delete a resource pool:**
1. From the Home page, click Transfers.
2. From the Navigation panel, click Resource Pools.
3. From the Content pane, click the resource pool(s) you want to delete.
4. To delete even if resource pools are in use, select Force Delete.
5. Click OK.
6. Click Yes.
Managing File Mirroring Rules

The Mirror Service is specifically designed for facilities that use redundant media servers as part of their overall media server. In situations where one system is used as the primary machine and a second system is used as a backup, mirroring automatically copies ingested and edited media files to the backup system, duplicating the folder hierarchy as needed to make it an exact match.

When the secondary server is located in an off-site location, mirroring supports disaster recovery configurations. In situations where two systems are used in a peer-to-peer arrangement, ingest and editing can take place on either system and the Mirror Service’s bi-directional synchronization capability ensures that the two systems always mirror one another.

The Mirror Service provides both manual and fully automatic synchronization. You decide the most appropriate scheme based on your needs. Regularly scheduled satellite ingests can be set to automatically synchronize as soon as the content begins to arrive. This event-driven synchronization mode is unique to Harmonic and not available on other media server-based file sync solutions. You may decide to synchronize at a predetermined time every day when network utilization is lowest. You can preset what the system should do in the event of a deleted file, or configure notifications to prompt the administrator for confirmation whenever a file will be removed.

You use File Mirror rules to ensure that key material is backed up. Once a File Mirror rule is enabled, mirroring based on file change notifications are delivered from other MAS Services and automatically invokes tasks to copy the files to its destination location. After running File Mirror rules, you generate a coherency report to detect discrepancies between any pair of mirrored folders defined in a File Mirror rule. The coherency report enables you to invoke actions to bring mirrored folders back to consistency.

File Mirroring Workflow

The following example shows a workflow for using a File Mirror rule to mirror content from Spectrum to Harmonic MediaGrid:

1. From the Spectrum /ingest directory to the Harmonic MediaGrid /source directory.
2. From the Harmonic MediaGrid /edits directory to the MediaDeck or MediaDeck II/playout directory.
3. From the Harmonic MediaGrid /playout directory to the MediaDeck or MediaDeck II /playout directory.
4. From the Harmonic MediaGrid /source directory to the Archive Storage server.
5. From the Harmonic MediaGrid /edits directory to the Archive Storage server.

Figure 31–6: File Mirror Workflow

**Event Handling Versus Folder Synchronization**

Mirroring is triggered by a set of events such as:

- **Event Handling**: Files changed on source and destination folder(s) and File Mirror rule is triggered.
- **Synchronization**: When it's time to fire synchronization between source and destination folders based on a polling schedule defined in a File Mirror rule.
- **Forced Synchronization**: Triggered manually by the user to invoke a run-now task from ProXplore.

When a File Mirror rule is triggered:

- Both event handling and synchronization are managed by rule definition and are triggered automatically.
- Forced synchronization is driven by need from the user.
- When an event occurs, a transfer job is initiated according to the mirror definition.

**File Mirroring Rule Restrictions**

Note the following restrictions when creating and modifying File Mirror rules:

- The destination folder for a bi-directional rule must be a file system root.
A File Mirror rule cannot mirror to itself.
A folder cannot be mirrored if one of its ancestor folders is mirrored.
Rules cannot have the same source and destination folders.
The destination folder cannot be subfolder of a source folder.
Both the source and destination folders cannot be covered by an existing rule.
A uni-directional rule that would introduce a traversal loop for mirroring with existing File Mirror rules cannot be created.
The transfer clip format cannot be changed if using passive and WAN transfer modes, or for a bi-directional rule.
Mirroring with a third-party storage system can only use passive transfer mode.

Creating File Mirroring Rules

To create a File Mirroring rule:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Toolbar, click the Create icon.
4. Complete the Properties dialog box as follows:
   - **Name**: Enter a name for the new rule. File Mirror rules are uniquely identified by their names.
   - **Enable Rule**: Select this check box to enable the File Mirror rule.
   - **Include Subfolders**: Select this check box to also mirror the subfolders within the source and destination folders you choose to mirror.
   - **Source Folder(s)**: Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
   - **Destination Folder**: Navigate to and then select the folder that you would like to use for the destination.
5. Click the Job Settings tab, and complete the Job Settings dialog box as follows:
   - **Direction**: Choose the direction in which to mirror, either uni-directional (from source to destination) or bi-directional (between source and destination).
     A bi-directional destination folder can only be a folder under any file system or root folder. A uni-directional destination folder can be a regular folder or a file system root folder.
     If you use an IPV storage server, select the Unidirectional option. Refer to Managing the IPV Storage Server for more information.
   - **Skip Unresolved Issue on Error**: Select Yes to skip creating an unresolved issue.
   - **UniDirectional Conflicts**: Select the action to be taken during the unidirectional mirroring process if a new clip appears or an existing clip is modified.
     - **Replace**: Replace the destination clip with the source clip.
     - **Ask User**: Notify the user before replacing the clip or deciding to ignore the notification.
   - **When a Clip is Renamed**: Select the action to be taken when a clip is renamed.
- **Replace**: Replace the clip.
- **Ask User**: Notify the user, who can then decide the action to take, such as replacing the clip.

- **When a Clip is Deleted**: Select the action to be taken when a clip is deleted.
  - **Defer Delete**: Select this option to defer delete a clip when a uni-directional or bi-directional conflict is detected in files that match the rule. By default, this command is enabled. When enabled, MAS deletes the clip from the destination file system, but retains a shadow copy. The defer-deleted file appears in the Content pane of the UI with a strikeout through the name. To recover the file, refer to *Undoing Folder/File Defer Delete*. When Defer Delete is not enabled, the deletion of the destination file is permanent.
  - **Delete**: Delete the clip.
  - **Ask User**: Notify the user before deleting the clip. The user can ignore the delete event.
  - **Ignore**: Keep the files in the destination folder intact.
- **Force Delete if Locked**: Select *Yes* to delete a mirror file even if it is locked.

### Bi-Directional Conflicts
- **If New or Modified Clips Conflict**: Select the action to be taken during the bi-directional mirroring process if a new clip appears or an existing clip is modified.
  - **Auto Reconcile**: If new or modified clips conflict, Auto Reconcile, is selected by default. This option is intended for auto reconciliation when a conflict arises on created or modified events in a File Mirror rule, for example, when files appear in both folders.

  The following clip attributes and metadata are considered when deciding which direction to initiate a transfer: Unique media identifier (UMID), frame count, and transfers to overwrite the clip with an error track status.

  The following actions are taken:
  - If the files have different UMID, MAS keeps the new one (based on modification time).
  - If the files have different frame counts, MAS transfers the larger one.
  - If any track status has an error, MAS transfers the good file and overwrites the one with error track status.
  - For non-media files, the file with larger size is the source of the transfer.
  - If two clips have the same clip properties from a file system, and the `mirror.transfer_when_modtime_differ` property is set to `true` in the `config.properties` file, then a transfer is initiated from the clip with the newer modification time stamp. If the modification time stamps are the same, no transfer occurs.
  - **Keep New One**: Keep whichever clip is the newest.
  - **Copy Source to Destination**: Replace the clip in the destination folder with the clip from the source folder.
  - **Copy Destination to Source**: Replace the clip in the source folder with the clip from the destination folder.
  - **Ask User**: Notify the user, who can then decide the action to take, such as replacing the clip.

- **When a Clip is Renamed**: Select the action to be taken when a clip is renamed.
  - **Replace**: Replace the clip.
Ask User: Notify the user, who can then decide the action to take, such as replacing the clip.

When a Clip is Deleted: Select the action to be taken when a clip is deleted.
- **Delete**: Delete the clip.
- **Ask User**: Notify the user before deleting the clip. The user can ignore the delete event.

When Folder Contents Differ: Select the action to take when the files in either the source or destination folder are discovered to be different when polling occurs. The system checks the contents of both folders to see if they are structurally different. No action is taken if the clips are the same. Otherwise, they are resolved using the If New or Modified Clips Conflict property (defined above).

The action taken for this subsection is applied only when a clip appears in either the source or destination folder, but not both, during polling (i.e., running rules either via a polling schedule or manually).

The following action is taken if a clip appears on only one folder:
- **Copy**: Copy the newest clip so both folders are current.
- **Delete**: Delete the clip so both folders are synchronized.
- **Ask User**: Notify the user before synchronizing the clip.

Force Delete if Locked: Select Yes to delete a mirror file even if it is locked.

Transfer Mode: Select the mode in which the mirrored content transfers.
- **Auto**: an active transfer is first attempted, and if no route is available, the mode becomes passive.
- **Active**: the content is transferred as scheduled, and is available for review or editing during transfer.
- **Passive**: the content is transferred as scheduled, though unavailable for review or editing until the transfer has finished.
- **WAN**: the content is transferred through an Aspera storage server as scheduled, though unavailable for review or editing until the transfer has finished.

Transfer Priority: Set the mirror transfer priority from 1 (lowest) to 9 (highest). The default transfer priority initiated by mirroring is 4. Set the most time-critical tasks to a higher priority, as these are transferred by the system first.

Transfer Clip Format: Choose from Same as Source, QT_SELF CONTAINED, QT_REFERENCE, MXF_OP1A, MXF_OP1B, AS-02 2009, or AS-02 2011. Note that this option is not available for the Passive and WAN transfer modes or for bi-directional mirroring.

Transfer Retry Count: Select, or type, the number of times to retry the mirror transfer in case of failure.

Wait Time (seconds): Select the amount of time to wait between retries.

Use Notification Preset: Select a notification preset to notify a user through e-mail/socket/http based on the Job States below.

Resource Pool: Select a resource pool for the transfer task.

Job States: Select the job states about which you want to receive notifications.

Set MetaData: Lists the metadata to be set on the source object as per the set notification or job state change.

Events and Schedule
- **Take Actions When Events Occur**: Select this check box to monitor the mirror folders and then complete a mirroring process when events occur (for example, when a clip is ingested, deleted or renamed).

- **Enable Polling Schedule**: Select this check box to enable the Polling Schedule below. A polling task is created and its status can be viewed in the Scheduler app. Refer to [Managing Scheduled Tasks](#) for more information.

- **Polling Schedule**: Set the time options to set up a recurring mirror transfer schedule.

**MetaData Event**

- To add or modify a **MetaData Event**, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a MetaData event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the MetaData field. This is automatically populated from available MetaData fields. Refer to [MetaData Fields](#) for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the **MetaData Field** setting.

6. Click the **Filter Settings** tab, and complete the **Filter Settings** dialog box as follows:

   - **Filter**: Select this check box to enable the settings applied on this dialog box.
   - **File Name Pattern**: Define a pattern using a regular expression. Enter special characters so that only files with certain name formats are mirrored. The Filter check box must be selected to enter an expression. The default is: 
     
     \+.+\.(xml|avi|mov|mxf|XML|AVI|MOV|MXF) to include .xml, .avi, .mov, and .mxf files an input files.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*.mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz.mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>.*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>.*abc</td>
</tr>
</tbody>
</table>

   **NOTE**: File Name Pattern applies to file names only and not folders for mirroring operations.

- **Operator File Size**: Select how the size of the file should be considered (greater than or equal to or less than or equal to), enter or type a file size number and then select the file size unit (KB, MB, etc.).

- **Creation Date**: Type or select a beginning and ending creation date in which to filter.

- **Modification Date**: Type or select a beginning and ending modification date in which to filter.

7. Click the **Metadata Filter** tab.
Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Metadata Fields for more information.

8. To evaluate the metadata expression when the rule is run, do the following:
   a. In the Evaluate Metadata Filter option, select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.
   b. In the Logical Operator for Filter menu, select one of the following:
      - **And**: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - **Or**: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click Add.
   d. Complete the Properties dialog box as follows:
      - **Name**: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - **Operator**: Select the logical operator to apply to the metadata expression defined in the Value(s).
      - **Type**: A read-only parameter that presents different Value options depending on the Name parameter you selected.
      - **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the Name parameter you selected.
   e. When you are done building the metadata filter, click OK.

9. To add more metadata expressions, repeat Step 8.

10. To delete a metadata filter, do the following:
    a. Select the metadata filter you want to delete.
    b. Click Delete.
    c. Click Yes.

11. Click OK to set up the rule.

    MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

12. To immediately run the rule, go to Running File Mirroring Rules Immediately.

### Editing File Mirroring Rules

Refer to the following sections to view and edit File Mirror rules that have been created. Before editing a File Mirror rule, familiarize yourself with the limitations discussed in File Mirroring Rule Restrictions.

To edit File Mirroring rules:

1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Content pane, click the rule you want to edit.
4. From the Toolbar, click the Edit icon.
5. Change the settings as needed.
6. Click OK.
NOTE: Changes made to rules take effect in approximately 20 seconds.

Duplicating File Mirroring Rules

To duplicate File Mirroring rules:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Content pane, click the rule you want to edit.
4. From the Toolbar, click the Duplicate icon.
5. Change the settings as needed.
6. Click OK.

Enabling or Disabling File Mirroring Rules

To enable/disable File Mirroring rules:
1. From the Page bar, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the Enable or Disable icon.
5. Click OK.
6. Click OK.

Running File Mirroring Rules Immediately

You can immediately run a rule, even if a schedule has already been specified.

To run File Mirroring rules immediately:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Content pane, click the rule you want to run.
4. From the Toolbar, click the Run icon.
5. Click OK.
6. Click OK.

Scheduling File Mirroring Rules to Run

To schedule File Mirroring rules to run:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Mirroring Rules.
3. From the Content pane, click the rule you want to schedule.
4. From the Toolbar, click the Edit icon.
5. Click the Job Settings tab.
6. Complete the Schedule section in the Job Settings dialog box as follows:
   - Take Actions When Events Occur: Select this check box to monitor the mirror folders and then complete a mirroring process when events occur (for example, when a clip is ingested, deleted or renamed).
Chapter 31 Using the Transfer App

Managing File Move Rules

File Move rules move files from a source folder to a destination folder on either a local or remote server. The file move process is unidirectional: the file is moved from the source directory to the destination directory. You can set up File Move rules to schedule the periodic archiving of files. File Move rules can be run immediately after they have been created, or run when needed from a previously-saved rule.
**IMPORTANT:** After a file is moved to its destination folder, it is deleted from its source folder.

**File Move Rule Workflow**

The following example shows a workflow for using a File Move rule to move content to one directory to another for playout:

1. Move from the MediaDeck /Ingest directory to the Harmonic MediaGrid /Archive Ingest directory.
2. Move from the MediaDeck /Playout directory to the Harmonic MediaGrid /Archive Playout directory.

![Figure 31–7: File Move Rule Workflow (Example One)](image)

A second example shows a workflow for using a File Move rule to move content to multiple directories:

1. Move from the MediaDeck /Ingest directory to the Harmonic MediaGrid /Source directory.
2. Move from the Harmonic MediaGrid /Source directory transcode to the Harmonic MediaGrid /Windows Media directory.
3. Move from the Harmonic MediaGrid /Windows Media directory to the Harmonic MediaGrid /Archive WM directory.
4. Move from the Harmonic MediaGrid /iPod directory to the Harmonic MediaGrid /Archive iPod directory.
5. Move from the Harmonic MediaGrid /Flash directory to the Harmonic MediaGrid /Archive Flash directory.
Creating File Move Rules

To create a File Move rule:
1. From the Home page, click Transfer.
2. From the Navigation panel, click File Move Rules.
3. From the Toolbar, click the Create icon.
4. Complete the Properties dialog box as follows:
   - Name: Enter a name for the new rule.
   - Enable Rule: Select this check box to enable the File Move rule.
   - Include Subfolders: Select this check box to also move files from the subfolders of the source and folders you choose.
   - Source Folder(s): Navigate to and then select the folder or folders that you would like to set as the source. To open a nested folder, click the folder icon to expand it.
   - Destination Folder: Navigate to and then select the folder that you would like to use for the destination.
5. Click the Job Settings tab, and complete the Job Settings dialog box as follows:
   - Direction
     - Skip Unresolved Issue on Error: Select Yes to skip creating an unresolved issue.
   - File Move Conflicts
     - If New or Modified Clips Conflict: Select the action to be taken if a new clip appears or an existing clip is modified.
       - Replace: Replace the destination clip with the source clip.
       - Ask User: Notify the user before replacing the clip or deciding to ignore the notification.
   - Transfer
     - Transfer Mode: Select the mode in which the content transfers.
- **Auto**: An active transfer is first attempted, and if no route is available, the mode becomes passive.
- **Active**: The content is transferred as scheduled, and is available for review or editing during transfer.
- **Passive**: The content is transferred as scheduled, though unavailable for review or editing until the transfer has finished.
- **WAN**: The content is transferred through an Aspera storage server as scheduled, though unavailable for review or editing until the transfer has finished.

- **Transfer Priority**: Set the mirror transfer priority from “1” (lowest) to “9” (highest). The default transfer priority initiated by mirroring is “4.” Set the most time-critical tasks to a higher priority, as these are transferred by the system first.

- **Transfer Clip Format**: Choose from Same as Source, QT_SELF CONTAINED, QT_REFERENCE, MXF_OP1A, MXF_OP1B, AS-02 2009, or AS-02 2011. Note that this option is not available for the Passive transfer mode or for bi-directional mirroring.

- **Transfer Retry Count**: Select or type the number of times to retry the mirror transfer in case of failure.
- **Wait Time (seconds)**: Select the amount of time to wait between retries.
- **Use Notification Preset**: Select a notification preset to notify a user through e-mail/socket/http based on the Job States below.
- **Resource Pool**: Select a resource pool for the transfer task.
- **Job States**: Select the job states about which you want to receive notifications.
- **Set MetaData**: Lists the metadata to be set on the source object as per the set notification or job state change.

**Events and Schedule**

- **Take Actions When Events Occur**: Select this check box to monitor the mirror folders and then complete a mirroring process when events occur (for example, when a clip is ingested, deleted or renamed).

- **Enable Polling Schedule**: Select this check box to enable the Polling Schedule below. A polling task is created and its status can be viewed in the Scheduler app. Refer to Managing Scheduled Tasks for more information.
- **Polling Schedule**: Set the time options to set up a recurring mirror transfer schedule.

**Metadata Events**

- To add or modify a Metadata Event, click **Add** or **Modify**, and configure the following settings:
  - **Trigger On**: JobStateChange is the default.
  - **Job States**: Select which job states will trigger a Metadata event its state is changed.
  - **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
  - **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
  - **Value**: The choices for this value are dependent on the MetaData Field setting.

6. Click the **Filter Settings** tab, and complete the **Filter Settings** dialog box as follows:

- **Filter**: Select this check box to enable the settings applied on this dialog box.
File Name Pattern: Define file name matching using a regular pattern. Enter special characters so that only files with certain name formats are mirrored. The Filter check box must be selected to enter an expression. The default is: 
+.\.(xml|avi|mov|mxf|XML|AVI|MOV|MXF) to include .xml, .avi, .mov, and .mxf files as input files.

Table 31–2: File Name Patterns

<table>
<thead>
<tr>
<th>Pattern</th>
<th>What is matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>.+.(mov</td>
<td>mxf</td>
</tr>
<tr>
<td>abc.*\mov</td>
<td>Only clips with a prefix of “abc” are filtered.</td>
</tr>
<tr>
<td>.+xyz\mov</td>
<td>Only clips with a suffix of “xyz” are filtered.</td>
</tr>
<tr>
<td>^abc.*</td>
<td>Any name with a prefix of “abc” is filtered.</td>
</tr>
<tr>
<td>*abc</td>
<td>Any name with a suffix of “abc” is filtered.</td>
</tr>
<tr>
<td>^abc.*.*abc</td>
<td>Any name starting or ending with “abc” is filtered.</td>
</tr>
</tbody>
</table>

NOTE: The File Name Pattern applies to file names only and not to folders.

File Ignore Pattern: Define a regular expression for ignoring a file type. See Ignoring Patterns in Filenames and Notification Types for more information.

Operator File Size: Select how the size of the file should be considered (greater than or equal to or less than or equal to), enter or type a file size number and then select the file size unit (KB, MB, etc.).

Creation Date: Type or select a beginning and ending creation date in which to filter.

Modification Date: Type or select a beginning and ending modification date in which to filter.

7. Click the MetaData Filter tab.

Use this tab to create filters for clips or assets based on metadata fields defined in metadata templates. See Metadata Fields for more information.

8. To evaluate the metadata expression when the rule is run, do the following:
   a. In the Evaluate Metadata Filter option, select Yes to trigger the rule on any metadata value change based on the fields added to the Metadata Filter.
   b. In the Logical Operator for Filter menu, select one of the following:
      - And: If all metadata expressions used in the metadata filter are evaluated as true, then the clips or assets matching the expressions are returned.
      - Or: If any metadata expression used in the metadata filter is evaluated as true, then the clips or assets matching the expression is returned.
   c. Click Add.
   d. Complete the Properties dialog box as follows:
      - Name: Select the name of the metadata field you want. This menu is automatically populated with metadata fields for clips or assets as defined in the standard or custom metadata templates.
      - Operator: Select the logical operator to apply to the metadata expression defined in the Value(s).
- **Type**: A read-only parameter that presents different **Value** options depending on the **Name** parameter you selected.
- **Value**: Select or enter the name-value pair to be evaluated in the metadata expression. The Value options differ depending on the **Name** parameter you selected.

  e. When you are done building the metadata filter, click **OK**.

9. To add more metadata expressions, repeat **Step 8**.

10. To delete a metadata filter, do the following:
    a. Select the metadata filter you want to delete.
    b. Click **Delete**.
    c. Click **Yes**.

11. Click **OK** to set up the rule.

    MAS checks to see if the rule is correctly configured. If errors are found, you will not be able to save the rule. Click the arrow icon at the bottom of the dialog box to review a description of the errors.

12. To immediately run the rule, go to **Running File Mirroring Rules Immediately**.

### Editing File Move Rules

**To edit File Move rules:**

1. From the Home page, click **Transfers**.
2. From the Navigation panel, expand **File Move Rules**.
3. From the Content pane, click the rule you want to edit.
4. From the Toolbar, click the **Edit** icon.
5. Change the settings as needed.
6. Click **OK**.

**NOTE:** Changes made to rules take effect in approximately 20 seconds.

### Duplicating File Move Rules

**To duplicate File Move rules:**

1. From the Home page, click **Transfers**.
2. From the Navigation panel, expand **File Move Rules**.
3. From the Content pane, click the rule you want to edit.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

### Enabling or Disabling File Move Rules

**To enable/disable File Move rules:**

1. From the Page bar, click **Transfers**.
2. From the Navigation panel, expand **File Move Rules**.
3. From the Content pane, click the rule(s) you want.
4. From the Toolbar, click the **Enable** or **Disable** icon.
5. Click **OK**.
6. Click OK.

Running File Move Rules

To run File Move rules:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Move Rules.
3. From the Content pane, click the rule you want to run.
4. From the Toolbar, click the Run icon.
5. Click OK.
6. Click OK.

Filtering File Move Rules

To filter File Move rules:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Move Rules.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.
The results are shown in the Content pane.

Deleting File Move Rules

To delete File Move rules:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand File Move Rules.
3. From the Content pane, click the rule you want to delete.
4. From the Toolbar, click the Delete icon.
5. To delete the rule even if objects are in use, select Force Delete.
6. Click OK.
7. Click Yes.

Managing Coherency Reports

A Coherency report detects discrepancies between any pair of mirrored folders defined in a file mirroring rule and enables you to invoke actions to bring them back to consistency. The discrepancies that can appear between a source folder and its corresponding destination folder are as follows:

- Discrepancies that appear in the source folder
- Discrepancies that appear in the destination folder
- Discrepancies that appear in both folders
For example, a discrepancy exists when there is a mismatch in the number of files in the source and destination folders.

To generate a Coherency report, you must create a Coherency report object first. A Coherency report object is defined on a file mirroring rule, and serves as an anchor point where all reporting activities take place.

A Coherency report can be generated immediately or periodically according to a schedule. If you define the report with a notification preset, an email will be sent to you when the report is ready.

The resulting report can be viewed in the ProXplore UI or in its native XML format. ProXplore displays tabbed pages that provide information on failed jobs, unresolved issues, and a rules summary. Results can also be viewed in tabular and pie chart displays.

If you view the report in the UI, you can request to reconcile the reported discrepancies using the Reconcile function in the Media Application Server.

Creating Coherency Reports

To create a Coherency Report:
2. From the Navigation pane, click Coherency Report.
3. From the Toolbar, click the Create icon.
4. Complete the dialog box as follows:
   - Name: Enter a name for the new report.
   - Enable Report: Select this check box to enable the Coherency report to be run.
   - Enable Schedule: Select this check box to periodically run the Coherency report.
   - Schedule: Set the schedule to run the Coherency report.
   - Notification Preset: Select a notification preset that is already set up.
   - Mirror Rule: Select a Mirroring rule that is already set up.
   - Enable Report Option: Enable a summary report only, a detail report only, or both a summary and detail report.
5. Click OK.

Editing Coherency Reports

To edit a Coherency Report:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Coherency Report.
3. From the Content pane, click the report you want to edit.
4. From the Toolbar, click the Edit icon.
5. Change the settings as needed.
6. Click OK.

Duplicating Coherency Reports

To duplicate a Coherency Report:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Coherency Report.
3. From the Content pane, click the report you want to duplicate.
4. From the Toolbar, click the **Duplicate** icon.
5. Change the settings as needed.
6. Click **OK**.

**Generating Coherency Reports**

You can immediately run a Coherency report, even if a schedule has already been specified.
1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **Coherency Report**.
3. From the Content pane, click the report you want to generate.
4. From the Toolbar, click the **Generate** icon.
5. Click **OK**.
6. Click **OK**.

**Viewing Coherency Reports**

When the Coherency report is ready, if a notification preset has been enabled, you will receive an email, along with a link able to access the report in XML format.

**To view a Coherency Report:**
1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **Coherency Report**.
3. From the Content pane, click the report you want to view.
4. From the Toolbar, click the **Generate** icon.
5. Click **View Report**.

The Coherency report for the selected mirroring rule will display.

A Coherency report consists of the following sections:

- **Coherency Report**
  - **Total**: The path name to the source or destination folder.
  - **Summary**: A representation of the number of files in the source and destination folders, along with their corresponding percentages in tabular, bar graph, column graph, or pie chart views.
  - **Discrepancy**: A representation of each category of discrepancy detected on the pair of folders, along with their corresponding percentages in tabular, bar graph, column graph, or pie chart views.
  - **Files Only in Src/Dest**: A list of files that are in the source or destination folders only.
  - **File in Both**: A list of files that are in both the source and destination folders.
  - **Actions**: A list of actions that can be performed on a selected file to reconcile the discrepancy.

- **Failed Jobs**
  A list of failed jobs associated with this rule along with status information.

- **Unresolved Issues**
  A list of unresolved issues associated with this rule along with status information.

- **Rules Summary**
  A summary of rule definition on which the Coherency report is based.
Reconciling Discrepancies in Coherency Reports

The following types of discrepancies can exist between source and destination folders:

- **Not-in-Dest**: Files are found in source folder, but not in destination folder
- **Not-in-Src**: Files are found in destination folder, but not in source folder
- **Mismatch**: Files with same name appear in both folders, but not match in certain properties, such as containing different clips or different file sizes.

For each discrepancy that is detected, you can either perform an action to resolve the problem or you can rely on the default setting to resolve the problem.

*Table 31–3* describes actions and an associated default action for uni-directional and bi-directional mirroring rules, respectively.

**Table 31–3: Uni-directional Mirroring Rules**

<table>
<thead>
<tr>
<th>Delete Conflict Defined in Rule</th>
<th>Exists in Source</th>
<th>Exists in Destination</th>
<th>Available Actions</th>
<th>Default Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Yes</em></td>
<td>No</td>
<td>No</td>
<td>Copy^1^ Delete</td>
<td>Copy</td>
</tr>
<tr>
<td>Delete</td>
<td>No</td>
<td>Yes</td>
<td>Delete</td>
<td>Delete</td>
</tr>
<tr>
<td>Ignore</td>
<td>No</td>
<td>Yes</td>
<td>Ignore</td>
<td>Ignore</td>
</tr>
<tr>
<td><em>Yes</em></td>
<td>Yes</td>
<td>Yes</td>
<td>Copy^1^ Delete</td>
<td>Copy</td>
</tr>
</tbody>
</table>

^1^ If the file to be copied is marked Deleted, an action of Copy becomes Delete.

In *Table 31–4*, when files appear on both folders, they can be different due to file size or not the same media.

**Table 31–4: Bi-directional Mirroring Rules**

<table>
<thead>
<tr>
<th>Exists in Source</th>
<th>Exists in Destination</th>
<th>Available Actions</th>
<th>Default Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>Copy^2^ Delete</td>
<td>Copy</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>CopySourceToDestination</td>
<td>KeepNewOne^2^ Delete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CopyDestinationToSource</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Copy^2^ Delete</td>
<td>Copy</td>
</tr>
</tbody>
</table>

^2^ If the chosen action is to Copy rather than Delete, the KeepNewOne action copies the latest file to its mirrored folder. If the latest file is marked Deleted, however, the Media Application Server attempts to delete the latest file. If the Delete succeeds, the corresponding file in mirrored folder is deleted accordingly. If the latest file is not deleted, nothing changes.

To reconcile discrepancies in Coherency Reports:

1. From the Home page, click Transfers.
2. From the Navigation panel, click Coherency Report.
3. From the Content pane, click the report you want.
4. From the Toolbar, click the View Report icon.
5. On the Details subsection, select a tab for a discrepancy category:
   a. Files Only in Src/Dest
   b. Files in Both
6. Do one of the following:
   a. To resolve one discrepancy, select one file.
   b. To resolve all discrepancies with a specific action, select the category of discrepancy you want. When you apply an action to one file, the action is automatically applied to all files in that category.
7. Under Actions, select the action you want to apply.
   a. If Files Only in Src/Dest tab is selected, the options are: No Action, Ignore, Copy, or Delete.
   b. If Files in Both tab is selected, the options are: No Action, KeepNewOne, CopySourceToDestination, CopyDestinationToSource, or Delete.
8. Click the Reconcile icon in the Details panel.
9. Click OK.
10. Click OK.
   The Media Application Server attempts to fulfill your requests, however, the action specified may not be applicable to certain discrepancies.
11. Run a new report and check the results.

Obtaining Coherency Reports in XML Format

You can obtain coherency reports from:
   <MAS_SERVER_IP>/reports/coherency.
You can obtain the XML schema from:
   <msf server api>/xml/coherency.xsd.
The URL is <MAS_SERVER_IP>/reports/coherency.
The following example shows a snippet of a Coherency report in XML format:

```xml
<coherencyReport>
  <header>
    <reportName>multi-source to root folder</reportName>
    <ruleName>b4-and-q1</ruleName>
    <totalSections>3</totalSections>
    <creationTime>1242876506809</creationTime>
  </header>
  <sections>
    <coherencyReportSection>
      <sectionNumber>0</sectionNumber>
  ```
<summary>
  <metadata>
    <column>Num of Files</column>
    <column>Total Duration in Seconds</column>
    <column>Total Duration in String</column>
  </metadata>
  <srcTotal>
    <rows>
      <coherencyReportRowSummary>
        <count>10</count>
        <durSec>480</durSec>
        <durStr>00:08:00</durStr>
      </coherencyReportRowSummary>
    </rows>
  </srcTotal>
  <destTotal>
    <rows>
      <coherencyReportRowSummary>
        <count>11</count>
        <durSec>473</durSec>
        <durStr>00:07:53</durStr>
      </coherencyReportRowSummary>
    </rows>
  </destTotal>
  <notInDest>
    <rows>
      <coherencyReportRowSummary>
        <count>2</count>
        <durSec>120</durSec>
        <durStr>00:02:00</durStr>
      </coherencyReportRowSummary>
    </rows>
  </notInDest>
</summary>
Filtering Coherency Reports

To filter Coherency Reports:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Coherency Report.
3. From the Toolbar, click the Filter icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - Save as Query: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - Clear: Click the icon to clear filter attributes.
5. To perform a search, click the Search Now icon.
The results are shown in the Content pane.
Deleting Coherency Reports

To delete Coherency Reports:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Coherency Report.
3. From the Content pane, click the report you want to delete.
4. From the Toolbar, click the Delete icon.
5. To delete the report even if objects are in use, select Force Delete.
6. Click OK.
7. Click Yes.

Searching Assets

You can manage assets from the Transfer app. For an overview and instructions on managing assets, refer to Managing Assets.

For instructions on transferring assets, refer to Transferring Assets.

To search assets:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand Search Assets.
3. Select an asset group to search.

The results are shown in the Content pane.

Searching file systems

You can manage file systems from the Transfer app. For an overview and instructions on managing file systems, refer to Using the Browse App.

For instructions on transferring files and folders, refer to Transferring Files and Folders.

To search file systems:
1. From the Home page, click Transfers.
2. From the Navigation panel, expand Search file systems.
3. Select a file system to search.

The results are shown in the Content pane.

Managing Transfer Hosts

The Transfer Hosts function lists all available transfer hosts. It also gives the current count of each host being used in a transfer. Follow these steps to view the status of transfer hosts, including the name, current activities, and transfer types, such as via Media API or FTP. For more information on hosts, see Managing Hosts.

Monitoring Transfer Hosts

To monitor Transfer Hosts:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Transfer Hosts.
3. From the Content pane, select a transfer host.
The host’s properties and other detailed information are shown in the Details pane.

**Clearing Transfer Hosts**

You can clear the transfer host count.

**To clear transfer hosts:**

1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **Transfer Hosts**.
3. From the Content pane, select the transfer host you want to clear.
4. From the Toolbar, click the **Clear** icon.
5. Click **OK**.

**Filtering Transfer Hosts**

**To filter Transfer Hosts:**

1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **Transfer Hosts**.
3. From the Toolbar, click the **Filter** icon.
4. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to Creating Search Queries for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
5. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

**Managing Scheduled Tasks**

You can manage scheduled tasks from the Transfers app.

For an overview and instructions on managing scheduled tasks, refer to Managing Scheduled Tasks.

**Viewing Scheduled Tasks**

**To view Scheduled Tasks:**

1. From the Home page, click **Transfers**.
2. From the Navigation panel, click **Scheduled Tasks**.

The results are shown in the Content pane.

**Managing Mirror Jobs, Transfer Jobs, and Move Jobs**

You can manage mirror jobs, transfer jobs, and move jobs from the Transfer app.

For an overview and instructions on managing jobs, refer to Managing Jobs.
Viewing Jobs

To view jobs:
1. From the Home page, click Transfers.
2. From the Navigation panel, click the job type you want to view, and expand that job type.
3. Expand Jobs By Status.
4. Select and job category to view.

The results are shown in the Content pane.

Managing Unresolved Issues

You can manage unresolved issues from the Transfers app.

For an overview and instructions on managing unresolved issues, refer to Managing Unresolved Issues.

Viewing Unresolved Issues

To view Unresolved Issues:
1. From the Home page, click Transfers.
2. From the Navigation panel, click Unresolved Issues.

The results are shown in the Content pane.

Configuring the Media Application Server for Transfers

You can configure the MAS Server for transfers using the Settings app. Refer to Configuring Services.

Using Managed Devices for Transfers

First, decide how the transfers will be processed:

- MediaGrid's ContentBridge: Active Transfer via remote Media API using the ContentBridge or passive transfer (FTP).
- Spectrum/MediaDeck: Active transfer via internal Media API using the Spectrum/MediaDeck or passive transfer (FTP).

Next, configure the managed device, as required.
Using ContentBridge/SystemManager for Transfers

This section provides an overview of the steps to configure a ContentBridge for transfers. Before performing the steps in this section, set up the ContentBridge you want to use in MAS. See Editing Content Bridges for information.

To use ContentBridge/SystemManager for Transfers:
1. Log on to SystemManager.
2. Click the Servers & Switches icon on the Configuration tab to access the Servers & Switches page.
3. In the Clusters section, click the Name hyperlink for the required cluster to access the Properties page.
4. Click View/Edit ContentBridge Config to access the Edit ContentBridge Config File page.
5. Add the ContentBridge to the cluster by editing the ContentBridge Config file.
6. Refer to “Editing the ContentBridge Configuration File” in the SystemManager User Guide for instructions.

CIFS mounts are enabled using the MEDIA_API option. Turning this option on provides the ability to transfer files using the CIFS protocol. Add the following line to the ContentBridge configuration file to enable this option:

```
MEDIA_API=YES
```
Other configurable options include the following:

- **CB lines**: MediaGrid Hosts entered in these lines enable this ContentBridge to transfer to or from the Grid using FTP.
- **CI lines**: MediaDeck/Spectrum hosts entered in these lines enable this ContentBridge to transfer to or from MediaDeck/Spectrum using RemoteAPI.
- **MG lines**: MediaGrid hosts entered in these lines enable this ContentBridge to transfer to or from MediaGrid using RemoteAPI.

In addition to MEDIA_API=yes option, the value set in MEDIA_API_VERSION= controls whether this ContentBridge can participate in Media API transfers (this version has to be less than or equal to the value selected in MAS server settings).

See the MediaGrid Installation and Configuration Guide for complete instructions on configuring the remote Media API to initiate transfers.

7. Click **Save File** when you are done editing the configuration file.
8. Reboot the ContentBridge after editing the configuration file for the changes to take effect.
9. Re-import SystemManager to confirm the changes.

**Configuring Spectrum/MediaDeck for Transfers**

Follow the instructions in Editing Hosts to configure Spectrum/MediaDeck for transfers.

**Configuring Spectrum/SystemManager for Transfers**

This section provides an overview of the steps required to use Spectrum to perform transfers via SystemManager. Before performing the steps in this section, set up the host you want to use for transfers in MAS. See Editing Hosts for information.

**To configure Spectrum/SystemManager for transfers:**

1. In SystemManager, navigate to your Spectrum or MediaDeck, and click the **Configuration** tab.
Using Managed Devices for Transfers

Chapter 31 Using the Transfer App

Using Managed Devices for Transfers

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Figure 31–12: Spectrum Configuration in SystemManager

2. In the SystemManager Navigation panel, click **Spectrum SystemDiagram**.
3. From the **Page** view in SystemManager, click the top hyperlink.
4. From the **Page** view in SystemManager, click the top hyperlink again.
5. From the **Page** view in SystemManager, from the **Host #** column(s) that will be used for transfers, click the **MediaGrid Accounts icon**.
6. In the **ContentDirector IP address** field in SystemManager, enter the IP address of the ContentDirector.
7. Repeat until all the hosts for transfers are configured, and refresh MAS to reflect the changes.

Configuring MediaDirectors/Spectrum to Access Media

To access media stored on MediaDirectors from the UI, the MediaDirector user credentials must be set in the SystemManager and then imported into MAS. By default, the MediaDirector user name is “user” and the password is “user” for a local user database. If you use LDAP, the password may have been modified by the system administrator. If the password has been modified, you need to import the new credentials into the Media Application Server.

Follow the instructions in this section to change the MediaDirector credentials and import them into the Media Application Server.

**NOTE:** Spectrum does not support anonymous FTP. Spectrum systems using MediaDirectors 2100, 2101, or 2102 do not have any credential systems.

To configuring MediaDirectors/Spectrum to access media:

1. Log on to SystemManager.
2. Configure the access control settings for MediaDirector.
The Spectrum Access Control Settings feature in SystemManager lets you configure authentication settings for your MediaDirector(s) 2202/2201, which can then be used to connect to a Lightweight Directory Access Protocol (LDAP) server or a SAMBA domain. Refer to the section, “Configuring Access Control Settings for MediaDirectors 2202/2201,” in the SystemManager User Guide for information.

3. Import the updated credential into the Media Application Server. See Managing General Storage Servers for information.

Transferring Files and Folders

From the UI, you can transfer files, standard folders, virtual folders, assets, or clips to copy or move content from one folder to another using the following methods:

- Navigation panel > Content pane > Toolbar
- Navigation panel or Content pane and right-click file or folder
- Navigation panel and drag-and-drop

The following example shows a transfer from MediaDeck’s /ingest directory to MediaGrid’s /source directory.

![Figure 31–13: Transferring Files and Folders](image)

**TIP:** When transferring reference files, all associated files will be transferred and the directory structure will be created if it does not exist. For example: If you select a reference file in the clip.dir directory to be transferred, the essence (associated) files located in /media.dir subfolder will also be copied over to the destination location. If the /media.dir subfolder does not exist at the destination location, it will also be created as well.

**NOTE:** The Transfer Service cannot transfer wrapper files if its corresponding essence files are not found in the database.

Selecting Files for Transfers

**From Windows**

- Selecting a group of files:
  
  Hold down the **SHIFT** key and click the **first file** followed by the **last file**. (All files between and including the first and last file should now be highlighted.)

- Selecting random files from a group:
Hold down the **CTRL** key and click the desired files. (All the files selected should be highlighted for a group of files.)

**From Mac OS**

- Selecting a group of files:
  
  Hold down the **SHIFT** key and click the **first file** followed by the **last file**. (All files between and including the first and last file should now be highlighted.)

- Selecting random files from a group:
  
  Hold down the **Z** key and click the desired files. (All the files selected should be highlighted for a group of files.)

**Transferring Using the Toolbar**

**To use the toolbar:**

1. From the Home page, click **Transfer**.
2. In the Navigation Panel, do one of the following:
   - Expand **Search file systems**, and expand the file system that contains the folder/file you want to transfer.
   - Expand **Search Assets > Assets By Virtual Folder**, and expand the folder.
3. In the Content pane, select the file or folder you want to transfer.
4. From the Toolbar, click the **Transfer** icon.
5. Complete the dialog box as follows:
   - Select the **Destination Folder** from the left pane of the dialog box.
   - Select the transfer **Mode**:
     - **Auto**: An active transfer is first attempted, and if no route is available, the mode becomes passive.
     - **Active**: The file is transferred as scheduled, and is available for review or editing during transfer. One of the following modes can be taken when Active mode is set:
       - Internal Media API
       - Remote Media API
       - Tail mode FTP only for low-latency clips
     - **Passive**: The file is transferred as scheduled, though unavailable for review or editing until the transfer has finished. One of the following modes can be taken when Passive mode is set:
       - FTP between two hosts
       - FTP using FSD on the same host where the remote host is mounted
     - **WAN**: the content is transferred through an Aspera storage server as scheduled, though unavailable for review or editing until the transfer has finished.
   - Select the **Action**:
     - **Copy** to create a copy of the folder on the destination server.
     - **Move** to move the folder from the source to the destination server.
   - **Priority**: Set the Priority from 1 (**lowest**) to 9 (**highest**). The default transfer priority is 4. Set the most time-critical tasks to a higher priority, as these are transferred by the system first.
   - **If File Exists**: Select the action to take if a file exists on the destination folder:
Chapter 31 Using the Transfer App

Transferring Files and Folders

- **Notify:** If the file exists, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to *Managing Unresolved Issues* for more information.
- **Overwrite:** Replace the folder on the destination server with the folder to be transferred.
- **If Transfer Fails:** Select the action to take if the transfer fails:
  - **Notify:** If the transfer fails, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to *Managing Unresolved Issues* for more information.
  - **Retry:** Attempt the transfer again.
- **Clip Format:** Select Same as Source, QT EMBEDDED, QT REFERENCE, MXF OP1A, MXF OP1B, AS02 2009, and AS02 2011.

**NOTE:** The selection of a clip format that is different from the source clip is only supported for active transfers using the Media API.

- **Wait Time:** The amount of time between which the transfer is retried.
- **Use Notification Preset:** Click to select a notification preset that is already set up.
- **Job State:** Select the appropriate state for which notification needs to be received.
- **Resource Pool:** Select a resource pool, if applicable.
- **Use on Demand:** Click to specify that this transfer job takes higher precedence over existing jobs in the queue. This job will not be put in the queue and will come before existing jobs in the queue, if any.
- **File Ignore Pattern:** Enter a File Ignore pattern, if applicable.
- **Set MetaData:** Select the check box to update metadata.
- **Schedule:** Choose one of the following:
  - Select **Now** to transfer the clip immediately.
  - Select **Later** and then enter a transfer date and time.
  - To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:
    - **Trigger On:** JobStateChange is the default.
    - **Job States:** Select which job states will trigger a Metadata event its state is changed.
    - **MetaData Field:** A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to *Metadata Fields* for more information.
    - **Skip On Non Default Value:** If enabled, metadata will not be set if the current value is not the default value set when the object was created.
    - **Value:** The choices for this value are dependent on the **MetaData Field** setting.

6. Click **OK**.

The folder is transferred according to the selected mode/schedule.

### Transferring Using Right-Click

**To use right-click:**
1. From the Home page, click **Transfer**.
2. In the Navigation Panel, do one of the following:
Expand **Search file systems**, and expand the file system that contains the folder/file you want to transfer.

Expand **Search Assets > Assets By Virtual Folder**, and expand the folder.

3. In the Content pane, select the file or folder you want to transfer, and right-click the mouse.

4. From the drop-down list, select **Transfer**.

5. In the **Confirmation** dialog box, configure the transfer settings you want. See **Transferring Using the Toolbar** for more settings descriptions.

6. Click **OK**.

The folder is transferred according to the selected mode/schedule.

**Transferring Using Drag-and-Drop**

To use drag-and-drop:

1. From the Home page, click **Transfer**.

2. In the Navigation Panel, do one of the following:
   - Expand **Search file systems**, and expand the file system that contains the folder/file you want to transfer.
   - Expand **Search Assets > Assets By Virtual Folder**, and expand the folder.

3. Navigate to both the **Source** folder and **Destination** folder so that both folders are displayed in the Navigation panel.

4. Drag the **Source** folder/file to the **Destination** folder. Alternatively, drag from the Content pane and drop in the Navigation panel.

5. Click **OK**.

6. In the **Confirmation** dialog box, configure the transfer settings you want. See **Transferring Using the Toolbar** for more settings descriptions.

7. Click **OK**.

The folder is transferred according to the selected mode/schedule.

**Transferring Assets**

To transfer assets:

1. From the Home page, click **Assets**.

2. In the Navigation panel, expand **All Assets**.

3. In the Content pane, select one or more assets by doing the following:

   **To select assets using Windows or Linux:**
   - To select random assets, press and hold down the CTRL key and then click the individual clip(s) to transfer.
   - To select a group of assets, press and hold down the SHIFT key, click the first clip and then click the last clip.

   **To select assets using Mac OS X:**
   - To select random assets, press and hold down the Command (z) key and then click each clip you want to delete, or
   - To select a group of assets, press and hold down the SHIFT key, click the first clip and then click the last clip.

4. From the Toolbar, click the **Transfer** icon.
5. Complete the **Confirmation** dialog box as follows:

- **Select the Destination Folder** from the left pane of the dialog box.
- **Select the transfer Mode:**
  - **Auto:** An active transfer is first attempted, and if no route is available, the mode becomes passive.
  - **Active:** The folder is transferred as scheduled, and is available for review or editing during transfer. One of the following modes can be taken when Active mode is set:
    - Internal Media API
    - Remote Media API
    - Tail mode FTP only for low-latency clips
  - **Passive:** The folder is transferred as scheduled, though unavailable for review or editing until the transfer has finished. One of the following modes can be taken when Passive mode is set:
    - FTP between two hosts
    - FTP using FSD on the same host where the remote host is mounted
    - **WAN:** the content is transferred through an Aspera storage server as scheduled, though unavailable for review or editing until the transfer has finished.
- **Select the Action:**
  - **Copy** to create a copy of the folder on the destination server.
  - **Move** to move the folder from the source to the destination server.
- **Priority:** Set the Priority from 1 (lowest) to 9 (highest). The default transfer priority is 4. Set the most time-critical tasks to a higher priority, as these are transferred by the system first.
- **If File Exists:** Select the action to take if a file exists on the destination folder:
  - **Notify:** If the file exists, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to [Managing Unresolved Issues](#) for more information.
  - **Overwrite:** Replace the folder on the destination server with the folder to be transferred.
- **If Transfer Fails:** Select the action to take if the transfer fails:
  - **Notify:** If the transfer fails, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to [Managing Unresolved Issues](#) for more information.
  - **Retry:** Attempt the transfer again.
- **Clip Format:** Select Same as Source, QT EMBEDDED, QT REFERENCE, MXF OP1A, MXF OP1B, AS02 2009, and AS02 2011.

**NOTE:** The selection of a clip format that is different from the source clip is only supported for active transfers using the Media API.

- **Wait Time:** The amount of time between which the transfer is retried.
- **Use Notification Preset:** Click to select a notification preset that is already set up.
- **Job State:** Select the appropriate state for which notification needs to be received.
- **Resource Pool:** Select a resource pool, if applicable.
Use on Demand: Click to specify that this transfer job takes higher precedence over existing jobs in the queue. This job will not be put in the queue and will come before existing jobs in the queue, if any.

File Ignore Pattern: Enter a File Ignore pattern, if applicable.

Set MetaData: Select the check box to update metadata.

Schedule: Choose one of the following:
- Select Now to transfer the clip immediately.
- Select Later and then enter a transfer date and time.

To add or modify a Metadata Event, click Add or Modify, and configure the following settings:
- Trigger On: JobStateChange is the default.
- Job States: Select which job states will trigger a Metadata event its state is changed.
- MetaData Field: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to Metadata Fields for more information.
- Skip On Non Default Value: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
- Value: The choices for this value are dependent on the MetaData Field setting.

6. Click OK.

The asset is transferred according to the selected mode/schedule.

Transferring AS-02 Assets

MAS supports the transfer of AS-02 2009 and AS-02 2011 transfer files to Spectrum servers. If you transfer AS-02 2011 files to a Spectrum system using a MediaDirector 2100, 2101, or 2102 that does not support AS-02 2011 files, MAS will only transfer the following objects:
- MFX wrapper
- Media directory contents with essences (this is a shared directory)

MAS will not transfer the “bundle” associated with an AS-02 2011 asset to a system that does not support it. If your facility uses Spectrum 2202/2201 or newer systems, MAS can transfer all files in the AS-02 bundle. See AS-02 MXF Versioning for more information.

Ignoring the AS-02 Extra Folder

You can write a File Ignore Pattern that will transfer all contents of the AS-02 2011 bundle except the Extra folder.

To create a File Ignore Pattern to exclude the Extra folder:
1. Set up an asset transfer. Refer to Transferring Assets for instructions.
2. In the Confirmation dialog box, in the File Ignore Pattern field, type .*/extra.*
3. Complete the rest the dialog box and click OK.

IMPORTANT: The use of the File Ignore Pattern in this way is applicable only for passive transfers.
Transferring Clips

To transfer clips:

1. From the Home page, click **Assets**.
2. In the Navigation panel, expand **All Assets**.
3. In the Content pane, click the asset that contains the clip(s) you want to transfer.
4. In the Details pane, click the clips you want to transfer.
   - To select clips using **Windows** or **Linux**:
     - To select random clips, press and hold down the CTRL key and then click the individual clip(s) to transfer.
     - To select a group of clips, press and hold down the SHIFT key, click the first clip and then click the last clip.
   - To select clips using **Mac OS X**:
     - To select random clips, press and hold down the Command (⌘) key and then click the individual clip(s) to transfer.
     - To select a group of clips, press and hold down the SHIFT key, click the first clip and then click the last clip.
5. From the Toolbar, click the **Transfer** icon.
6. Complete the **Confirmation** dialog box as follows:
   - Select the **Destination Folder** from the left pane of the dialog box.
   - Select the transfer **Mode**:
     - **Auto**: An active transfer is first attempted, and if no route is available, the mode becomes passive.
     - **Active**: The clip is transferred as scheduled, and is available for review or editing during transfer. One of the following modes can be taken when Active mode is set:
       - Internal Media API
       - Remote Media API
       - Tail mode FTP only for low-latency clips
     - **Passive**: The clip is transferred as scheduled, though unavailable for review or editing until the transfer has finished. One of the following modes can be taken when Passive mode is set:
       - FTP between two hosts
       - FTP using FSD on the same host where the remote host is mounted
     - **WAN**: The content is transferred through an Aspera storage server as scheduled, though unavailable for review or editing until the transfer has finished.
   - Select the **Action**:
     - **Copy** to create a copy of the folder on the destination server.
     - **Move** to move the folder from the source to the destination server.
   - **Priority**: Set the Priority from 1 (**lowest**) to 9 (**highest**). The default transfer priority is 4. Set the most time-critical tasks to a higher priority, as these are transferred by the system first.
   - **If File Exists**: Select the action to take if a file exists on the destination folder:
     - **Notify**: If the file exists, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to **Managing Unresolved Issues** for more information.
Chapter 31 Using the Transfer App

Transferring Clips

- **Overwrite**: Replace the folder on the destination server with the folder to be transferred.

- **If Transfer Fails**: Select the action to take if the transfer fails:
  - **Notify**: If the transfer fails, an “unresolved issue” is posted to the Unresolved Issues app for resolution by the administrator. Refer to *[Managing Unresolved Issues]* for more information.
  - **Retry**: Attempt the transfer again.

- **Clip Format**: Select Same as Source, QT EMBEDDED, QT REFERENCE, MXF OP1A, MXF OP1B, AS02 2009, and AS02 2011.

**NOTE**: The selection of a clip format that is different from the source clip is only supported for active transfers using the Media API.

- **Wait Time**: The amount of time between which the transfer is retried.
- **Use Notification Preset**: Click to select a notification preset that is already set up.
- **Job State**: Select the appropriate state for which notification needs to be received.
- **Resource Pool**: Select a resource pool, if applicable.
- **Use on Demand**: Click to specify that this transfer job takes higher precedence over existing jobs in the queue. This job will not be put in the queue and will come before existing jobs in the queue, if any.
- **File Ignore Pattern**: Enter a File Ignore pattern, if applicable.
- **Set MetaData**: Select the check box to update metadata.
- **Schedule**: Choose one of the following:
  - Select **Now** to transfer the clip immediately.
  - Select **Later** and then enter a transfer date and time.

To add or modify a **Metadata Event**, click **Add** or **Modify**, and configure the following settings:

- **Trigger On**: JobStateChange is the default.
- **Job States**: Select which job states will trigger a Metadata event its state is changed.
- **MetaData Field**: A string that uniquely identifies the name of the Metadata field. This is automatically populated from available Metadata fields. Refer to *[Metadata Fields]* for more information.
- **Skip On Non Default Value**: If enabled, metadata will not be set if the current value is not the default value set when the object was created.
- **Value**: The choices for this value are dependent on the **MetaData Field** setting.

7. Click **OK**.

The clip is transferred according to the selected mode/schedule.
Chapter 32
Using the Unresolved Issues App

This section provides instructions for using the Unresolved Issues app to manage unresolved issues in MAS. Choose from the following topics:

- About Unresolved Issues
- Managing Unresolved Issues

About Unresolved Issues

Unresolved issues are created when clips are found to be unsafe during discovery. Clips are categorized as unsafe when:

- The file is either .mov or .mxf and the file size is 0.
- The file size is greater than 0 but it is missing one of the essence files in the physical file system.

Unresolved issues are generated when:

- Transfers fail.
- A conflict occurs in a Mirror rule that must be resolved by a user.
- A conflict occurs in a Transcode rule that must be resolved by a user.

Managing Unresolved Issues

You can view, resolve, and filter Unresolved Issues.

Viewing Unresolved Issues

Viewing Options

You can view unresolved issues By Category or By Type.

Table 32-1: Unresolved Issue Options

<table>
<thead>
<tr>
<th>Tree</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues By Category</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Transfer</td>
</tr>
<tr>
<td></td>
<td>• Mirror</td>
</tr>
<tr>
<td></td>
<td>• File Discovery</td>
</tr>
<tr>
<td></td>
<td>• Transcode</td>
</tr>
</tbody>
</table>
To view unresolved issues:
1. From the Home page, click **Unresolved Issues**.
2. From the Navigation pane, click **Issues By Category** or **Issues By Type**.
3. From the Content pane, click the issue you want to view.

The results are shown in the Content pane.

### Resolving Issues

**To resolve issues:**
1. From the Home page, click **Unresolved Issues**.
2. From the Navigation pane, click **Issues By Category** or **Issue By Type**.
3. From the Content pane, click the issue you want to resolve.
4. From the Toolbar, click the **Resolve** icon.
   - There are several categories and types unresolved issues. The resolution options that appear in the dialog box depend on what type of issue you are resolving.
5. Click **OK**.

### Filtering Unresolved Issues

**To filter unresolved issues:**
1. From the Home page, click **Unresolved Issues**.
2. From the Toolbar, click the **Filter** icon.
3. Configure filtering by checking the applicable option(s) and selecting operators to modify the filter results.
   - **Save as Query**: Click this icon to save the filter criteria as a query, useful for frequently used queries. Saved queries are stored in the Search app. Refer to [Creating Search Queries](#) for instructions on completing the screens.
   - **Clear**: Click the icon to clear filter attributes.
4. To perform a search, click the **Search Now** icon.

The results are shown in the Content pane.

### Purging Unresolved Issues

Purging unresolved issues removes them permanently from the MAS database.

<table>
<thead>
<tr>
<th>Tree</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issues by Type</strong></td>
<td><img src="image1" alt="OneWayCreateOrModify" /></td>
</tr>
<tr>
<td><img src="image2" alt="OneWayDelete" /></td>
<td><img src="image3" alt="Rename" /></td>
</tr>
<tr>
<td><img src="image4" alt="TwoWayCreateOrModify" /></td>
<td><img src="image5" alt="TwoWayDelete" /></td>
</tr>
<tr>
<td><img src="image6" alt="TwoWayPollClipOnlyOneOnefolder" /></td>
<td><img src="image7" alt="FileExits" /></td>
</tr>
<tr>
<td><img src="image8" alt="TransferFailure" /></td>
<td><img src="image9" alt="FileDiscoveryFailure" /></td>
</tr>
<tr>
<td><img src="image10" alt="TranscodeFileExist" /></td>
<td><img src="image7" alt="FileExits" /></td>
</tr>
</tbody>
</table>
To purge unresolved issues:
1. From the Home page, click Unresolved Issues.
2. From the Navigation panel, click Issues By Category or Issue By Type.
3. From the Toolbar, click the Purge icon.
4. Click OK.
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 provided continuous problem resolution and escalation of issues around the clock.

Table A–1: For Distribution and Delivery (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 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>Asia Pacific – Other Territories</td>
<td>852.3713.9300</td>
<td><a href="mailto:hongkongtechsupport@harmonicinc.com">hongkongtechsupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>India</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:support.emea@harmonicinc.com">support.emea@harmonicinc.com</a></td>
</tr>
<tr>
<td>Russia</td>
<td>+7.495.926.4608</td>
<td><a href="mailto:rusupport@harmonicinc.com">rusupport@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>+86.10.8391.3313</td>
<td><a href="mailto:chinatechsupport@harmonicinc.com">chinatechsupport@harmonicinc.com</a></td>
</tr>
</tbody>
</table>

Table A–2: For Production and Playout (Legacy Omneon and 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 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>Asia Pacific – Other Territories</td>
<td>65.6542.0050</td>
<td><a href="mailto:apacsupport@harmonicinc.com">apacsupport@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>China - Mainland</td>
<td>+86.10.8391.3313</td>
<td><a href="mailto:chinasupport@harmonicinc.com">chinasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Russia and CIS</td>
<td>+7.495.926.4608</td>
<td><a href="mailto:rusupport@harmonicinc.com">rusupport@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